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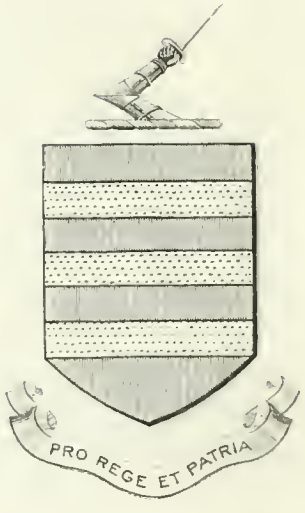

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MEDICAL RECORD

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THOMAS L. STEDMAN, A.M., M.D.

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Original Articles.

THE TUBERCULO-OPSONIC INDEX IN ITS RELATION TO THE TEMPERATURE CURVE IN ACTIVE TUBERCULOSIS AND ITS VALUE IN DIAGNOSIS IN SUSPECTED OR ARRESTED CASES.

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The following observations and experiments on the relation of the body temperature to the opsonic index and the diagnostic value of the opsonic index in cases of (*a*) suspected or completely arrested tuberculosis, and (*b*) mixed infection in advanced progressive tuberculosis were made at the Loomis Sanatorium during the autumn and winter of 1908-09. They are selected from a large number of similar observations and experiments as being most typically illustrative.

They were suggested, very largely, by experiments of A. C. Inman made at Brompton Hospital Sanatorium (Frimley) during the winter of 1907-08,[1] and by the work of Latham and Inman on a nearly related subject during the following summer.[2] The ordinary technique and usual methods of securing the blood, washing the leucocytes, preparing the slides, staining, etc., were employed. At least 100 phagocytes were counted in every instance. Inman's suggestion of having an assistant mark each specimen in cypher, to avoid possible bias, was followed and the mean of two "normals" was used as unity in each case. Moreover, all of the laboratory work including the counting was done by one laboratory assistant (Mr. George Sheridan) who has been throughout unprejudiced as to results. Thus while no argument is made for the precise accuracy of opsonic index determinations, these results may be taken as correspondingly significant.

The relation of body temperature to the opsonic index.—One of the most characteristic phenomena of active tuberculosis is the succession of temperature elevations alternating with temperature depressions. While it has long been recognized that this phenomenon indicates a succession of spontaneous autoinoculations which, if not controlled, lead to irreparable mischief, the credit is due to Sir A. E. Wright and his colleagues for having been the first to demonstrate this fact and the rationale of the treatment by rest as the most effective method of combating this condition. It was fair to suppose that if the rise in temperature and the attendant constitutional depression manifest once or twice daily in acute tuberculosis were dependent upon spontaneous autoinoculations from the focus of disease that there would appear corresponding changes in the opsonic index—that is to say, that alternating negative and positive phases corresponding inversely to the temperature rise and fall would be demonstrable, and that the temperature curve and the index curve plotted upon the same chart would produce the so-called "diamond curve" of Inman. Such has indeed been shown to be the case. Not only in spontaneous autoinoculations but also in artificially produced auto-inoculations. The interesting charts presented at the recent International Congress on Tuberculosis in Washington by Doctor Latham and Doctor Inman were most convincing in this particular, especially in view of the severe conditions under which the experiments were conducted. As before stated, every effort was made to maintain the same rigid conditions in carrying out the following experiments, which were made as a preliminary to those that follow, and with the object of confirming or discrediting as the case might be, the views of Inman and Latham.

For the past two years it has been found that in our laboratory the normal variations in the opsonic index seldom exceed 1.15 above and 0.85 below unity. Nevertheless, because a somewhat greater variation is sometimes recorded in normal sera, it was thought safer to adopt the limits of normal as prescribed by Bullock and to count only such indices as exceeded 1.2 above and 0.8 below unity as abnormal, and this plan has been followed throughout. All temperatures are rectal. They were taken and recorded by the nurse in charge of the patient. At the same time that the temperatures were taken specimens of the blood were obtained. The slides were prepared and stained on the same day and were labeled in cypher by another assistant. In no instance did the laboratory assistant know the blood he was counting, nor was he aware of the temperatures of the patients. Subsequently the index was plotted by reference to the cypher and then the temperature curve superimposed.

Case I is that of a woman with an advanced active lesion involving three lobes with considerable cavity. Blood and temperature were taken at intervals of two hours from noon of one day to noon of the day following. Examination of the chart (Figure 1) shows a fairly typical "diamond curve"—*i. e.* approximately the index is low when the temperature is high and vice versa. Once during the twenty-four hours the index was recorded above and three times below the extreme normal limits, while from four o'clock in the afternoon until six in the morning it was for the most part well within these limits. It will thus be seen that had opsonic index determinations been made only between these hours instead of extending the observation over the whole period an erroneous impression of the actual reaction going on would have been gained in this instance.

Case II is that of the same patient two months later. In this instance the procedure differs from that in Case I in that the observations extend over portions of three days—viz., from noon to 11:00 P.M. the first day, from 2:00 to 7:00 P.M. the following day, and from 10:00 A.M. to 7:00 P.M

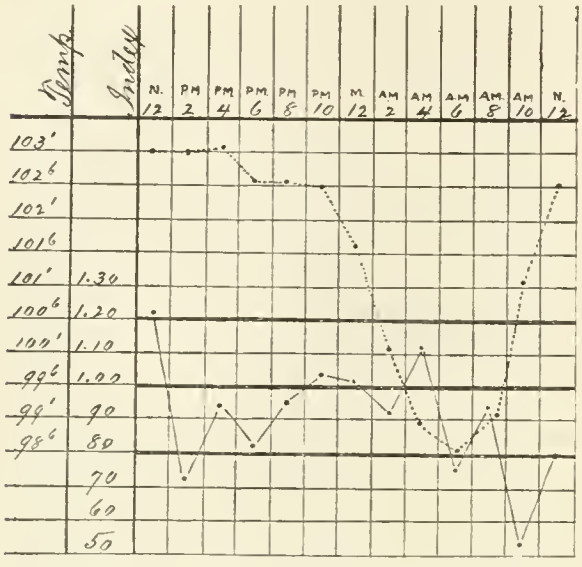

Fig. 1.—Relation of the tuberculo-opsonic index (continuous line) to body temperature (dotted line), producing the "diamond curve."

on the third day. It will also be noticed that the intervals vary between successive observations on a single day from two to six hours. Otherwise, the conditions were the same. From the chart (Figure 2) it will be remarked that in this instance the "diamond curve" is almost perfectly produced. In fact, it is by far the most typical in our collection of these studies. Such a chart scarcely leaves room

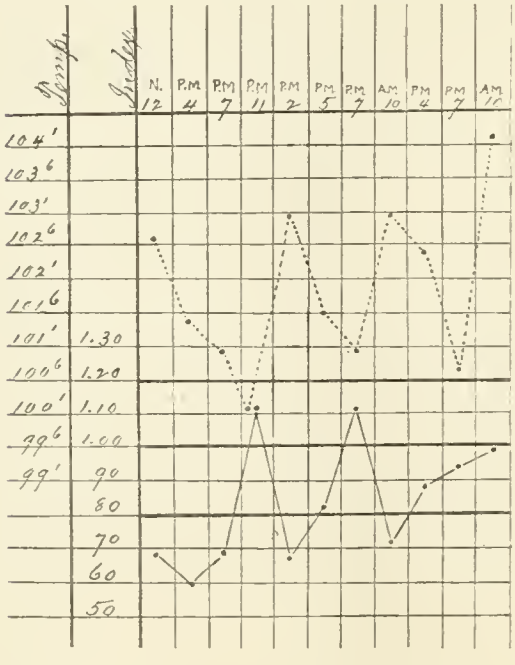

Fig. 2.—Same case as Fig. 1, also showing "diamond curve."

for doubt as to the nature of the spontaneous autoinoculations occurring in this case.

Case III is that of a woman with an involvement of four lobes and cavity, the present acute phase following a considerable period of quiescence. Blood and temperature were in this case taken at intervals of two hours from noon of one day to that of the next. The "diamond curve" is here less typical. At no time during the twenty-four hours did the index register above normal limits, yet a study of the chart (Figure 3) will show in a general way the inverse relationship between the tem-

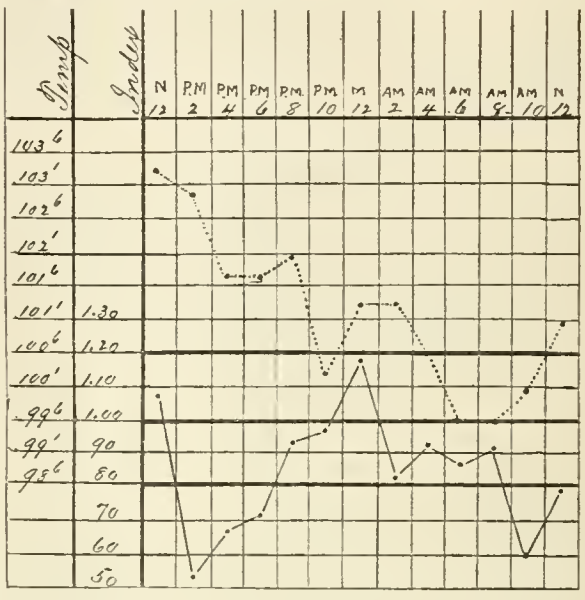

Fig. 3.—Relation of the tuberculo-opsonic index (continuous line) to body temperature (dotted line), producing less typical "diamond curve."

perature and the opsonic index. The two rather extremely low indices in this chart are noteworthy falling as they do at appropriate phases of the temperature curve.

Case IV is that of a woman with an involvement of five lobes, but without cavity. Four observations were taken on the first day in this case at intervals of three hours and three on the day

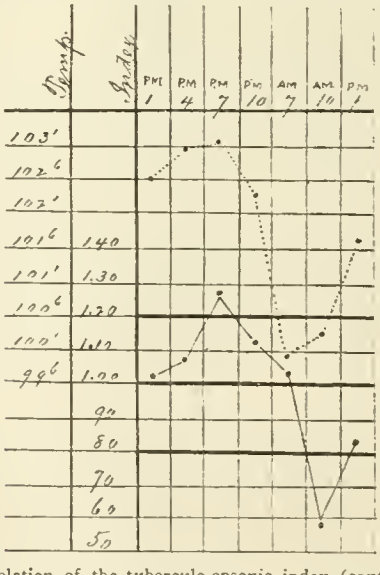

Fig. 4.—Relation of the tuberculo-opsonic index (continuous line) to body temperature (dotted line), showing "delayed" specific autoinoculation.

following at the same intervals. This chart (Figure 4) is given because of the atypical character of the "diamond." It seems to show, nevertheless, a definite corelationship between the temperature and index curves, and the stimulus to which these phenomena are the response. Either the temperature or the index, it is impossible to say which,

is, to be sure, delayed but that they are both dependent chiefly upon one specific autoinoculation is evident.

Case V is that of a woman with involvement of four lobes and cavity, and symptoms pointing to more or less extensive gastrointestinal complica-

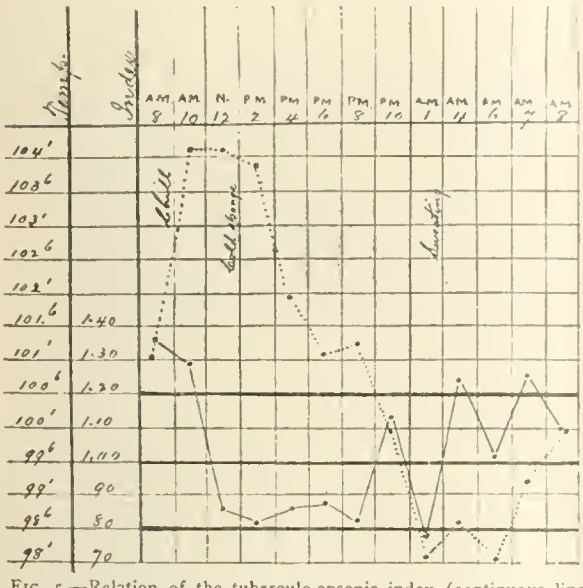

Fig. 5.—Relation of the tuberculo-opsonic index (continuous line) to body temperature (dotted line); (gastrointestinal and septic (?) complications).

tions. This chart (Figure 5) is interesting as showing a marked disproportion between the temperature and the opsonic index, and of itself would lead one to doubt whether the chill, sweat and excessively high temperature might not have been caused by other than tuberculosis, although it cannot be doubted that tuberculo-autoinoculations were at the same time occurring. Incidentally it may be remarked that other clinical symptoms in this case pointed to a complicating pyogenic infection and it is to be regretted that a further study of other than the tuberculo-opsonic index was not made.

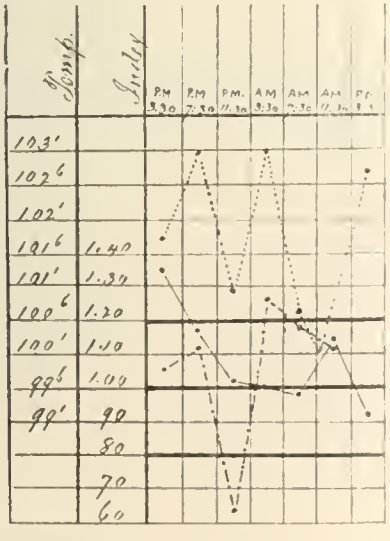

Fig. 6.—Showing staphylococcic (broken line) and tuberculo-opsonic (continuous line) indices in relation to temperature curve (dotted line).

Case VI.—This case is especially interesting in this connection. It is that of a man with involvement of three lobes and cavity, with the very unusual complication of spontaneous thrombosis of the median basilic, ulnar, and popiteal veins. Observations were taken at intervals of four hours from 3:30 on one afternoon to 3:30 on the following afternoon, not only of the temperature and tuberculo-opsonic index but of the staphylococcic index as well, the latter by means of an emulsion of a predominant staphylococcus grown from the

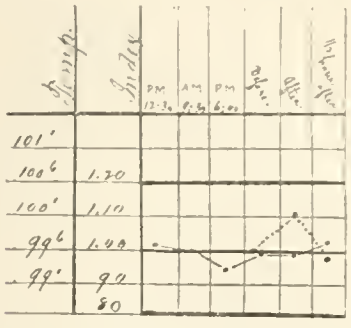

Fig. 7.—Relation of oxidation temperature, following violent exercise (dotted line), to opsonic index in normal (continuous line).

patient's sputum. A study of this chart (Figure 6) will fail to show the usual and, I may say, typical relation of temperature and index either staphylococcic or tuberculous. Of these latter both fall without the normal range and in so far demonstrate the occurrence of autoinoculations from foci of infections by two quite distinct organisms. Such a case is, of course, hardly a fair test of the point at issue. It is, however, suggestive of a reason why an atypical relationship between temperature and index is sometimes found in the acute phases of these advanced and complicated cases other than may be due to exhaustion of the mechanism concerned with the production of specific immunity.

From these and other similar observations it is evident that a more or less typical relationship exists between the temperature and the tuberculo-opsonic index in acute cases of tuberculosis—a relationship which is demonstrable in proportion as the case is one of comparatively pure infection, and becoming less typical as mixed infection predominates. It would seem therefore that a study of the opsonic index in such cases might within its acknowledged limitations be of assistance no less in treatment than in diagnosis.

A study of the foregoing charts will moreover demonstrate the wide range of variation to which the opsonic index is subject at short intervals in cases of active tuberculosis. It is obvious, therefore,

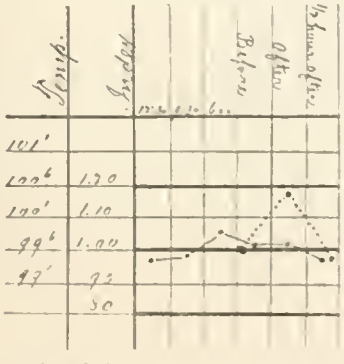

Fig. 8.—Relation of oxidation temperature, following violent exercise (dotted line), to opsonic index in normal (continuous line).

that single observations in such cases may be quite misleading or fail altogether to give valuable information.

The diagnostic value of the tuberculo-opsonic index in cases of suspected or completely arrested

tuberculosis.—It has been, I believe, very generally observed, in this country at least, that in the absence of constitutional symptoms (autoinoculations?) there is no characteristic variation from normal in the tuberculo-opsonic index. A persistently subnormal index is, to be sure, occasionally

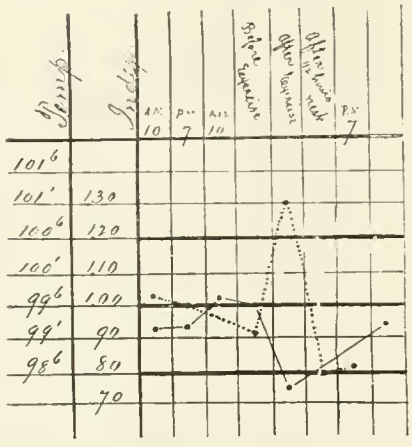

Fig. 9.—Relation of tuberculo-opsonic index (continuous line) to temperature (dotted line), before and after exercise, for diagnosis.

met with in distinctly localized tuberculous lesions of the skin and lymph nodes, but in quiescent pulmonary lesions, whether incipient or otherwise, there is little to be learned from index observations when made in the ordinary way. It has been shown on the other hand, that in the infected organism the specific opsonins are less thermolabile than is the case with a normal serum, and I believe it has been suggested that advantage might be taken of this fact in diagnosis.

It also appears[3] that a more or less marked variation in the index, notably a "negative phase" following upon the subcutaneous administration of tuberculin, may be taken as an indication of the presence of infection.

Neither of these methods, however, seems to have

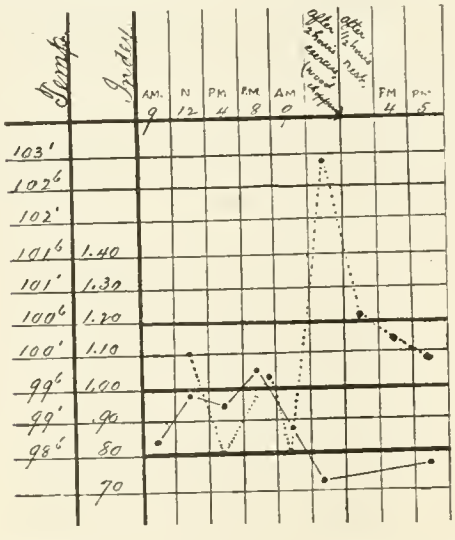

Fig. 10.—Relation of opsonic index (continuous line) to temperature (dotted line), before and after periods of exercise, for diagnosis.

found much favor, and I am not aware that they have been persistently followed or generally adopted.

If in the case of spontaneous autoinoculation from a tuberculous lesion a marked variation in the tuberculo-opsonic index occurs it would be reasonable to expect such a variation to follow upon an artificially produced autoinoculation, and such variation has been shown to occur by Inman working at Brompton Hospital Sanatorium, Frimley.[4] Inman's observations were interesting and up to the time that they were made unique. He demon-

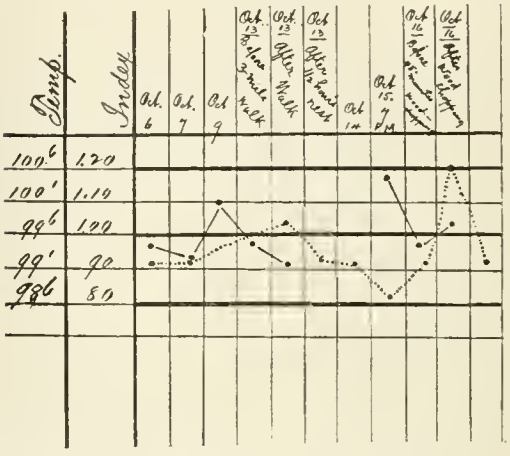

Fig. 11.—Relation of opsonic index (continuous line) to temperature (dotted line), before and after periods of exercise, for diagnosis.

strated very clearly that so long as the case (pulmonary tuberculosis) is not thoroughly arrested, autoinoculations may be artificially produced (in his cases by graduated labor or exercise), which are characterized not only by temperature changes and associated symptoms, but by variations in the index as well. As the disease becomes arrested these phenomena become less marked until in favorable cases they disappear altogether. This, it seems to me, is a point of extreme importance. Means have been long sought by which we might distinguish between a thoroughly arrested (and consequently for the time being at least harmless) tuberculous focus; one which clinically does not require treatment, and a lesion which so far as one

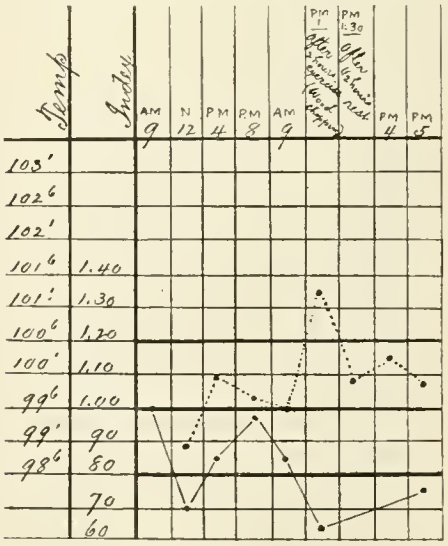

Fig. 12.—Relation of opsonic index (continuous line) to temperature (dotted line), before and after periods of exercise, for diagnosis.

may judge from other available diagnostic methods is apparently identical, but which is in reality only latent and liable to become active on the slightest unusual exertion on the part of the patient.

It would seem that applied with this point in view and in some such manner as that which was

employed in the following experiments, the opsonic index has a most decided value in the diagnosis of incipient tuberculosis, and as an indication for advice and treatment in long standing quiescent cases of the disease.

In the artificial production of autoinoculations caution in two directions is obviously necessary—First, the exercise employed must be sufficient to produce the desired result; and, second, it must not be suddenly carried to a point which in the presence of a "smouldering" lesion might endanger the patient. In other words, the same judgment must be exercised which would dictate a diagnostic dose of tuberculin.

For the first it is well to employ a form of exercise to which the patient is unaccustomed. For instance, if the patient is accustomed to walking from five to ten miles daily without temperature or other symptoms it is unlikely that a demonstrable reaction will follow any "dose" of such exercise within these limits, while it might easily be accomplished by fifteen minutes of such exercise as chopping wood. In fact it is very likely to follow a little vigorous exercise of groups of muscles not ordinarily much used.

For the second it is well to graduate the amount of exercise, both as to time and severity and to apply it in increasing "doses" at intervals until satisfied as to the result. In any healthy individual a more or less marked temperature rise will follow unaccustomed vigorous muscular exercise. This temperature, which for convenience may be termed "oxidation temperature," will quickly subside to or below normal, seldom requiring more than twenty or thirty minutes' rest. When tuberculosis is present, however, and an autoinoculation has been produced by the exercise the subsequent fall is apt to be much slower and if the reaction is at all severe the temperature may remain high for an hour or more and unless absolute rest is insisted upon it may assume a remittent type extending over several days. For the sake of brevity only a few examples of this class of observations are given as these sufficiently illustrate the method pursued.

Cases VII and VIII are those of two normals. These charts (Figures 7 and 8) show a characteristic "oxidation temperature" without variations in the opsonic index following exercise. In both instances here the exercise consisted in a rapid cross-country walk of three miles followed by hard work with a cross-cut saw for forty-five minutes.

Case IX (Figure 9) is that of a supposedly quiescent lesion of one lobe (slight infiltration—bacilli present). Walking three hours (five or six miles) daily produced no demonstrable reaction. As in Cases VII and VIII four index determinations were made prior to the test, which in this case consisted of twenty-five minutes' work with a small axe. "Oxidation temperature" followed and subsided as it might do in a normal individual, but here there was a distinct variation of the index presenting a characteristic reaction.

Case X is that of a young man of twenty-three years with a suspicious history and rather vague physical signs at both apices, on the strength of which he was admitted to the Annex of the Loomis Sanatorium as an "incipient case." His slight temperature quickly subsided and the very scant sputum was nonbacillary. No tuberculin tests were made. The opsonic test was applied to clear up a questionable diagnosis. As will be seen from a study of the chart (Figure 10) five observations were made prior to the test. Following the last observation the patient was given two hours' severe exercise (chopping and sawing wood). Immediately after this exercise, as will be seen, the rectal temperature was nearly 103, while the index had dropped well below the extreme limits of normal. The index, as will be seen, remained low the balance of the day, the temperature gradually subsiding, but not touching normal. I may add, what does not appear on this chart, that the following day, notwithstanding strict rest, there was an elevation of temperature throughout the day and it only reached normal, to remain there, after three days' rest. During or immediately subsequent to this period unmistakable rales were heard at the apices indicating a focal reaction and confirming the diagnosis.

Case XI (Figure 11) is that of a suspected tuberculosis in a woman of thirty-four years. An obstinate cough first aroused suspicion of disease, which a positive reaction from 1.5 mg. tuberculin (subcutaneously) seemed to confirm. At the time of the following tests she had been in the Sanatorium for a month and was practically without symptoms, the cough having disappeared promptly after admission. As will be seen from the chart two tests were made—the first consisting of a rapid three mile walk (she was unaccustomed to muscular exercise of any kind)—the second of the same walk followed by forty-five minutes chopping wood with a small axe. Following the first test the "oxidation temperature" was almost nil. It was more marked after the more severe test as might have been expected. In both cases, however, the index remained within normal limits. On the strength of these observations the patient was allowed to go home, where she has been living under rather more than ordinary strain ever since, but remains apparently perfectly well.

Case XII is that of a young man of twenty-four years with a very suspicious history and general appearance. Questionable signs were discovered at the right apex. No sputum was obtainable. The presence or absence of bacilli, therefore, could not be determined. No tuberculin test was applied. From a study of the chart (Figure 12) it will be seen that even prior to the exercise test there was a spontaneous autoinoculation which, had it been known, would have been sufficient to establish a diagnosis, but, as has been said, the slides were counted in cipher and at the time the low index subsequently found to have been at twelve noon on the day preceding the test exercise could not be placed without vitiating the experiment. The test consisted of the same character and amount (two hours of violent exercise) as in Case X, and in this case also it required more than two days to bring the temperature permanently to normal. Immediately subsequent to the test unquestionable physical signs were made out at the right apex, showing as in Case X a focal reaction and clearing up the diagnosis.

From these and similar observations and experiments conducted in our laboratory Inman's conclusions would seem to be justified and it would further appear that opsonic index determinations may and do have a field of practical value in the diagnosis of early tuberculosis in some respects superior to that of the ordinary tuberculin tests, and finally, that as a means of determining the patient's fitness for discharge from treatment, when

otherwise question might arise, they may be of decided and valuable significance.

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ANEURYSM OF THE THORACIC AORTA.*

By ALBERT ABRAMS, A.M., M.D. (HEIDELBERG.)

SAN FRANCISCO.

Spondylotherapeutics.—In the primitive era of hydrotherapy, the application to the spinal region of the hot waterbag and icebag was a conventional procedure dictated by empiricism with little or no physiologic knowledge concerning the action of hot and cold water on the spinal centers. Even at the present day our therapeutic armament includes the indiscriminate application of methods with neither rhyme nor reason. Thus therapeutics is discredited and the results are referred to suggestion; a portentous word, which signifies much or nothing, but usually the latter. The manipulation of definite vertebræ corresponds with the elicitation of definite reflexes, but if the vertebræ are promiscuously handled, counter reflexes are evoked which nullify the reflexes sought. Thus it is, that vertebral manipulation is equally influenced for weal or woe. Modern hydriatists have shown that hydrotherapeutic measures applied in definite regions will influence the viscera; in other words, there is a definite relationship between certain cutaneous and internal areas. The reason why local measures are often efficacious in visceral disease may be explained by Donaldson's theory; the splitting nerve-fiber sends one portion to the viscus and one to the skin overlying it. In 1834, the Griffin brothers of England, published a work in which 148 cases were analyzed showing the relation of certain symptoms to definite spinal regions. These symptoms were associated with spinal tenderness in fixed regions, and they concluded that the tenderness in question was either primary in the spinal cord or secondary to visceral or other diseases. Swedish gymnasts, notably Ling, noted among cardiopaths, tenderness over the fourth or fifth dorsal nerves when this region was subjected to friction.

The Swedish school recognizes definite areas of spinal tenderness identified with the different viscera. In 1841 Marshall Hall published his memorable work which established the importance of the spinal reflex. Brunton cited the fact that clinical experience demonstrated that blisters assuage acute inflammation by inducing contraction of the afferent vessels and thus diminishing tension in the vessels of the inflamed part. As a rule, the site of pain corresponds to the location of the lesion, but in other instances peripheral pains may be caused by diseases of the spinal cord. Reflex or transferred pains may cause an irritation at the origin of the nerve-trunk, and the pain may be referred to its peripheral distribution. The illustrations of Dana show the usual location of transferred pains. In 1893, Head demonstrated that in visceral disease, pain and disturbed sensation may be referred to definite cutaneous areas. Thus one may have a cutaneous expression of visceral disease, which I may call an endogenetic skin-reflex. According to Head, when a stimulus is applied to an organ or tissue with diminished sensibility and which is connected centrally with an organ or tissue endowed with a higher degree of sensibility, the pain is referred to the relatively more sensitive part. Thus it is, that skin tenderness in visceral disease is caused by the passing of sensory impulses from a diseased organ to its corresponding spinal segment; in the latter disturbances are created so that additional impulses coming from the surface of the skin with which this is connected are so modified as to elicit abnormal or painful impressions which in consciousness are referred to the skin, which in the norm has a greater degree of sensitiveness. As a result of Head's investigations, definite cutaneous zones of hyperalgesia associated with visceral disease may be elicited by pressing with the head of a pin or pinching a fold of skin. I employ the vibrations of a tuning fork for the same object, and diminished sensibility (hypalgesia) is as frequently encountered as hyperalgesia. The zones of Head seem to explain the beneficial action of counter-irritation upon deep seated pains. Quincke has collected a number of sympathetic sensations associated with different diseases in which a cutaneous hyperalgesia is also found. Osteopathy ("discovered" in 1874), is founded on the theory that health signifies a natural flow of blood and that the bones may be employed as levers to relieve pressure on nerves, veins and arteries. Despite the contention of the osteopath, the latter in his manipulations of the spinal region unconsciously evokes reflexes which are cogent factors in the treatment of disease. The osteopath indignantly resents comparing his system with massage. Thus, in a representative work on this system by Hulett,[1] the latter contends that masseurs regard the tender spinal areas as secondary to visceral disease, whereas the osteopath conceives them as primary and treats the central point. According to this reasoning, the osteopath regards disease from a central and not a peripheral standpoint. Dowse[9] affirms that ten minutes' work at the spine (by massage) will increase the volume of the pulse more than an hour's work at the body, as a whole, the spine being omitted.

The Vertebral Reflexes.—In medical literature the author has repeatedly referred to certain visceral reflexes evoked by cutaneous irritation; viz., the lung reflexes of dilatation[2] and contraction,[3] the heart reflex,[4] liver reflex,[5] stomach and intestinal reflexes[6] and the aortic reflexes,[7] which later will be the special subject for our discussion. The reflexes in question have more than physiologic interest, insomuch as the visceral reaction may be utilized in a diagnostic and therapeutic direction. The evidence heretofore adduced of the results achieved by electric, hydriatic, mechanic and the balneary treatment of disease, was naught else than a mere array of words conceived in conjecture only. Others less inclined to hypothesize sought an expeditious solution by referring their action to suggestion. The recognition of the visceral reflexes is more than an apologetic attempt to relegate the therapeutic methods in question to their proper sphere of action. If one doubts the existence of vertebral reflexes, let me direct your attention to a very simple expedient which I have only recently observed. While palpating, say the radial pulse, make firm pressure at the vertebral exit of the spinal nerves (preferably at the side of the upper dorsal vertebræ) and you will note a decided alteration in the character of the

*An address by invitation before the Alameda County Medical Association, Feb. 16, 1909.

pulse, which often amounts to inhibition of the latter. Reference to Fig. 1 shows a number of central reflexes which may be elicited by concussing definite vertebræ. The latter are bilateral. I cannot enter into a thorough discussion of this subject, but must refer you to my original contribution.[10] I may, however, demonstrate the biceps, triceps and wrist-jerk and the adductor reflex. The first combination of reflexes is obtained by concussion of the fifth and sixth cervical vertebras. To elicit this

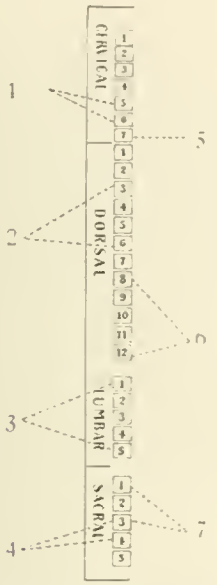

Fig. 1.—Vertebral concussional reflexes, showing the vertebræ to be concussed for their elicitation; 1, biceps and triceps reflexes and wrist-jerk; 2, pectoral and epigastric reflexes; 3, gluteal and adductor reflexes, cremasteric reflex from the 1st to the 3d lumbar vertebra; 4, plantar reflex; 5, aortic and cardiac reflexes of contraction (pressure at the vertebral nerve exits will inhibit heart); 6, aortic and cardiac reflex of dilatation; 7, gastric, intestinal, hepatic and splenic reflexes of contraction.

reflex the upper extremities must be placed in a state of flexion, the elbows resting in either hand of an assistant: if the patient does not thoroughly relax the muscles while the spines in question are concussed, no reflexes will be elicited. Very often this reflex is better elicited if the patient allows his elbows to rest on a table with arms flexed and hand dropped so as to achieve thorough relaxation. To obtain the adductor reflex, the patient sits in a chair with legs extended and relaxed during the time any of the lumbar vertebras are concussed. To obtain the concussional vertebral reflexes for diagnostic purposes, the writer employs a strip of linoleum (about 6 inches long and 1½ inches wide) and a hammer (Fig. 2) with a large piece of thick rubber such as is used by French clinicians for eliciting the knee-jerk.

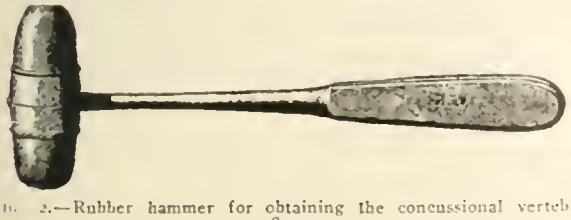

Fig. 2.—Rubber hammer for obtaining the concussional vertebral reflexes.

One may also strike the spinous processes indirectly by placing the palmar surfaces of the fingers in contact with the vertebral spines and, with the clinched fist, the dorsal surfaces of the fingers are struck a series of forcible blows after the same manner in using the hammer. The method with the hammer is preferred.

The Aortic Reflexes.—The course of the upper surface of the normal aorta in the adult of middle life may be projected on the thorax by drawing a curved line, beginning at a point corresponding to the right sternal line in the middle of the first intercostal space and ending at the point of insertion of the first left rib to the sternum. The highest point of the aortic arch is distant about 5 cm., and the beginning 2 cm. from the anterior thoracic wall, hence a forcible percussion blow (which is propagated to a depth of 5 cm.) cannot fail to elicit the dullness of the aortic arch if dilated. If the aorta is of normal size, dullness does not extend beyond the edge of the sternum on either side. Concussion of the four last dorsal vertebras (8th to the 12th dorsal vertebra) in succession by a series of sharp vigorous blows will in the norm dilate the thoracic aorta, which can be demonstrated by the *x*-rays and by percussion. Percussion must be executed at once after concussion of the vertebral spines, insomuch as the duration of the reflex of aortic dilatation is limited (from one-half to one minute). Concussion of the spine of the seventh cervical vertebra causes a contraction of the thoracic aorta (aortic reflex of contraction). Thus it is, that when one provokes the dilatation reflex, the counter reflex of contraction dissipates at once the former reflex.

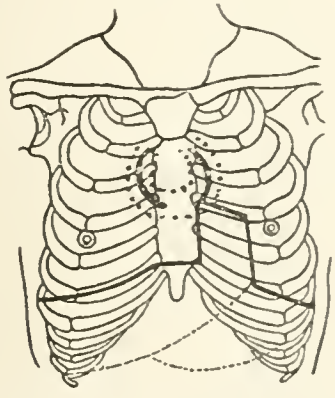

Fig. 3.—Aortic reflexes of contraction (dotted lines within continuous line) and dilatation (dotted lines without continuous line) in the patient of Dr. Sanderson with an aneurysm of the thoracic aorta.

Postural Lung-Dullness.—The author has recently observed that posture influences lung-resonance. If one percusses the anterior chest in an individual first

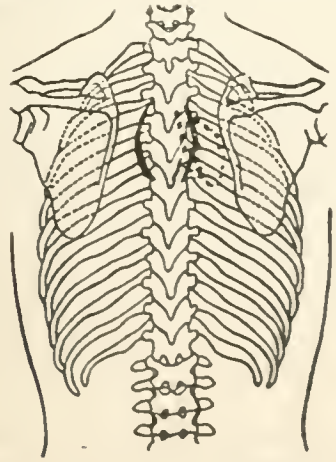

Fig. 4.—Posterior view of same patient (Fig. 3). Note that in this illustration only one part of the aneurysmal wall responds to the reflex of dilatation, a not infrequent phenomenon when aneurysms have attained some magnitude.

in the erect posture and then when the patient leans very far forward the resonance in the former posture is translated into dulness in the latter posture.

Similarly, the lungs become dull when the patient leans backward or to the side. In other words, the writer believes that the pulmonary vessels being unprovided with vasomotor nerves, permits of the gravitation of blood in the lungs in the direction of the posture of the patient, and that the dulness is due to an increased quantity of blood in a given area. The author further believes that many so-called cases of lung-atelectasis are in reality areas of lung congestion, and the differential diagnosis is as follows: In atelectasis, the area of dullness will disappear after repeated forced inspirations or by elicitation of the lung reflex (vigorous rubbing of the skin over the area); whereas in congestion (say the dullness is in the posterior portion of the thoracic region), the dullness will not completely disappear until the patient is placed in the prone posture. The author has noted furthermore, that when the patient leans far forward (so that the trunk is almost at right angles with the hips), the dullness over the upper anterior surface of the thorax corresponds with the dullness of the aortic arch elicited by the aortic reflex of dilatation.

The Aortic Reflexes in Diagnosis.—As before remarked, one is able to define by percussion the normal area of the arch of the aorta after concussion of the four lower dorsal vertebræ and a similar area of diminished resonance or dullness may be elicited when the patient leans far forward. Thus it is that, if the diminished resonance or dullness exceeds the norm, either the vessel is dilated or the site of an aneurysm. One may remark that if an aortitis is present, the reflex of dilatation will reproduce the symptoms peculiar to this affection, viz., pains in the upper sternal region extending through the mediastinum and to the shoulder and arm.

A dull area in the upper thoracic region or in the back (corresponding to the site of the aorta) if caused by a thoracic aneurysm, will show a diminished area of dullness when the spine of the seventh cervical vertebra is concussed (aortic reflex of contraction) and an increased area of dullness when the spines of the four lower dorsal vertebræ are successively concussed (aortic reflex of dilatation). Up to the present time of writing the author has examined 42 cases of aneurysm of the thoracic aorta and has noted an absence of the reflex in only two patients in whom the aneurysm had attained enormous dimensions. All these cases were controlled by skiascopic examinations. With the latter one may note a contraction and dilatation of the aneurysmal sac when the spines of the special vertebræ are concussed. One may also observe an immediate evanescence of pressure symptoms (dyspnea, cough, and pains) when the sac is brought to contraction after a single séance of vibration treatment applied to the spine of the seventh cervical vertebra.

The Aortic Reflex of Contraction in Treatment.—It occurred to the writer, when he first employed the aortic reflexes in diagnosis, that, if concussion of the seventh cervical vertebra would cause contraction of an aneurysmal sac, this fact would prove advantageous in the treatment of a thoracic aneurysm. The results achieved have exceeded the author's expectations. Only five patients with thoracic aneurysm have thus far been treated by the author according to his method, but they were all advanced cases. Absolutely no results were achieved in one case. This much may be said for this treatment that, unless the results are immediate, nothing can be expected from its continuance. The first case of aneurysm of the thoracic aorta thus treated was seen in consultation with Dr. Sanderson, a member of your association. The following record is presented:

Treatment was commenced July 7, 1905, on which date the patient complained of violent pains in the chest and dyspnea on the slightest exertion. On Aug. 2, 1905, the *x*-ray shadow of the aneurysm was denser, and the aortic reflexes could not be elicited. The latter I attributed to clot-formation in the aneurysmal sac, which inhibited whatever elasticity remained in the aortic walls. At this date aneurysmal pulsations could no longer be detected by the rays. Dulness formerly present over the sac on the anterior chest wall could no longer be elicited. Tracheal tugging was barely perceptible. The thoracic pains had disappeared and there was no longer any dyspnea on exertion. On the first of September, Dr. Sanderson stated that the only symptom which remained at the time the patient left for his home was slight tracheal tugging. In all my cases the latter symptom persisted despite the disappearance of subjective symptoms. I will not weary you with a recital of the histories of the other patients, but will content myself by presenting to you a patient of Dr. Rowell, a member of your association. About four years ago this patient first noted the appearance of the following signs: Cough, pressure in the chest, dyspnea, and a sensation of suffocation when he assumed the recumbent posture. Just before treatment was commenced the patient could not get more than three hours' sleep at night owing to paroxysmal attacks of coughing and choking. After the first treatment he could sleep the entire night, and to-day, after two weeks' treatment, consisting of daily séances (five minutes duration) by means of vibration applied to the seventh cervical vertebra, the patient is practically well and there is nothing to indicate the persistence of his original trouble beyond slight tracheal tugging. During this brief period he has shown a gain of ten pounds in weight.* Now, a few words are necessary respecting the method of treatment. In the therapeutic elicitation of the vertebral reflexes, notably, the aortic reflexes, the vibratory apparatus which the physician must employ is the one giving the percussion stroke. All other motions, such as oscillations, shaking, and friction interfere with results; in other words, select an apparatus which percusses. First dust some talcum powder over the site of the spine of the seventh cervical vertebra to avoid irritation from friction of the pad connected with the apparatus; next cover the spine of the vertebra with several layers of lint which are attached to the skin by adhesive plaster. After this, the percussion stroke may be communicated directly to the spine of the seventh cervical vertebra, or indirectly, if the skin is sensitive by interposing a strip of linoleum. The daily séances, according to results, may last from five to fifteen minutes, but during the séance the treatment must be interrupted from time to time to avoid irritation of the skin. The latter may be avoided if the operator directs the patient to

*Since this address was delivered, three other cases of thoracic aneurysm were successfully treated by the same method. One of the patients referred to me by Dr. W. A. Clark of San Francisco with an enormous aneurysm was practically discharged after five weeks' treatment. The author has not the hardihood to regard his method as curative, for time alone is the decisive factor, yet a conservative estimate of the results prompt him to say that, as a palliative method, it surpasses any which has yet been introduced. The practical employment of the aortic and other reflexes will be embodied in a book on spinal therapeutics, which will be published shortly.

inform him the moment a burning sensation is experienced. Perhaps the best of all methods for eliciting the reflexes is the employment of a plexi-meter (a strip of linoleum) applied to the seventh spine, which is struck a series of rapid and moderate blows by means of a hammer, to the end of which is fixed a large piece of hard rubber (Fig. 2). By the latter method all the vertebral reflex are most surely evoked. It is wise in this method as well to protect the spinous process with a thick layer of lint.

Physiology of the Aortic Reflexes.—Claude Bernard's interesting observations advanced the clinical study of vasomotor phenomena. He found that when the sympathetics in the neck of a rabbit were cut, the blood-vessels in the ear on the corresponding side became dilated, and that if the peripheral ends were stimulated the ear became blanched. Those who are adepts in manual therapy find that manual pressure along the vertebral column will evoke either vasoconstriction or vasodilation; the former, by brief, and the latter by continuous pressure. It is evident that in explaining the genesis of the aortic reflex of contraction one is concerned with stimulation of the vasoconstrictor nerves, the centers of which are chiefly in the medulla, where they pass into the cord and emerge with the anterior roots as preganglionic sympathetic fibers. These fibers are not only capable of altering the caliber of the vessels, but by means of continuous stimuli passing over them they maintain the tone of the vessels.

The aortic reflex of dilatation is associated with stimulation of the vasodilator nerves, the reflex centers of which are located in the medulla and throughout the spinal cord. From the latter situation they emerge with the posterior spinal nerves. The author seeks to explain the aortic reflexes by either stimulation of definite vasoconstrictor and vasodilator nerves or their centers in the cord, and he has established empirically that concussion of the seventh cervical vertebra stimulates the aortic constrictor nerves, whereas the dilator nerves are excited by concussion of the spines of the four lower dorsal vertebræ.

The Psychology of Clinical Observations.—When the author published his original communication on the subject of the aortic reflexes, he was the recipient of many letters, the burden of which represented the inability of the correspondents to confirm the observations of the author. It was impossible to answer all the communications at that time, and as this is an opportune moment, I will now endeavor to answer some of them. One of the most eminent physiologists in this country protested that, considering the pathologic condition of the walls of the aorta in aneurysm of that vessel, it could not in consequence be excited reflexly to alternate contraction and dilatation. Again, such clinical observations could not be accepted unless corroborated by physiologic investigations. No one can gainsay the fact that pulsation is an important sign of an aneurysm and, insomuch as this phenomenon is dependent on the elastic recoil of the walls, it follows that elasticity of the vessel is not annihilated in aneurysm of the vessel. It is true, as the author has frequently observed, that the walls of the aneurysm do not contract nor dilate equally in eliciting the aortic reflexes; in fact, there may be no perceptible change under the influence of the reflexes at one point, but a decided change at another point, although in practically every instance some perceptible change was observed. Theoretically at least, the aortic reflex will persist as long as the aneurysm pulsates. The clinician no longer regards the pronunciamento of the physiologist as apodictic. We have learned to discredit many statements emanating from the laboratory investigator, not so much because the observations of the latter are faulty, but because there is a considerable difference between a laboratory and the bedside and a guinea pig and patient. Many of the facts derived from the laboratory suggest the comment of the mathematician, who, having demonstrated a new mathematical theory, thanked God that it could not be of the slightest utility to any living soul. Neither the pathologist nor the physiologist should forget that "pathology is the physiology of the sick." The presence of bronchodilator as well as bronchoconstrictor fibers in the vagus was conclusively established by the physiological investigations of Dixon and Brodie[14] in 1903, yet as A. G. Auld observes,[15] "It undoubtedly stands to the credit of Abrams to have proved, at least seven years since by a simple clinical observation,[16] that the vagus must contain bronchodilator as well as bronchoconstrictor fibers."

The final court of decree of the clinician is neither the physiological nor pathological laboratory. To test a given function one must compare it with a like function in individuals of the same species. Thus, if the same quantity of uric acid were excreted in a mammal as is excreted in a normal bird, it would have to be regarded as pathological. If disease were wholly a question of demonstrable lesions then the pathologist would be compelled to deny the existence of the so-called functional diseases. In consequence of this conflict between the laboratory and clinical investigator a hiatus has arisen which is now occupied by clinical pathology, a branch which endeavors to conciliate scientific and empirical medicine. Several years ago, the writer observed that one could make a record of the pulsations of the head, and furthermore, that the cephalograms thus obtained in certain subjects were pathognomonic of cerebral arteriosclerosis. Investigating this subject further in the physiological laboratory of the University Hospital, London, and in Paris, the writer did not obtain the slightest clue to the cephalic pulsations, and he questions whether he is justified in rejecting a clinical observation which does not permit of physiologic demonstration in animals. One vituperator condemned my method of treating aneurysms as absurd, because it was not responsive to reason. My vituperator recalled the erudite German professor of economics who received a bed as a present. Until the small hours of the morning he busied himself with abstruse calculations to determine whether he was large enough for the bed, or if the latter were large enough for him. Finally, he was struck with the happy idea of getting into the bed, and to his intense delight discovered that it was admirably suited to his proportions. If my detractor were endowed with the true scientific spirit, he would not have condemned a new method of treatment without a trial, considering the kaleidoscopic changes constantly arising in all branches of science. The scientist rejoices one day at the birth of a new theory and officiates at its burial on the morrow. In 1903, in several issues of the London *Lancet*,[11] a discursive polemic was agitated on the subject of my "lung reflex." It was quite evident that one of the disputants did not rigorously execute the method for eliciting the reflex in question, but failed to cite this reason for con-

demning it, although others employed the reflex as a clinical sign of value.[12] Many new methods for a like reason have been relegated to oblivion. Sometime ago, while in Paris, the writer found several clinicians who elicited the heart reflex[8] as a routine method of examination, and appeared quite content with the sign. The writer demonstrated that the sign as elicited was of no value, insomuch as when the precordial region was stimulated it likewise evoked the lung reflex, which also diminished the area of cardiac dullness, and that in consequence one could only rely on the deep area of cardiac dulness as an index of myocardial retraction. A prominent Eastern clinician spent several days at the author's office investigating visceral reflexes. One of the patients submitted had an aneurysm of the thoracic aorta. Here the aortic reflexes were the object of study. It was impossible to convince the clinician that there was any modification of the area of dulness after the elicitation of the reflexes, until the writer compelled him to close his eyes while percussing, when the results of percussion tallied. To the detriment of skillful percussion, instrumental has supplanted the finger-finger percussion. This is an egregious error, considering the fact that in percussion the adroit physician is guided not by what he hears as by what he feels. A word is permissible concerning percussion of the chest. When one percusses the normal chest, the sound is the product of the vibration of the lung tissue and the thoracic walls (notably the sternum, which is essentially a sounding board). It is the summation of this vibration which interferes with the elicitation of the dullness of the airless organs in juxtaposition to the lungs. If this vibration in question can be eliminated the definition of airless structures like the organs, tumors, aneurysms, etc., proves easy of attainment. This writer has referred to this method as vibrosuppression.[13] It is best achieved if percussion is executed during the time the patient has suspended respiration after forced expiration and while the vibrations of the sternum are inhibited by firm pressure on the lower end of the bone by the hand of an assistant.

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Tonsillectomy Notes.—There is less danger of injuring the deep tonsillar vessels if the pressure is made from inside with the instrument than when it is exerted on the outside. Hard tonsils with much connective tissue are better removed by a cold snare than by a sharp instrument, as less bleeding occurs. An hypertrophied lingual tonsil sometimes causes the discomfort of a heavy, sore feeling at the base of the tongue. This may be sufficient to indicate removal.—*American Journal of Surgery.*

ATRESIA OF THE VAGINA.

WITH REPORT OF A CASE COMPLICATED BY HEMATOTRACHELOS—OPERATION.

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Case.—E. G., 14 years, German; attends school. Family history negative. Only serious illness smallpox at 6 years, with mild cutaneous symptoms. Patient has never menstruated. Enjoyed good health until four weeks ago, when she suffered from mild abdominal pain, with slight fever, lasting two days. Her present illness is a recurrence of abdominal pain and tenderness, with slight rise of temperature and pulse.

Condition at time of examination, at New Britain Hospital: A well-nourished, apparently well-developed girl, timid and nervous. Pulse, 90; rectal temperature, 100° F. Examination of heart and lungs negative. Abdomen moderately distended, general tenderness, more pronounced over right lower quadrant. Dullness on percussion in flanks and over lower abdomen. To the right of the umbilicus, extending 5 cm. above, and 4 cm. below, is a hard, elongated mass. Blood examination not made. Rectal examination reveals fluctuating mass in pelvis. Imperforate hymen. Vaginal examination not attempted. Diagnosis, probable appendical abscess.

Operation, New Britain General Hospital, November 11, 1908. Laporatomy. A 7 cm. vertical incision was made through the right rectus, over the tumor. The hard mass was found to be the body of the uterus, twice to three times the ordinary size, otherwise of normal appearance. Tubes and ovaries were congested, otherwise normal. Continuous with the lower end of the fundus of the uterus, spreading out symmetrically like a skirt, was a large, thick-walled cyst, filling the lower part of abdomen and pelvis. One thousand five hundred c.c. of thick, dark blood was removed by aspiration through the tube introduced into the incision made in the cyst. The wall of the cyst at site of incision was sutured to the peritoneal edge of the abdominal wound. Abdomen closed except at this point. Cyst drained through abdominal wall with large rubber tube. Patient was placed in lithotomy position and entrance made through the imperforate hymen and perineal tissues by combined sharp and blunt dissection, the only trace of vagina found being a cord of fibrous tissue. A long probe was introduced through the drainage tube from above, until it could be felt by the finger in the perineal wound. Incision from below was then made into the cyst cavity upon the probe as a guide. The lower end of the drainage tube was then drawn down beyond the vulva. The patient rallied well from this operation. There was some drainage of thick blood from above and below, for several days.

Three weeks later the abdominal wound was reopened, the cyst wall separated from its parietal and omental adhesions. The fundus of the uterus was now found to be of nearly normal size, retroverted, dipping down into the pelvis. The enormous blood cyst had contracted to a narrow cylindrical tube leading into the pelvis and was clearly the elongated cervical portion of the uterus. A drainage tube was introduced into this canal, the

upper end sutured to its inner surface at the site of the original incision. This served as a means of traction in drawing the uterus down into the pelvis. This opening in the cyst, or cervix, was closed by a double row of Lembert sutures of fine linen. The abdominal wall was closed by tier sutures with small

Fig. 1.—Condition at the time of the first operation.

cigarette drain. Henceforth, drainage was from below.

The patient reacted well, and upon examination two weeks later the artificial vaginal canal was found to be 6 cm. in length, and 2 to 3 cm. in diameter, terminating in its upper extremity at what now appeared to be a comparatively normal, although dilated, os uteri.

At the present time the patient is wearing a drainage tube extending from the vulva to within the cervix, for the double purpose of preventing contraction and providing drainage. The operation for construction of a permanent vagina is contemplated as soon as consent can be obtained from the patient's parents.

Adopting the views of Nagel, Veit, and Meyer, this is a case of acquired atresia. The history of smallpox strengthens the probability of this mode of origin.

The comparative rarity of this condition justifies the report of all individual cases and the divergence of opinion in regard to its etiology invites a careful record of the findings in each case. Full and satisfactory discussion of the subject, especially from an operative standpoint is found in few recent gynecological treatises. An article by Brothers[1] covers the history of operative procedure in this condition, and in regard to the construction of an artificial vagina concludes that, while the best results are obtained by the use of the rectum or sigmoid, in whole or in part of its calibre, as recommended by Snegireff,[2] Gersuny,[3] Federow,[4] and Baldwin,[5] yet transplantation of skin or mucous membrane is to be preferred, because it is a simpler operation and does not disturb the normal structure of other organs. The use of a loop from the lower ileum was later suggested by Baldwin,[6] and also by Haeberlin,[7] which would seem to offer the best results, as promising greater permanence and approximating the normal structure most closely, although it entails a more serious operation than might be justified in some cases.

Much has been written of late years upon the etiology of this condition, the preponderance of opinion at present inclining to the view of Nagel,[8] Veit,[9] and Meyer,[10] that all simple vaginal atresias, that is, where there is no coexistent defect in other genital organs, are acquired, or to the view of Küstner,[11] that such atresias, even if present at birth, are the result of inflammatory or traumatic insult received during intrauterine life. Good discussions of this question are contained in articles by Thienhaus,[12] and Gellhorn.[13] The coexistence of uterine malformation is thus made determinative of the simple primary origin of the vaginal defect, although Fromme[14] proposes the view that developmental anomalies of uterus and tubes may occur in the fetus as the result of vaginal defect. The present writers do not find justification for such widely inclusive statements. Arrested or misdirected development may occur in embryological life and the structure of the vaginal and uterine "Anlage" renders them particularly liable to such defective growth. There seems to be no adequate reason to deny that a defect may occur primarily in some one part of the Müllerian ducts, as well as in the whole of their length.

A surprisingly large number of cases of vaginal atresia have been reported and collected by various writers. Neugebauer[15] collected 1000 cases in 1895, almost one-half of which were definitely acquired, while in 300 others the history gave no evident inflammatory or traumatic cause for the condition. In a large number of cases recorded, the report is so scant in details that few conclusions are justified. The writers have found records of 37 cases in the literature of the last eight years, whose report was sufficiently detailed to warrant analysis in this regard; and as far as was known, all of these cases were congenital. In 17 cases there was complete or almost complete atresia (almost complete in that there was a slight depression at the vulvar orifice of the vagina), of which 8 had normal uteri and 9 had defective uteri; 20 cases showed partial atresia, in the form of complete occlusion of the canal above or below a certain level, or of an occluding transverse septum of varying thickness, situated at any level of the canal from cervix to hymen. In 6 of these cases the obstruction was in the upper part of the tract, in 7 cases in the lower, and in 7 the atresia was termed hymeneal, but in 4 of these latter cases the description of the findings was too indefinite to warrant confident acceptance of the term. In the higher atresias the uterus was normal in 1 case and defective in 5, in the lower forms normal in 6 and defective in 1, and in the hymeneal forms normal in 4 and defective in 3; thus 11 of the 20 cases present normal uteri and 9 show uterine defect. In the complete forms the uterus was absent in 5 cases, rudimentary in 2, and bicorn in 2; in the partial atresias occupying the upper part of the tract the uterus was absent in 3 cases and rudimentary and one-horned in 1 each; in atresias at a lower level it

was absent in 1 case and normal in all the others; and in the atresias recorded as hymeneal it was bicorn in 2 and infantile in 1. Absence of both uterus and tubes occurred 5 times, being found in 3 cases of complete atresia and in 1 each of the upper and lower types. The ovaries were absent in

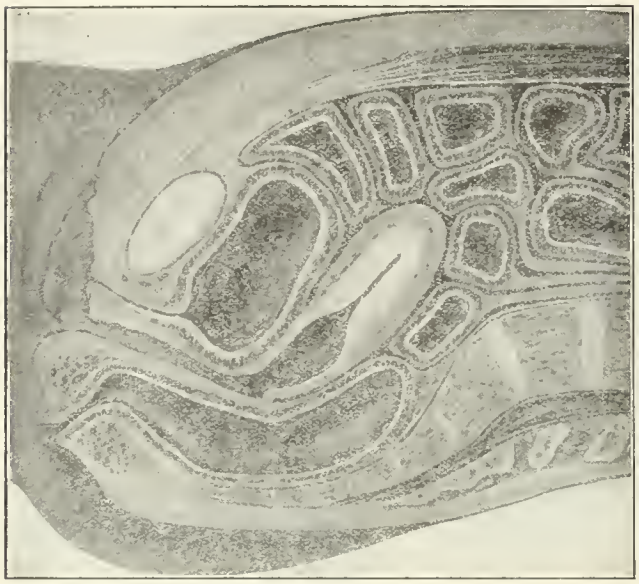

Fig. 2.—Condition six weeks after operation.

4 cases in conjunction with lack of uterus and tubes, 3 of these cases presenting complete atresia and 1 the lower form, while tube and ovary were absent on one side in a case of complete atresia. Ovarian defect involves developmental disturbance of a separate embryological structure, the Wolffian body, and hence is an infrequent coincidence. Coexistent anomaly in other organs developing from this body is still more infrequent. In one case the kidneys were abnormal, being joined into one body, somewhat in the horseshoe manner, and in one other case, recently operated by Dr. W. J. Mayo, the ovary on one side was lacking, while there was no kidney or ureter on the other side.

Bearing in mind that we are discussing atresias probably present at birth and certainly not acquired after development of the menstrual function, and using the cases of the present series as the basis of argument, we might draw the following conclusions: Uterine defects occur in a little less than one-half of all cases; there is, approximately, an even chance of the coexistence of uterine defect with any given form of atresia; there seems, therefore, to be no ground for asserting that a certain vaginal malformation is acquired, when it exists alone, unassociated with other genital defects, when it would be regarded as primary if other genital defects were present.

This aspect of the question does not affect the surgeon in any degree, all atresias of early origin, whatever their cause, presenting practically the same problems. Practical conclusions can, however, be drawn from our data. It is seen that the more extreme defects of the upper genital tract occur in the more extensive atresias; that the percentage of grave uterine defect is almost as great in the partial atresias occupying the upper part of the vagina; that in this latter form the percentage of occurrence of uterine defects in general is much greater; and that in atresias of the lower vagina, while serious defects may be found in the other organs, yet their percentage of occurrence is very small, the more common defects being slight in degree.

As a rule, the surgeon's attention is first directed to the individual case of vaginal atresia by the untoward symptoms that arise from the damming back of the menstrual blood. His first indication is toward immediate relief of the obstructed fluid, since without surgical interference the outcome is almost certain to be fatal. This operation does not of itself entail great difficulty, but the second indication immediately presents itself, namely, the establishment of conditions under which the patient's life may be continued in a manner approximating the normal as nearly as possible. The determination of these conditions will affect the form of the primary operation. The most desirable conditions naturally involve the existence of properly functionating ovaries, tubes, uterus, and vaginal canal. As we have seen, there is slightly more than an even chance in any case of vaginal atresia—19 to 18, to be exact—that all the other genital organs are quite normal, so that the surgeon's secondary operation in one-half of all cases will have as its sole goal the construction of a satisfactory vagina. If defect does exist elsewhere, the chances are just even that the uterus will be absent. In this case there is definite indication for oophorectomy, unless the abnormal menstrual molimena cause no particularly untoward symptoms. A peculiar case is reported in which, in absence of the uterus, a hematoma was gradually formed in the pelvis, into which entrance was finally made along the path of the atresic vagina, and through this channel menstruation occurred thenceforth.[16] If the operator were to accept forthwith the recommendation of various writers, to the effect that there is no indication to construct a vaginal passage when the upper genital organs are defective, the necessary corallary of this being extirpation of uterus, tubes, and ovaries, then this radical step would need to be taken in 49 per cent. of the atresias of the type under discussion and much unnecessary harm would thus be done. For if uterus and tubes are present, no matter their state, there is strong probability that they can become capable of performing that part of their function relating to menstruation, if not that involved in pregnancy. One should hesitate, moreover, before declaring that a certain uterus is not fitted for successful pregnancy; children have been delivered from uteri presenting various types and grades of malformation and we have the testimony of Emmet[17] that rudimentary uteri and tubes may develop to a functionating condition after the vaginal atresia has been repaired. Emmet's statement has, however, been contested by various writers. It is thus seen that a clear conception of the condition of the genital organs must be obtained before even the first steps are taken to relieve the primary or secondary symptoms of vaginal atresia. To obtain this, abdominal section is the only satisfactory procedure, as has been urged by Saenger,[18] Pfannenstiel,[19] Halban,[20] and others.

Other considerations affecting the choice of operative method are found in the nature of the hematoma arising from obstruction to complete discharge of menstrual fluid. Out of 41 cases described in detail, a hematoma was present in 27. Hematocolpos was found in 14 cases, or 52 per cent., existing alone in 3 cases, and associated with hematometra in 6, and with hematosalpinx in 5 cases. In 19 of these 41 cases there was, however, no vaginal canal from cervix downward, and in 6 other cases

there was no canal at the upper end of the vagina, thus leaving only 16 cases in which hematocolpos could possibly develop. A case is recorded in which the vagina was absent, where the uterus expelled the blood into the pelvic tissues between bladder and rectum, forming an artificial sac,[19] but it is probable that the cervical canal or, at least, the external os, is occluded in nearly all the cases where the vaginal atresia involves the upper portion of the vagina.

Hematometra occurred in 23 (85 per cent.) of the cases, existing alone in 7 cases, with hematocolpos in 10, and with hematosalpinx in 9 cases. The uterus was the seat of the hematoma in all but 5 of the cases in which its structure was normal (in these 5 cases the atresia was of the hymeneal type, so that a large hematocolpos formed, and in one of these cases there was a large hematotrachelos), and in 5 cases where it was abnormal, its structure in these cases being rudimentary or bicorn.

Hematotrachelos was reported in 3 cases only. In 2 of these there was no trace of the upper vaginal canal and the external os was apparently occluded; there was a normal uterus with hematometra in 1 case and a rudimentary uterus in the other. In the third case there was a large hematocolpos, but no hematometra, although the uterus was normal. It may well be that indefiniteness of statement exists in this regard and that the cervical portion of the uterus was dilated in some cases where the condition was reported under the inclusive name of hematometra, because it has been generally supposed that in a large majority of cases the cervix becomes distended before the uterus.

Hematosalpinx was found in 11 cases, 27 per cent., being bilateral in 6 cases and unilateral in 5. The tubes were, however, absent in 9 cases, thus giving 34 per cent. of hematosalpinx in cases where the condition was possible. Puech found a tubal blood-sac in 18 out of 258 cases of vaginal atresia. It is thus seen that the tubes are involved in one-third of all cases where they are present, in more than one-third of cases of hematocolpos, and in almost one-half of cases of hematometra. Surgeons of earlier days were compelled, by the limitations of their surgical technik, to relieve the secondary symptoms of vaginal atresia by the perineal or vaginal route and one is amazed to note the high mortality in an operation which, at first glance, would seem to be comparatively safe. A mortality of 70 per cent. was given by Fuld,[22] 39 out of 56 cases dying after this operation. In a majority of cases death was due to septic peritonitis following rupture of the tubes during or after operation. This danger has been pointed out by various writers,[23, 24]. Some doubt exists as to the mode of origin of the tubal hematoma. Many writers regard it simply as a reflux from the distended uterus, but it is highly improbable that this is the case. If such a reflux were possible, it would be found more commonly in other conditions of obstructive dysmenorrhea, but this seldom or never occurs. The uterine end of the tube has been found closed in several cases,[12, 25], and it is probable that mechanical obstruction exists at this point in all cases of hematosalpinx and that the condition is due to congestion from pressure in the uterine wall, as occurs sometimes in myofibromata.[26] It is highly improbable that the tubal blood arises from primary tubal menstruation, since it is questionable if such a process ever occurs. Moreover, if the condition were due simply to reflux or to tubal menstruation the blood would escape through the ostium abdominale into the peritoneal cavity, an occurrence which has never been recorded. Occlusion of the fimbriated end of the tube has been observed in numerous cases,[12, 27], and it is probable that such an occlusion exists primarily in all cases of hematosalpinx, as a result of some previous inflammatory process. The evidence which this gives of the pre-existence of inflammation at some point in the genital tract has been used as an argument in support of the view that the vaginal atresia is the result of an inflammatory process, regarding the atresia of the vagina and of the outer end of the tube as the result of the same process.[25] Whether as a result of the previous inflammatory process or not, adhesions form between the tube and adjacent structures, a condition which readily leads to rupture of the delicate walls of the sac under the slightest disturbance of the relative positions of the various organs[28]. Hence rupture has occurred during vaginal, rectal, and abdominal examination, but its most common cause is the more or less blind procedure in vaginal or perineal operation and in the emptying of the hematoma in vagina or uterus from below. Repeated experience with tubal rupture and subsequent peritonitis led earlier writers to recommend gradual emptying of the blood sac, but the utmost caution cannot give positive safeguard against tubal rupture when operating from below. Torsion of the tubal blood-sac has been noted in 3 cases,[29] a condition which increases the liability of rupture. Hence, since hematosalpinx occurs in about one-third of our cases and of itself may rapidly lead to a fatal condition, operation is indicated at the earliest possible date, especially since its existence cannot always be exactly determined by manual examination and since such examination may be dangerous. Moreover, since operation by the vaginal or perineal route may have serious immediate or secondary results, laparotomy is the only safe procedure, as has been urged by several writers for various reasons,[30, 31, 32]. Extirpation of the tube is generally regarded as the operation of choice in this condition, but emptying by simple incision followed by repair has proved successful in enough cases to warrant its attempt in cases where the other organs can be preserved in a functionating condition, especially in case the other tube is defective or diseased. There is, of course, small chance of conception through the agency of the affected tube, since we have assumed that closure of its outer end is present in all cases.

A not inconsiderable difficulty often arises in the vaginal operation in finding the site of the cervix and external os, for the purpose of entering and emptying the uterine blood-sac by this route, so that it has been advised to enter the hematometra at its most prominent point and to make permanent connection between the vaginal canal and the uterine cavity at that point,[33] but this operation yields rather poor permanent results. This difficulty is obviated by immediate laparotomy, as suggested by Pfannenstiel,[19] Halbau,[31] Wertheim, and others.[34]

In view of the fact that a serious condition may develop during the first menstrual period, operation for repair of the abnormality might well be considered before puberty, as recommended by Velpeau.[4] This recommendation has been opposed by various writers. Of course, few cases are likely to come under the surgeon's eye before the first menstrual periods bring the abnormal condition to light and the operation is, as well, a serious one to undertake without immediate indications. However, early operation may prevent grave complications later and may aid in bringing the internal genital organs to

full development, in case they are defective. It must also be borne in mind that nervous symptoms may develop before or after puberty, which are referable to the genital defect and which may often be relieved by repair of the defect. The mucous secretions may collect in low atresia prior to puberty and demand operation for relief at an early date, as in cases cited by Martin.[35]

It is generally stated that the occurrence of a few abnormal menstrual periods leads the patient to seek medical aid and that the damming back of the blood of a few periods is sufficient to cause grave mechanical symptoms. This may be true, for a hematoma of considerable size may form during the first period, but reports of the cases in the present series show that the condition may not become serious enough to bring the patient to a physician until many periods have passed. In 14 cases in which the dates were recorded, the average interval of time between the first menstrual molimena and surgical interference was 2½ years, the shortest interval being 1 month, and the longest, 5 years; nor, contrary to expectation, perhaps, did the cases with the longer intervals invariably show subnormal development of the uterus, indeed, the uterus was quite normal in the case with the 5 years history. In one case the condition had lasted for 20 years after puberty, but here the uterus and one tube and ovary were absent, and vicarious menstruation set in after 6 months of periodic pelvic distress.

It might seem strange that vicarious menstruation does not occur in a greater number of cases, for we find record of few instances. It apparently happens only when the uterus is absent and even in this condition it may not appear at all. In such cases oophorectomy must certainly be considered, although, perhaps, not insisted upon.

The present writers have desired to present the reasons for preferring the immediate use of the abdominal route in operations for the relief of vaginal atresia, coordinating the suggestions of various writers already mentioned, and to urge conservatism in the treatment of the internal genital organs.

Since this was written the patient has menstruated normally and regularly.

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HABITUAL CONSTIPATION.*

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The prompt and thorough evacuation of the bowels is universally recognized as a fundamental principle in the treatment of disease. The clinician, frequently finding it necessary to make use of this therapeutic principle in the treatment of acute disease, may very readily acquire the habit of permitting or suggesting the use of a daily cathartic for the relief of a constipation which is evidently habitual. Such a tendency may be excused on the ground that for this complaint the public demands laxative drugs, and that the habitual use of the milder laxatives is often harmless and efficacious. In a measure this is true; but this form of palliative therapy would be less commonly called for and allowed were the curability of the complaint more widely and full appreciated. I firmly believe that in a large proportion of instances the causative factor or factors are discoverable and removable; and the results on the general health and comfort of the patient justify whatever time and trouble are required. Practically it may be unwise to urge much investigation or radical treatment of chronic constipation upon those who are perfectly satisfied with the relief obtained from the occasional or daily laxative and with the state of their general health. I am, however, firmly convinced that we should seriously urge the advisability of making attempts at cure when laxatives afford unsatisfactory or gradually failing relief, when fecal stasis is suggested in spite of apparently satisfactory defecations, and when the underlying cause of the constipation is found to be a condition which in itself is detrimental to health and efficiency.

At the outset we must free our minds of the idea that for habitual constipation there is a universal panacea, any therapeutic procedure from which we may hope for success unless it meets the demands of the individual case. It is true that from certain bizarre forms of diet an abnormal fluidity may be given to the stools, or the intestines whipped up to temporarily better action. Carrying such a plan far enough we may be able to secure an actual diarrhea, and such a result is not uncommon from the exaggerated diets sometimes adopted by these sufferers. By a cure, it seems to me, we should understand a restitution of normal bowel movements on a reasonable mode of life and dietetic regimen. Such a cure is only to be accomplished by the accidental or intelligent removal of the conditions responsible for the failure of function.

The phenomena which accomplish the passage of the food residue through the colon and from the body should be separated into two groups or classes. There are really two different mechan-

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isms. The movements of the colon down to the sigmoid are reflex in their nature, and entirely beyond the consciousness of the individual. The stimulus to simple contraction arises from the chemical irritation of the intestinal contents upon the mucosa, and the stretching of the viscus by these contents, be they solid, liquid, or gaseous. In this portion of the colon the immediate centers are in the musculature itself. The coördination of contraction and relaxation which we speak of as peristalsis is traceable to centers in the spinal cord. Abnormalities of action may arise as an effect of exaggerated emotional states, the impulses being transmitted through the sympathetic system.

The lower sigmoid and upper rectum is the collecting reservoir of the feces, entirely comparable to the urinary bladder. States of fullness give rise to appropriate sensations, and these to the desire to empty the bowel. The carrying out of this desire is, under normal conditions, subject to conscious control. Without voluntary effort, through the increase of intraabdominal pressure and the relaxation of sphincters it is almost impossible for the rectum to void its contents if these contents are naturally formed. The centers which preside over the musculature of this portion are entirely spinal and under the control of the higher consciousness unless abnormally stimulated.

The clinical study of constipation must involve the determination of the site of failure, that is, which mechanism is at fault, and the reason for the discovered failure. The determination of these facts involves, very often, the most thorough investigation and continued observation. Only in this way may we hope to avoid overlooking the more infrequent morbid lesions the cure of which depends on prompt recognition. The clinical history gives us the leading line of inquiry, and, carefully taken, makes possible a working compromise between ideal completeness and the demands of a busy life. It is not alone to the history of the complaint that we must give painstaking consideration but also to the study of the life and habits of the individual patient in the hope of discovering any possible etiological factors responsible for the complaint.

Other things being equal in the course of physical examination the greatest stress is laid on the study of the condition of the colon itself. This involves the palpation of its separate parts and the study of the position, size, condition, and fullness of these parts. The value of direct examination of the lowermost end of the colon cannot be exaggerated, for through this examination we settle the important question as to the site of stasis.

The examination of the lower bowel is carried out somewhat as follows: The patient is instructed to use no cathartic on a given day, and the following morning to attempt, as usual, to move the bowels. Digital exploration of the rectum is then made and this is followed by a proctoscopic and sigmoidoscopic examination with a proper speculum. If the mechanism of defecation is faulty the rectum or lower sigmoid is found to contain normally soft feces in sufficient quantity. If the trouble is higher up the rectum and lower sigmoid will be practically empty; the character of what is there often gives important indication of the conditions higher up. These examinations inform us as to the cause of any discovered failure of the defecation mechanism, the size of the cavity is estimated, as is the condition of the musculature, the state of the mucosa, and any obstruction from surrounding parts or the muscles of the pelvic floor, including the anus.

The study of the color, form, and consistency of the stools as passed and as removed through the examining tube often gives valuable information. Chemical and microscopical examination of the feces sometimes demonstrates a disease of the upper bowel which otherwise would be overlooked. The time of passage of the feces, carmine having been given with a particular meal, is of great moment in determining fecal stasis.

The study of the gastric contents may be indicated by the clinical history, but need not be made a part of the routine in the study of habitual constipation. While constipation is frequently a complaint in those suffering from gastric disturbances it does not follow that it is due to the alteration of gastric secretion. Other coincident factors are more probably responsible, or possibly, the gastric disease is really due to constipation. This, I believe, is a very frequent occurrence.

Clinically it is convenient to divide cases of habitual constipation into two main groups depending upon the mechanism at fault. Each of these main groups is then divided into types or classes depending upon the apparent predominance of an etiological factor. Such a classification is useful in description and simplifies the practical institution of treatment. No confusion need be caused by the combination of these conditions in the individual case, as appropriate treatment for each may be instituted if required.

1. *Disturbances of Defecation.*—The clinical history of patients afflicted with a failure of the mechanism of defecation is often in itself suggestive. Dietetic cures and alterations in the mode of life have failed to give results unless the stools have thereby been made very soft. The lower bowel at a certain time of day, at least, feels full, but evacuation cannot be accomplished. Enemas, even though small in amount, are effective to a degree. Without such stimulation or softening there is almost absolute inability. Final conclusions are reached through rectal examination both as to the fact of failure here, and the cause of such failure. These causes may be grouped as follows:

Neurotic Types.—In the course of the distinct neurasthenic psychoses constipation may be a prominent complaint and the real causes of such complaints are several. Amongst the actually neurasthenic and those slightly nervous individuals who are in most respects normal the constipation is often due to disturbances of defecation rather than to disturbances of the mechanism above. Defecation is inhibited, the feces are seen to be normal, and the mechanism cannot be said to be faulty. In some cases the inhibition seems to be due to fear or anxiety that the bowels will not move; or that they will not move in the short time allowed before taking up the duties of the day. Sometimes the inhibition resembles the disturbance of micturition such as is observed when the physician asks for a specimen of the urine. Life insurance examiners notice this inability to empty the bladder on request particularly if the applicant is closely watched and therefore excited. Sometimes the inhibition is due to the association of defecation with experience of pain accompanying defecation when the painful condition of the rec-

tum has been cured. An anal muscle which is somewhat tight and must be overcome by considerable effort causes quick discouragement.

Not to attempt an elaboration of this interesting theme at the present time, it may be said that these cases are many and the results of treatment good unless the psychopathy is too pronounced. Whether frankly so or not the treatment is largely suggestive. One may advise a number of simple measures, preferably a routine of measures before defecation is attempted. Habit is very important. In part because of its suggestive value, local rectal treatment, such as gradual anal dilatation, is often serviceable.

Failure of the Muscles of Defecation.—Among women who have borne many children or, for other reasons, suffered great stretching of the abdominal muscles, constipation is often exceedingly obstinate. The trouble is found to be in the mechanism of defecation, in the lack of any assistance in evacuation. Only by proper exercise can these muscles be brought back to their normal state, but the very severe deformities are practically hopeless. I have seen exercises carried out for months with the greatest seriousness but with very little effect. We must be content to keep the feces in as soft a state as necessary on its entrance into the rectum by diet and the like and aid defecation by a tight binder about the abdomen on which the pressure of the depressed diaphragm may be brought to bear, or by having the patient assume the squatting posture during defecation, making the thighs apposed to the belly do the work of the muscles.

Rectal Types.—As a result of continual resistance of the desire of defecation, thus allowing large masses of feces to accumulate in the rectum, the rectum loses its sensibility, and the walls their tone; a large cavity is developed as is shown by the ballooning when the tube is introduced. It sometimes happens that this condition can be traced to the custom of taking large enemas of water while in a sitting posture, a method of treatment of constipation for which a patented apparatus is used. These cases are exceedingly stubborn, but the treatment which gives some chance of success is the establishment of regularity of attempt at defecation, increase of the strength of the accessory muscles, increasing the bulk of the feces by proper diet, and, finally, the lavage of the rectum with small quantities of cold water.

Much the same in effect are the pelvic tumors, uterine displacements, and injuries of the muscles of the perineum from severe labor. These conditions demand surgical relief.

Anal Abnormalities.—Fissures of the anus and hemorrhoids are common causes of constipation, partly because of the pain which they occasion during defecation and partly because of the induced spasm of the anal sphincter which cannot be voluntarily relaxed.

Constricted or spasmodic sphincters without local lesions frequently cause constipation. This is very apt to be observed among the stronger members of society who have no other complaint. It sometimes is possible to trace this abnormality to the habit of resisting the desire to defecate. The individual, possibly a physician, a teacher, or business man rushes off to work after breakfast thinking to move the bowels later in the day. Solids and gases press on the rectum and with much effort the sphincter is gripped hard for hours to avoid unpleasant accidents. The muscles of protection become hypertrophied beyond the power of the expulsive mechanism. The sphincter is found to be broad and thick. These cases are to be cured only by anal stretching, divulsion, or actual division of the fibres by incision. Regularity of habit then prevents a recurrence.

2. *Disturbances of Colon Peristalsis.*—These cases are recognized through proctoscopic examination, the discovery of the empty rectum, and through careful palpation of the colon when cathartics have for a time been interdicted. The rectum may contain a small amount of fecal material and this may indicate whether we have to deal with atony or spasm above. The wall of the sigmoid as high as it can be seen may give useful indications of conditions above. It is a mistake to suppose that in a given case we are dealing either with spasm or atony, for the apparent atony may be due to conditions without the bowel or to failure of stimulation, just as spasm my be due to temporarily excessive irritation. A large proportion of cases that one might be tempted to class as atonic or spastic bowels are bowels which have not reached any definite abnormal state; normal power is there, lacking merely the necessary work to call it into activity, or the necessary stimulation to make it, promptly and efficiently, take up the work offered.

Dietetic Types.—The underfed make up a considerable proportion of the constipated. In large part this class is made up of women. Because of lack of appetite, lack of time or money or real or fancied digestive disturbances these patients eat very little. Sometimes they drink tea excessively, which stimulant they take in place of food. Possibly the tea may be a factor in the constipation; usually this is not the case. These patients are often thin, somewhat anemic and frequently very neurotic. It is natural that the bowels should not move on such a diet as we find, on study, is habitually taken. It is really not the constipation which must be treated, but the starvation. It is very easy to overlook this type, but the results, when treatment is properly carried out, are most gratifying. Even when the constipation is of years' duration good results may be obtained. The course of forced feeding must be insisted upon most firmly and carried out scrupulously. Constipation in enteroptotics is frequently of this type. In another class it cannot be said that an insufficient diet has been ingested but rather that an improper diet is habitually taken. An aversion is felt for all but the most refined foods; all fruits, vegetables, and fats are eaten sparingly. Meat, eggs, well cooked potatoes, and fine breads constitute the entire dietary. They are apt to be better in summer and worse in winter. The normal stimulants are lacking, as is learned from the history, but the diagnosis is settled by making a test by diet. A certain amount of fruit, for example, or agar-agar is ordered and the result watched. The treatment is obvious in principle but in practice often difficult to establish unless the most rigid instructions are given as to the amount and kind of food which should constitute the diet. Schmidt, who first suggested the use of agar-agar, apparently found that it was not efficacious in a sufficiently large proportion of cases, apparently, so that to it he added cascara. I can see no particular reason for elation over the addition of this mixture to the list of cathartics.

Sedentary Types.—The fat and flabby, sedentary, and overfed sometimes suffer from a constipation

due to a faulty colon peristalsis. The constipation may be explained in various ways but personally I have usually found little satisfaction in treating these patients for constipation unless they can be made to recognize the necessity of a fundamental change in their mode of life. Graduated but, finally, moderately hard out-of-door exercise is preferable, but a systematic course of resistance exercises accomplishes good results. The fact of constipation is almost secondary in its importance; the change in habits is demanded by the dangers of the primary condition.

Enteroptotic Types.—Constipation among those with enteroptosis is exceedingly common. Superficially considered it might seem that it was always due to atony of the colon and to angulation at various points. As has been said, however, the constipation is often due to insufficient feeding and on the other hand sometimes to deficient defecation. If the failure is evidently in the colon and there is a severe grade of ptosis it may be justified to consider angulation as a factor. There are cases which do well with a properly fitting abdominal support which otherwise continue to complain of constipation. Main reliance is always to be placed in the improvement of nutrition and the increase of fat by a period of rest in bed, and forced feeding. Complete cure of these cases is obtained only by long-continued adherence to hygienic principles and life in the open air, as the real difficulty is a well developed fundamental disturbance of nutrition.

Colon Atony.—The term atonic constipation should be limited to those cases in which there is evidence that the colon is actually atonic. Such a condition may be due either to essential weakness of the musculature of the bowel or an abnormality of the nervous mechanism resulting in diminished irritability to normal stimulants. The term should be reserved for those cases which fail to respond to the stimulus of a normal food residue. It should be demonstrated that the defect is not in the mechanism of defecation but in the colon peristalsis. I believe that true atonic constipation is far less common than we have been in the habit of thinking. The diagnosis is rarely to be made unless the constipation has been long standing or there has been a recently operative etiological factor, such as a depleting disease or accident. Long-continued and severe catharsis by reducing the normal irritability of the bowel seems sometimes to be responsible for an atony. The positive diagnosis is made through study of the character of the stools, the careful palpation of all parts of the colon, the estimate of its contractility under manipulation, and the study of the upper sigmoid by the aid of the inflating electric sigmoidoscope. Diagnosis sometimes can only be made from long observation. The general treatment of this form of constipation consists in the correction of the mode of life, the proper arrangement of the diet and the betterment of the disturbances of the general health. Locally the attempt is made to improve the nutrition, strength, and irritability of the bowel wall. During treatment it may sometimes be necessary to allow small and diminishing doses of cascara three times daily, before meals. Massage of the colon, if done by someone who can actually palpate the large bowel, is a most useful measure. The professional operators are apparently taught to massage along the course of the bowel and the result is that they do little more than rub the skin. It is of no importance to push contents onward a trifle, but rather we must manipulate the bowel wall directly with the fingers. This can best be done when the fingers are held transversely to the long axis of a given portion so that the segment is rolled under the fingers. I believe this should be done either by the physician or under his immediate instruction. Massage must be kept up for some time if actual results are to be obtained. Oil enemas in some cases work well, and again are of no use whatever. We can best account for this on the supposition that in certain cases irritation results in spasm of certain sections of the bowel too small or too inaccessible to be discovered. In all cases the oil may be of temporary benefit, but in cases in which there is no spasm whatever the effect ceases on discontinuance.

Spastic Types.—Habitual constipation due to spastic contraction of a smaller or larger section of the colon is not at all infrequent. The condition is observed most commonly in the neurotic, in those who have abused cathartic remedies, and in those who have made it a practice to take foods which are irritating to the intestinal mucosa. The exaggerated laxative diet is thus seen to be harmful in a certain proportion of cases. The diagnosis is made by elimination of failure of the mechanism of defecation, the discovery of fecal balls or small calibered stools in the rectum, the history of the passage of such feces, and through the palpation of the colon. It is easy to confuse the spastic bowel, a hard cordlike body the size of the finger, with the normal empty bowel: this is a matter of experience. Many of these patients have pain in various portions of the bowel, and the association between spastic constipation and colica mucosa is close. The recognition and proper treatment of spastic constipation is exceedingly important. Measures useful in other forms of constipation are not beneficial or may even aggravate the trouble; cathartics do not as a rule give even temporary satisfaction. The underlying neurotic conditions are always to be carefully considered and treated more or less radically as indicated, either by psychotherapy, change of environment, or enforced rest. The diet must be made abundant but free from irritants. To this end it is well to use those vegetables which contain large amounts of cellulose, but not fermentable substances, or those which leave a hard residue. Fats are to be taken in as large amounts as can be borne. It is best to start these patients on a strictly milk diet, and after a week change this to a milk and cereal diet, later instituting a full mixed diet, six meals a day, but one that is not irritating.

Oil enemas are of the greatest value. The oil, either a pure olive or sesami, is injected into the rectum and retained over night; the amount of ten ounces is ordered every night for a fortnight and then every other night for an equal time; the further continuance is determined in the individual case. To those who have no one to call upon for assistance in taking these enemas, the enemator devised by me a few years ago is an almost absolute necessity. Aside from the indications of the individual case two drugs are efficacious in treatment. I refer to liberal doses of bromide and adequate doses of atropine. Combined with other treatment, these two are of great service in relieving part of the discomfort at the outset.

Catarrhal Cases.—While it is not within the province of this paper to discuss catarrhal inflammation of the bowel, in view of the frequency with

which the chronic form supervenes upon long continued constipation and the use of purgatives it is necessary to make more than passing mention of it. Contrary to what is frequently supposed, such a form of chronic catarrh causes or keeps up a chronic constipation, chronic diarrhea being the exceptional phenomenon unless there is ulceration of the bowel. Those afflicted with catarrh usually suffer much from intestinal flatus and irregular pains along the course of the colon, referred to other organs. Sigmoidoscopy may give an indication of the catarrh above. The stools show mucus in varying amounts. The diet in these cases must be full and unirritating, very much the same as for the spastic form of constipation, to which the catarrh frequently leads. Massage is of value when there is no developed spasm. Intestinal lavage is of far more value in these cases, in my experience, than enemata of oil.

The brief presentation of such an important subject as this lays one open to criticism. Certain aspects of the subject have necessarily been omitted or mentioned too briefly. The treatment of the subject has been suggestive and synoptic throughout. Particular stress has purposely been laid on the classification of cases and the clinical points which from personal experience seem to me most useful in the recognition of these different classes. If we fully appreciate the diversity of causes of constipation we are less apt to expect a panacea and we are more apt to realize that failure in treatment is due to failure in diagnosis. I doubt that the future holds much in the way of new therapeutic procedures in the treatment of this complaint, but I believe that success will be expected through the insistent application of present therapeutic principles in accurately selected cases.

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SCIENCE AND MEDICINE WITH SPECIAL REFERENCE TO THE TREATMENT OF SYPHILIS AND GONORRHEA.

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The vital activity of every cell of the animal as well as of the vegetable kingdom stands of necessity in a certain relation to the outside world. The exact nature of the stimulus which causes the cell to grow and to regenerate is not known, but it can be shown experimentally that every change in the condition of its surrounding is an interference, an injury which causes a depression of the vital activity. The depression may under certain conditions be followed by a period of increased vital activity. Even if we take the point of view that nature's actions are without purpose, still only those organisms can exist that adapt themselves to the surroundings; the mere fact, therefore, that an organism is still in possession of the battlefield after millions of years of fighting for existence shows that it has a rational internal organization and compels our mind to look upon any change which it, as a result of an interference, undergoes as a rational endeavor on the part of living cells to adapt themselves to the changed condition of life by a defensive reaction. It is, therefore, entirely within the limits of logical reasoning, if we pronounce the clinical picture of a disease as we see it at the bedside or of an animal experimented upon with drugs, as we see it in our laboratories as an adaptation of an experienced fighter to the changed surrounding, as a rational physiological action of self-defense.

The internal or primary effect of a change in the surroundings is always the same, but the outward manifestation, the clinical symptoms, varies according to the gravity of the interference. As an experimental fact of the above said, I will mention the negative phase of phagocytosis following the vaccination with dead microorganisms. The negative phase may vary in length and severity, but it is always present and represents the primary effect of the interference. A positive phase of phagocytosis will follow this injury, if the individual has enough vitality to react properly, to respond by a defensive reaction. On the other hand, it would be erroneous to conclude, as is occasionally done, that vaccination depresses phagocytosis only. On the contrary, this therapeutic interference depresses the whole vital mechanism of the body, but the phagocytic index is the only part of the injury which can easily be ascertained and graphically demonstrated.

Furthermore, in some of the most infectious diseases, such as Asiatic cholera and chicken cholera, phagocytosis does not constitute an essential part of the protective and immunizing forces of the body.

The nature of the secondary or outward effect, the reaction to a dose of medicine or to a vaccination, or to an attack of an infection depends upon the relative size of the injury. An interference which lies within the recuperative power of the individual will to all outward appearances act as a stimulant; it will increase the vital activity; while an interference that oversteps the above-mentioned limits will to all outward appearances depress or even destroy the vital activities and result in death.

The direct effect of light, heat, and all chemically active substances (drugs) consists in a depression of the vital activities, but as long as the relative size of their doses does not overstep certain well-defined limits, the resulting secondary or apparent effect will be an increase in the vital activities.

To explain the above on a practical example, it may be mentioned that bichloride of mercury, regarded as one of our most deadly poisons and germicides, becomes a stimulant to cellular activities as soon as its watery dilution is greater than 1:400,000 to 1:500,000. That is, the addition of this solution to a culture of microorganisms makes them grow more luxuriantly than the control culture to which bichloride of mercury has not been added.

The optimum dilution varies somewhat for the different kind of microorganisms.

It would not be difficult to show that such relation exists between the living cell, and every chemically active substance. It may be well to mention the relation of a few of the most common drugs: iodine becomes a stimulant or a tonic to cellular activity in a watery dilution of 1:600,000; potassium iodide in a watery solution of 1:100,000, and salicylic acid in 1:4,000.

The chemistry of the organic compounds taking part in the vital processes of the human body is still in its infancy. Of the multitude of organic bodies, which probably play a more or less important rôle in the vital economics, a few only are known, and even of those there is no one whose action is definitely known, as yet. But all of these experiments show one thing of the greatest importance for the physician, namely, the fact that the primary action of any drug and of any vaccination is an injury. To be sure, it can be specific in so

far as certain drugs or certain toxins show preference for certain kinds of functionating tissue, but it is very doubtful if any drug or any toxin has otherwise truly qualitative action.

Our materia medica, therefore, misrepresents the true relation of the living cell, and with it of the human body to the outside world. Science does not know of any directly curative drugs, and cannot find any justification for the generally accepted division of the drugs into tonics, poisons, etc., etc., and it does not support the view that the same drug differs in its primary action on the human system, according to the size of the dose.

Such teaching is not only faulty and suited to prevent scientific progress, but it also tends to mislead the medical student and impair his judgment. It is due to thus misguided clinicians that many widely advertised preparations, which consist for the most part of chemically inert compounds, have been introduced in the practice of medicine, though their own manufacturers' statements say that they can be used on the infected mucous membrane in solutions of 1 to 25 per cent. strength without causing pain or irritation. A drug, in order to act as an antiseptic, must be in a chemically active state. But the application of a chemically active substance to the infected mucous membrane produces an irritation, and is followed by a transitory increase in the clinical symptoms consisting of pain, swelling, and discharge of pus.

The above holds true, in fact for the action of any effective therapeutic interference, and shows that the action of the drug and that of the disease are in the main the same; but the drug can be given in measured doses, while the infection, once started, is beyond our control.

In the clinical picture of gonorrhea, as well as in that of syphilis, is represented the defense of a highly specialized cellular state against an invading unicellular microorganism, or, speaking from the point of view of the intruder, it represents an attack of a unicellular organism on a complicated (complex) cellular system.

The physician is appealed to to devise means whose aim it is to help the human body to combat and ultimately remove the pathogenic germ. But as the physician's effort to guide the course of this struggle is limited to the production of injuries, and as the injury intended for the disease-producing germ will equally affect its host, the therapeutic results, good or bad, will depend upon the resistance and recuperative power of the patient, on the one hand, and perhaps to a lesser degree upon the virulence and vegetative properties of the germ, on the other hand. It follows, therefore, that the treatment of any infectious disease is but an experiment which has to be repeated, and presents itself in a different form with every new case.

In experimenting with animate matter, we have always to remember that every interference on our part will be followed by a defensive reaction, which, though purely physiological, can easily be mistaken for a pathological change. Such mistakes are frequently made, and often found in medical literature, and they constitute one of the main obstacles to the introduction and use of rational thought in medicine.

Clinical experience has shown mercury and iodine to be the best drugs with which to influence the course of syphilis, but they are probably not any more specific or tonic for syphilis than they are for gonorrhea, because their usefulness in the former disease depends mainly on physical rather than on chemical properties.

1. Mercury is in a liquid state at room and body temperature, and can therefore easily be divided into small particles and absorbed and converted into salts, which are capable of dissociation.

2. The dissociation of the salts of mercury is very small even in solutions of great dilutions. They, therefore, spend less of their chemical energy and cause less of a reaction locally than the more readily ionized salts of silver and copper. The chemical force of the latter salts is almost entirely spent locally the instant their solution comes in contact with living tissue. The salts of iodine, too, are distinct by the low percentage of dissociation.

3. The albuminates of mercury formed by the contact of its salts with protein substances are relatively easily soluble in an excess of protein substances, and can in this form be carried by the blood current throughout the body.

The action of mercury is an injury to the patient affected with syphilis as well as to the healthy person; in fact, the dose of mercury which lies within the recuperative power of an individual is larger in health than in disease. The administration of mercury will give beneficial results so long only as the injury to the syphilitic germ is greater than to the tissues of the patient. It is, therefore, at once apparent that hygienic measures are of the greatest importance in the treatment of syphilis, not only with reference to the ultimate cure, but also with reference to the dose of the drug that can be given with beneficial results.

The therapeutic dose of mercury is larger for the same individual if it is kept in a state of high vitality than otherwise, and the microorganisms neither multiply as rapidly nor do they become as virulent if forced to grow on tissue of high vitality as would be the case if the culture media were better suited for their growth. Cases of syphilis with long intervals between the infection and the appearance of the secondary rash are usually of mild nature, because the soil is apparently unsuitable for rapid growth, and it takes a long time before the detrimental effect is felt by the body as a whole to such an extent as to arouse the defensive mechanism of the whole system.

It has happened to me a number of times that luetic patients having changed their work from outside to inside would get salivated on the same dose of medicine which was taken with impunity in their former occupations.

It seems that the human system has in any given state of health only a certain well-limited amount of energy with which to perform its functions, consisting in building up, defending, repairing and reproduction, etc., and that by relieving the body of some of its work more energy will be at the disposal of defense and repair. A patient, therefore, who is kept in bed will for the time being tolerate larger doses of mercury and iodine than when up and at work, provided all other conditions are equal.

The reason why antisyphilitic treatment does not, as a general rule, give as favorable results in cases of long standing as in newly infected persons has variously been ascribed to the increased tolerance of the syphilitic germ toward mercury, but from our point of view it is much more likely that the vitality of the old patient is lower than that of the newly infected, and does, therefore, not properly respond to the additional injury produced by the administration of mercury or iodine. This corresponds also

with the fact that some such cases do well under good sanitary and hygienic conditions, and without the help of any medical treatment.

In gonorrhea we deal with a more or less localized infection, but the general laws mentioned in the treatment of syphilis will also apply here. A patient kept under good sanitary and hygienic conditions will tolerate larger doses of urinary antiseptics internally and stronger irrigations and injections locally, and the injuries produced by the treatment will heal quicker, and can be repeated within shorter intervals than in individuals of low vitality.

In the internal treatment of gonorrhea we use drugs that are excreted by the kidneys in a chemically active form and dissolved in the urine act as antiseptics to the infected part of the genito-urinary tract; in order to get some useful injury into the infected part of the genitourinary tract, we are compelled to do harm to the whole human mechanism.

Internal treatment is indicated for short periods of time in strong, healthy individuals, especially in those living an outdoor life, and in acute infections, but it is contraindicated in sickly individuals living an indoor life, and in chronic cases. In individuals of low vitality the internal treatment is always of questionable value, and should be replaced as soon as possible by local treatment. I have never been able to demonstrate with the urethroscope the absorption of chronic gonorrheal infiltrations by internal medicine alone, and do therefore not believe that any permanent improvement can be obtained by such treatment alone.

In local treatment we try to interfere with the growth and the spread of the gonococcus by the direct application of chemically active substances, and by the use of dilating instruments in the inflamed parts of the genitourinary tract.

In this method of treatment the injury to the human body as a whole is reduced to a minimum; it consists in an increased absorption of the toxins produced by the attacking germ. Since this injury is our more effective means to stimulate the human system to an increased effort at the defense, we must regard it as useful and necessary.

The absorption of toxins of the infecting microorganism is an essential part of the rational therapeutics of gonorrhea.

The antiseptic substances used for irrigations and injections come in contact with the germs of the surface of the mucous membrane only, and not with those hidden in the glandular structures. The urethral membrane is very richly supplied with glandular structures. Lichtenberg* found about 20,000 to the square inch. These structures are the most favorable breeding places, because the specialized cells of the glands are not only an easier prey and better soil for the gonococcus than the epithelium of the surface of the mucous membrane, whose function is protection, but the situation, too, makes it difficult to bring the glandular cells therapeutic aid. The action of the therapeutic agents with reference to the glandular cells is an indirect one only. It consists in the production of an increased hyperemia. The word hyperemia is used here in the sense of Bier and his school. It is a collective expression for the sum of means which the human body uses to fight an invader.

The question as to the kind of chemically active substances that should be recommended for use in the treatment of gonorrhea can be answered in a general way only:

1. The drugs in question should be of simple and definite chemical formula. Such drugs are: Nitric acid, sulphuric acid, phosphoric acid, peroxide of hydrogen, permanganate of potassium, sulphate of zinc, sulphate of copper, and nitrate of silver.

2. In the treatment of acute inflammations, preference must be given to drugs whose chemical activity consists mainly in oxidation, such as acids and salts with cation of small toxicity, such as potassium permanganate and zinc sulphate, because these are more cleansing and their injuries on the mucous membrane repair quicker than the salts with cation of great toxicity, such as copper sulphate and silver nitrate. The latter are indicated in the more chronic inflammations, but they should not be applied any oftener than every four to five days, since their injuries take about that length of time for repair. For more specific information concerning the chemistry of the antiseptics see my books on Gonorrhea (Appleton & Co., New York, 1909).

3. The physician should limit himself to a small number of drugs, in the use of which he has become expert.

4. The physician should always keep in mind that the success of his treatment is much less dependent upon the kind of drugs he uses than it is upon the intelligent use of any given drug. A thorough acquaintance with the pathology of the disease he treats and the chemistry of the drugs he uses will insure the results of his treatment.

The instrumental treatment endeavors by graduated dilation to soften and break down the pathological tissue, and to allow a freer exit for the pent-up pus. The indirect action of the dilatation is essentially the same as that of the antiseptics; it consists in the production of an injury and a specific intoxication of the host, but the damage done by a dilating instrument repairs slowly—four days to four weeks may be given as the time required for complete healing.

The urethra is a channel of very uneven caliber, the narrowest part of which is normally located at or near the meatus. The therapeutic action of the sounds and bougies is therefore practically limited to the first inch or two of the urethra, and only very prominent pathological lesions located in other parts of the canal can be treated and partly absorbed by these instruments. Frequently, I may say, it is the rule to find in old cases of gonorrhea with obstinate course urethral enlargements measuring 62 Char., and more. Those pockets cannot be treated with the sound or the bougie, but their infiltrations yield readily to dilators adapted to their shape.

To repeat, then, in order to treat gonorrhea rationally, there is needed a thorough knowledge of the chemical and therapeutical action of at least one oxidizing and one astringent drug, and the procession of instruments capable of dilating to the limit of its elasticity any part of the urethra.

It may be mentioned that five cases of gonorrhea complicated by rheumatic pains affecting various parts of the body, which had been treated by the above described method, and in which the rheumatism did not disappear during the course of the treatment, were subjected to gonorrheal vaccine treatment, but the results were all negative.

If I should be allowed, then, to draw conclusions from this limited experience, I would say that the most promising cases for vaccine therapy are those which have been treated by antiseptics and instruments in an irrational and inadequate way only.

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THE CAMPAIGN AGAINST THE HOUSE-FLY.

IT is never an easy matter to convince human beings that that with which they are familiar and have long considered harmless, may in fact be a source of danger to health, and it is even more difficult to persuade them so to change their mode of life as to eliminate the danger. No better example of this exists than the contempt in which the common house-fly is held, and the laugh which is apt to follow any suggestion that this insect is more than a disagreeable companion. This is so, too, even after it has been proven beyond question that this familiar pest is a common means of transferring typhoid fever from man to man, and is thought by some to be the chief cause of infection of infants with summer diarrhea. Even if we had no records of local epidemics of typhoid fever unquestionably due to the house-fly, if we had not cultivated the typhoid bacilli from fresh fly specks, and had not seen the effect on the bacterial contents of milk due to exposure to the insects, we would have but to call to mind the scenes of a country farmhouse, the dining room, kitchen, dairy, manure pile, and privy vault, all close together, and to remember the familiar buzz which greets our ears on entering each in turn on any summer day, to be convinced of the ease with which disease may be contracted through the agency of these pests. At meal times the flies are in the kitchen and dining room; between meals they are in the manure pile and the midden. The thought is not pleasant.

Granting then that flies may be the cause of the spread of disease, what steps have been taken in the past and what are being taken at present to overcome the danger? In 1895 Kober, the Health Officer of Washington, in his annual report mentioned casually that a few small local epidemics of typhoid fever in the suburbs might be due to open ditches and flies, and advised that such places be cleaned up. The next year, his successor, Woodward, investigated the stables in a limited area and enforced regulations which reduced the number of flies markedly. In 1897, in Utica, N. Y., Wallace Clarke, the newly appointed Health Officer, began what was probably the first systematic sanitary crusade against the fly. Noting that sixty per cent. of the cases of contagious diseases in his city occurred in one ward, a ward especially open and sparsely populated, and investigating the reason for this, he found that the refuse from the city was dumped on a farm in the outskirts of this ward; that there the ground was covered, not only with garbage but with the output of the privy vaults; that it swarmed with flies, and that with the prevailing summer winds these were driven in hordes into the city and settled in this particular ward. Against severe political opposition a garbage and night soil reduction plant was obtained, the dumping ground was abandoned, and the number of contagious disease cases in the infected ward dropped to its normal ratio. Clarke then commenced a fight against privy vaults, but was soon retired from his position, and we note that the present Health Officer reports that they "have never made any investigation in regard to the transmission of typhoid and other germs through the medium of the house-fly."

During the Spanish-American and Boer Wars much was said concerning flies in camp causing the spread of typhoid fever and dysentery, and some, for the most part ineffectual, measures were taken to prevent it. After this general interest seems to have waned, and except for a few scattered reports but little was done until Nash, in Southend-on-Sea, in England, showed that by cleaning up the refuse piles in his locality, both flies and cases of infantile diarrhea became rarities. Nash, too, after rendering Southend a model town from a sanitary viewpoint, fell under the political axe and was retired.

As a result, however, of the work of these, and a few other enthusiasts, who are only now becoming recognized as progressive sanitarians, and not as cranks, the belief in the dangers of the fly as a mode of contagion has slowly gained more and more adherents. The disciples have been scattered, and their work local, and it has remained for a lay organization, The Merchants' Association of New York, to start a general campaign against this insect. Two years ago their committee investigated the conditions of the waterfront of New York, discovered its filthy condition, and showed how the filth was carried to food by the feet of the flies, causing the prevalence of summer diarrhea and the fall rise in typhoid fever in these neighborhoods. This organization has lately taken a second step in its crusade, by the publication of another pamphlet, "The House Fly at the Bar: Indictment: Guilty or Not Guilty?" In this valuable pamphlet appear the opinions of sanitarians from all parts of the United States and Canada on the work of the fly in spreading contagion. A large amount of evidence is collected to show that both typhoid fever and diarrhea are transmitted by flies, and finally the pamphlet considers the best method of protection against this source of danger.

The subject of the defence against fly contagion divides itself naturally under three heads: the protection of the fly against infection: the destruction of the fly; and the protection of man against the fly. Any one of these, if perfectly attained would bring about the desired results, but, as perfection in such things is well-nigh impossible, an effort must be made to accomplish all three simultaneously.

The fly is protected against infection, first, by keeping him away from the invalid. Sick rooms and hospitals should be carefully screened, and every fly found inside be immediately killed. The excreta of typhoid, dysentery, and diarrhea patients should be thoroughly and immediately disinfected. Human excreta from both the healthy and the ill should be deposited only in the proper receptacles, and, if these be privy vaults, they should be kept disinfected and tightly screened. The destruction of the fly, at first thought a hopeless undertaking, is, when the habits of the insects are considered, not impossible. The house-fly breeds almost entirely in manure, the larvæ hatching out in from ten days to two weeks. The first step then is the destruction of these breeding places. To each stable should be attached a waterproof, smooth walled, tightly covered bin, in which all manure should be placed promptly, and which should be cleaned out every seven days. The streets should be cleaned at least twice a week, and all manure carried through them in tightly closed wagons. These same rules apply also to the care of human excreta, garbage, dead animals, and organic filth of all kinds. If these were kept covered and removed weekly, the flies would soon disappear. The third factor, the protection of man against the fly, lies largely in the care of food stuffs, which consists essentially in careful screening. This is especially true with milk, that ideal culture medium for bacteria. The cow shed and the dairy should both be protected, and the milk pans tightly covered. At the store milk must be covered and the edibles put on display carefully screened, a procedure now required by law in Philadelphia. Again in the home, the kitchen, pantry, and dining-room should be made as nearly as possible fly-proof by careful screening, and the food kept covered in summer time. The expense of screening need not be great, as where wire screens are not to be had or the expense of putting them on all windows and doors is too heavy, cotton mosquito netting is a cheap and satisfactory substitute.

The work of the Merchants' Association of New York in spreading this knowledge broadcast cannot be too strongly commended. The Health Commissioner of Chicago, a progressive sanitarian and energetic guardian of the health of the community, has also just issued a leaflet for general distribution in which attention is called in text and picture to the fly as a public enemy. It is such work as that of the Merchants' Association in this city and of the Health Officer in Chicago that attracts the attention of the masses, and makes great reforms possible. It is to be hoped that the effort will be appreciated by other health authorities, legislators, and private citizens and that the results will be a more careful study of fly contagion, and an organized campaign against this insect, the barometer of the filth of the community.

VITAL STATISTICS IN GREAT BRITAIN.

A SERIES of figures and charts, treating of public health and social conditions in Great Britain has been collected recently by the Local Government Board and issued in the form of a Blue Book. The volume is extremely instructive and illustrates in a clear manner such subjects as the growth of population, mortality, public health, occupations, periods of industrial prosperity and depression, pauperism, development of education and of thrift. It may be of interest to learn, if only for the sake of comparison, some of the facts tabulated in this book.

In the middle of 1908 the population of the United Kingdom was in the neighborhood of forty-five millions. Since the year 1851 the population of England and Wales has nearly doubled, that of Scotland has increased by 67 per cent., and that of Ireland has decreased by 33 per cent. The natural increase of population, that is, the difference between the number of births and the number of deaths occurring in any given period, has considerably declined during recent years. As a matter of fact, the death rate has decreased in thirty years from 22 to 15, and during the past three years the birth rate has gone down rapidly. One of the chief causes of the progressively retrograding birth rate is that persons in Great Britain do not marry as they did formerly. In 1850 the number of married persons was 17.2 for every 1,000 inhabitants, while in 1909 it had declined to 15.8. Of course, a very striking feature in statistics relating to population in civilized countries has been the tendency during the past half century of the population to concentrate in cities, and in England this is especially marked. In 1881 the population of urban areas was 68 per cent. of the aggregate population; in 1901 the population of urban districts was 77 per cent. of the aggregate population.

The birth rate of Great Britain has gone down, but the death rate has so greatly declined that the increase of population is still large. Indeed, the saving of child life in England in the course of the past few years has been most gratifying, and shows that rational measures in this direction can effect much.

The most generally interesting portion of the volume under discussion is that which deals with comparison of the mortality in various occupations. Taking 1,000 as the central mean, the proportional liability to death of males between the ages of 25 and 65 is, according to their occupation, as follows: Clergymen, priests, and ministers, 524; gardeners, 563; gamekeepers, 586; farmers, 596; engine drivers and stokers (that is to say, locomotive engineers and firemen), 610; farm laborers, 621. The most unhealthy occupations are those of copper miners, 1668; saloon keepers and spirit dealers, 1781; hotel servants, 1883; tin miners, 2131; general laborers, 2235. These tables also appear to demonstrate in the most convincing manner that work is beneficial to health and tends to longevity, for they show that the liability to death among occupied persons is 1,004, while that of unoccupied males is 2,566. From a careful examination of the causes of death during a period of 30 years, it is shown that the mortality from most of the principal diseases has declined in that time, the chief exceptions being pneumonia, diphtheria, and cancer.

How greatly housing conditions have improved in England and Wales is evidenced by the follow-

ing figures: In 1891, 640,410 one-room tenements existed in England and Wales, excluding London; in 1901 the number had been reduced to 507,763. Three million and forty-four people lived in overcrowded tenements and this had been reduced to two million, six hundred and sixty-seven thousand, five hundred and six, again excluding London. In London, in 1891, 387,156 one-room tenements existed, in 1901 there were only 304,874; 831,668 persons lived in overcrowded tenements; there are now only 726,096.

Statistics with regard to the above subjects would be difficult, if not impossible to collect from America as a whole. But enough is known of the matter to state that considering the difference of climate and of conditions of life, they would not vary much from those of the British Blue Book. Child life is perhaps better cared for in Great Britain than throughout this country, but the general health of the population in America is better than in the United Kingdom, owing to the greater trend of population to cities in the latter country. In this land a similar tendency is evincing itself, but not as yet to the extent it has shown in England. The publication of statistics such as quoted is productive of much good, and their importance is not confined to the country in which they are issued. They provide food for reflection in all civilized countries.

Education of Defectives.

A subject which has taken on a large degree of importance in these days of the systematic examination of school children is the education of defectives. In every public school there are a number of children who are presented to the medical inspector as defective mentally in some way. The question which is presented for solution is what are we to do with these boys and girls who are not learning anything under the ordinary school system, who become habitual truants and later enter the ranks of the insane, the suicide, the criminal. Nearly all of these children possess a certain amount of ability in some line, often a manual one. Could they be properly taught they might be a benefit to the community instead of a burden and an injury; but as yet we lack a system of education for such defectives. Decroly in *La Policlinique* for March and April, 1909, states his belief that the family physician may do much toward the solution of this problem, and that he should exert his influence in every direction, in medical congresses and other meetings, and on educational boards, in the direction of obtaining development in manual lines for those children incapable of development in an intellectual direction. We should bear in mind that education should develop the faculties of action and the ability to apply these faculties in a useful manner, and to get results in the line of work, and in useful lives. There are three agencies in which the physician may work—the family, the school, and the social organization. The parents must be educated in the prevention of errors of hygiene and mental education. They must be taught a rational physiology and a knowledge of the intellectual and moral deficiencies of children. In the school the physician may aid in developing medical school inspection in the line of education, instead of in the prevention only of contagious diseases. He may aid in establishing a type of schools for manual training of those that cannot learn in an ordinary way. These children make good artificers in various directions. Manual and farm schools will help to solve this problem. These children, equally with the blind and the deaf, should be taken charge of by the State in properly governed institutions. Again the physician may aid in getting children's courts, in preventing the imprisonment of children less than sixteen years of age, and in creating clinics especially for school-children, where they can receive treatment and guidance in hygiene. In all of these directions the State should recognize the value of the services that can be rendered to it by physicians, and should be willing to compensate them for the time that must be spent in developing such a system of education.

Meat Poisoning.

The fact that various diseases can be contracted from eating the flesh of the lower animals when it is itself diseased or spoiled has been known for many centuries and many laws, religious, civil, and medical, have been enacted to regulate the sale of meat. This is especially true in Germany, where the more extensive eating of raw meat has made the danger greater and in consequence the need of stringent slaughter-house and inspection laws more positive. In an article in the *Deutsche medizinische Wochenschrift* for May, 1909, Schneidenmühl of Kiel, after discussing the various infectious and parasitic diseases transmitted through the flesh of cattle, divides cases of meat poisoning into three classes. To the first class belong those diseases contracted by eating meat from animals themselves diseased, usually suffering from a definite bacillary infection. The danger of this class lies in the fact that cooking does not destroy the poison. The symptoms appear quickly and are those of an acute gastroenteritis. Cases in the second class, the so-called sausage poisoning, occur after eating raw sausage and other meats which have been improperly stored and stacked in unhygienic cellars. The symptoms come on later than in the first group, after from twelve to twenty-four hours' incubation. They are vomiting and constipation, with disturbances of vision, speech, and swallowing. There is no fever. Cooking renders the meat safe. The third class comprises the "chopped meat poisoning" cases. This disease is caused by contamination during the process of chopping. It occurs only when the meat has been prepared in very hot weather, and is eaten raw. The symptoms are vomiting, diarrhea, headache, dizziness, etc. It is rarely fatal. Schneidenmühl says that the knowledge of the average medical man of these forms of disease is very meagre, and he urges an increase in the number of chairs in comparative pathology in the medical schools.

A New Symptom Complex.

Every few years to the joy of the medical curiosity collector and the confusion of the student, an addition is made to medical literature and terminology by the description of a new disease. It is now several years since the Hollanders called attention to the enterogenous cyanoses and Osler brought forward polycythemia, and the time is quite ripe for something new. It is not surprising, therefore, to find in the *Münchener medizinische Wochenschrift*

for June 1, 1909, an article by Fleischer of Tübingen reporting two cases and collecting two more to make up material for a new symptom complex. In all four of these cases there were marked symptoms of organic nervous disease, three having been diagnosed as multiple sclerosis and one as pseudosclerosis. The characteristic point about all was a definite brownish green pigmentation of the cornea. All the cases occurred in men between twenty and thirty years of age. Two had glycosuria, one permanent, the other transient. The other symptoms were enlarged spleen and enlarged cirrhotic liver. There was in one case pigmentation of the face. The nervous symptoms consisted of marked intentional tremor without the scanning speech or nystagmus of true multiple sclerosis. It will be seen that these cases combine symptoms of multiple sclerosis and bronzed diabetes. Two cases which came to autopsy, however, failed to show the lesion of either. The pigment in the cornea was shown to be hemosiderin. At one autopsy this same pigment was found deposited in various organs. These cases certainly would give the impression of belonging together, and probably to a new class of disease. If it prove to be a new symptom complex, it is to be hoped that it will bear the name neither of Kayser, to whom belongs the credit of reporting the first case, nor of Fleischer, who describes it as a definite disease, but that it will be given a name in some way descriptive of the condition.

News of the Week.

The Death Rate in New York City.—The city's death roll last week was 1,234, an increase of 94 over the corresponding week of last year, but with a smaller death rate, increase in population being considered, than for the same week last year. Deaths of children under 1 year last week were 222, as against 268 for last year; there were 372 deaths of children between 2 and 5 years, as against 399 for the same period last year. There were 546 deaths in tenements last week, as against 473 for the same week last year, and 21 from scarlet fever, as against 28 last year. Despite the increase in population, the deaths from tuberculosis were only two more than for the same week last year—145 to 143. The week's death rate was 14.10 per thousand, against 14.45 for the same week in 1908.

Deaths from the Heat.—Thirty-two deaths from heat prostration occurred in this city last week, according to the mortality report of the Health Department. During the corresponding week last year there were five deaths from the same cause.

Convalescent Home for Infants.—The Chappaqua Convalescent Home was opened in Westchester County, N. Y., on June 28. It stands on the slope of Chappaqua Mountain and has seventy acres of ground. The hospital has a capacity of two hundred and will be open the year round for the treatment of crippled and sick children. There is no time limit for the patients. When necessary the mothers of the patients will also be cared for. The institution was made possible by a gift of $500,000 by Mrs. A. A. Anderson a year ago.

Combination to Help the Infants.—The Health Department of New York City has published a list of sixty-eight public and private institutions engaged in summer health work. These various establishments are contributing funds, nurses, doctors, milk, fresh air relief, and medical or hospital care, according to the nature of the society or institution. The workers expect that still better results will be shown in a decreased death rate before the end of the summer.

Day Camp for Tuberculous Children.—The establishment within the city of Chicago of a day camp for children predisposed to tuberculosis was discussed at a recent meeting of the Board of Directors of the Chicago Tuberculosis Institute and a committee was appointed to work out the details of such a camp.

The Antinoise Society and the School Children.—Mr. William H. Maxwell, City Superintendent of Schools, has written to the principals a letter to be read to the children asking them in the vacation about to begin to refrain from making any noise near a hospital or near any house where they know there is any one sick, and especially not to explode any fireworks near a hospital on the Fourth of July.

Radium.—The largest single order of radium ever given was placed in London recently by Lord Iveagh and Sir Ernest Cassel, who will donate it to the Radium Institute. The quantity ordered was 7.5 grams and the price was £30,000. The Red Cross Guild Hospital of San Mateo, California, has received a gift of radium from Mrs. Whitelaw Reid.

Yellow Fever has made its appearance in Vera Cruz, Mexico.

Wood Alcohol Poisoning.—Two cases of wood alcohol poisoning occurred in New York City (Williamsburg) within a few minutes of each other recently. One was fatal, the other recovered. Both men had been served at the same bar, the proprietor of which was promptly arrested.

Cocaine Seller.—In New York, recently, a man who pleaded guilty of selling cocaine was sentenced to a year in the penitentiary.

Drug Selling.—The pharmaceutical board of Utah will, in the next few days, start a warfare against the violations of the statute regarding the sale of dangerous and poisonous drugs. Especial attention will be devoted to the sale of dangerous drugs by the "corner stores" of country towns, where stocks of general merchandise are sold.

A New Journal has appeared under the title of *The Journal of Pharmacology and Experimental Therapeutics*. The editor is Dr. John J. Abel, of Johns Hopkins University, in association with a number of other experimenters, and in collaboration with the members of the Society of Pharmacology and Experimental Therapeutics.

The Franklin (N. H.) Hospital Association has recently acquired the Aiken homestead. The house will be converted into a public hospital.

Toronto Hospital for Incurables.—On June 17 the cornerstones were laid for two new buildings. Sir James Whitney, Prime Minister of Ontario, performed the ceremony for the new hospital wing and Lady Mortimer Clark for the nurses' home.

University Appointments.—Dr. William D. Hall, of Montgomery, Ala., until a year ago a member of the medical faculty, has been appointed Acting Vice-Chancellor of the University of the South.

Dr. John A. Tipton, of Carroll County, Virginia, has been made a life member of the Board of Visitors of the Medical College of Virginia.

The New York University and Bellevue Hospital Medical Society has acquired three houses on

First avenue and Twenty-fifth street, adjoining its present buildings, and will erect an addition to the school on the ground occupied by them.

Honorary Degrees conferred upon medical men during the past week include that of D.Sc. from Cambridge University to Dr. Jacques Loeb of the University of California; LL.D. from Williams College to Dr. Wilford T. Grenfell, surgeon missionary in Labrador, and D.Sc. from Colgate University on Dr. J. I. Hefferen of Syracuse University.

An American Knighted.—Sir Francis J. Campbell who received his knighthood last week at the hands of King Edward was a native of Tennessee. Blind from early childhood he devoted his life to the treatment and training of the blind in London with such success that this honor, so rarely given to one of foreign birth, has been bestowed upon him.

Hospital Appointments.—Dr. Freeman A. Tower of Worcester has been appointed superintendent of the Burbank Hospital at Fitchburg, Mass.

Dr. Henry Lloyd of St. Louis has become assistant superintendent of the State Hospital for the Insane at Farmington, Mo.

Dr. John Howland has been appointed Assistant Attending Physician to Bellevue Hospital, in charge of the P. and S. division of the Department of Children's Diseases, and Dr. Herbert B. Wilcox, Adjunct Assistant Attending Physician in the same department.

Illinois State Board of Health Examinations.—Written examinations were held in Chicago, January 18, 19, and 20, by the Illinois State Board of Health, and, according to the report of the secretary, Dr. James A. Egan, the number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined, 45, of whom 21 passed and 23 failed. One candidate took an incomplete examination.

The Kansas State Board of Medical Examiners has elected Dr. H. A. Dykes of Lebanon, Kan., *President*, and F. P. Hatfield of Olathe, *Secretary*.

The Medical Society of New Jersey, at the annual meeting at Cape May, on June 24, elected the following officers: *President*, Dr. B. A. Waddington of Salem; *Vice-Presidents*, Drs. Thomas H. MacKenzie of Trenton, Daniel Stroch of Camden, and Norton T. Wilson of Elizabeth; *Corresponding Secretary*, Dr. Harry A. Stout of Wenona; *Recording Secretary*, Dr. William J. Chandler of South Orange; *Treasurer*, Dr. Archibald Moyer of Newark; *Councillors*, Drs. Thomas W. Harvey of Orange, Edward F. Denner of Paterson, William A. Clark of Trenton, William H. Izzard of Camden, and James Hunter of Westville; *Delegates to the American Medical Association*, Drs. C. B. P. Fisher of Bound Brook, Alexander Marcy, Jr., of Riverton, and Luther M. Halsey of Williamstown. The next meeting will take place at Atlantic City in June, 1910.

The Massachusetts Medical Society, at its 128th annual meeting in Boston, on June 16, 1909, elected the following officers: *President*, Dr. Silas D. Presbrey of Taunton; *Vice-President*, Dr. J. C. Pinkham of Lynn; *Secretary*, Dr. Walter L. Burrage of Boston; and *Librarian*, Dr. Edwin H. Brigham of Boston; *Treasurer*, Dr. Edward M. Buckingham of Brookline. Dr. Francis W. Goss, who had served the society as secretary for thirty-four years, refused reelection.

The Lowndes County (Ga.) Medical Society was formed recently. The following officers were elected: *President*, Dr. J. M. Smith; *Vice-President*, Dr. S. T. Harris; *Secretary and Treasurer*, Dr. P. C. Quarterman.

The Maine Medical Association met at Portland, Maine, June 16-18. The following officers were elected: *President*, Galen Woodcock of Bangor; *Vice-Presidents*, Stanley P. Warren of Portland, S. E. Webber of Calais; *Secretary*, W. Bean Moulton of Portland; *Treasurer*, E. W. Gehring of Portland; *Delegate to American Medical Association*, Alfred D. Sawyer of Fort Fairfield.

The International Hahnemannian Association of Homeopathic Physicians at a meeting in Pittsburg elected the following officers: *President*, Dr. S. H. Stanton of New York; *Vice-President*, Dr. E. A. Taylor of Chicago; *Treasurer*, Dr. P. A. Kirchbaum of Montclair, N. J., and *Secretary*, Dr. J. B. S. King of Chicago. The next convention will be held in Kansas City.

The Iowa State Medical Association at its recent meeting selected Des Moines as its next convention place and elected the following officers: *President*, G. E. Crawford of Cedar Rapids; *Vice-Presidents*, Dr. N. M. Bolding of Cherokee and Dr. H. H. Clark of McGregor; *Secretary*, Dr. V. L. Treynor of Council Bluffs; *Treasurer*, Dr. W. B. Small of Waterloo; *Delegate to American Medical Association*, Dr. A. L. Wright of Carroll.

Alumni Society of the New York Skin and Cancer Hospital.—At a recent meeting of this society the following officers were elected for the ensuing year: *President*, Dr. Jerome Kingsbury; *Vice-Presidents*, Drs. J. T. Gwathmey and O. M. Wilson; *Treasurer*, Dr. H. A. Pulsford; *Secretary*, Dr. Fred Wise.

Obituary Notes.—Dr. Joseph O'Grady of Brooklyn died at his home, on June 22, aged 57 years. Dr. O'Grady was a graduate of the Bellevue Hospital Medical School in 1883, and was for many years connected with the Department of Health. He was a member of the Kings County Medical Society.

Dr. Justin Steer of St. Louis died suddenly, on June 20, aged 60 years. Dr. Steer was a graduate of the New York University Medical College in 1876. He was Professor of Clinical Medicine at Washington University and well known as a specialist on diseases of the lungs. He was a member of the St. Louis Medical Society, Missouri State Medical Association, American Medical Association, and the American Association for the Advancement of Science.

Dr. O. E. Phillipi of Fremont, Ohio, died on June 12, aged 73 years. Dr. Phillipi had practised in his town for over fifty years.

Dr. John Quill of Wallingford, Conn., died at his home, on June 17, of tuberculosis, aged 62 years. He attended the Yale Medical School and in 1876 received the degree of M.D. from the New York Homeopathic Medical College. He was for fourteen years physician to the Masonic Home in his town.

Dr. Thomas Paton Wilson, formerly of Cleveland and Detroit, died in Montclair, N. J., on June 23, aged 78 years. Dr. Wilson was one of the best known homeopathic physicians in America. After studying in Berlin and Vienna he was chosen President of the Pulte Homeopathic Medical College in Cincinnati and later accepted the chair of

therapeutics in the University of Michigan. He has not practised since 1886. Dr. Wilson in 1875 wrote a book, "The Horseless City," foretelling the use of horseless vehicles.

Dr. Quitman Kohnke of New Orleans died, on June 26, at his summer home in Covington, La., aged 52 years. He was a graduate of the Medical Department of Tulane University in 1890.

Dr. George Heron of Washington, D. C., died suddenly of apoplexy, aged 72 years. Dr. Heron was a veteran of the Civil War and had practised medicine in Washington for forty years.

Dr. Franklin L. Meyer of Newark, N. J., died at his home on June 26, aged 55 years. He was a graduate of the Bellevue Hospital Medical College in 1887.

Dr. Robert J. Hess died from pneumonia at Philadelphia on June 18 at the age of 63 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1871, and he was for many years resident physician of the Northern Dispensary. He served with the Emergency Corps during the Civil war when he was but 15 years old.

Dr. John Weisgerber died at Philadelphia on June 23 at the age of 43 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1889.

Correspondence.

THE SANATORIUM TREATMENT OF TUBERCULOSIS.

To the Editor of the Medical Record:

Sir:—In Dr. Fishberg's very interesting paper on "The Inadequacy of the Sanatorium Treatment of Tuberculosis" in the Medical Record of June 12 reference is made to the possibility of absurd conclusions in attempting to make deductions from unrelated facts, yet I fear that in an otherwise temperate article the doctor falls into the very error he warns against. Apparently his favorite arguments against the justifiability of sanatoria are: (1) The undisputed fact that existing sanatoria are able to provide beds for but a ridiculously small fraction of the enormous number of tuberculous individuals requiring treatment; (2) that a certain number of patients get well without any sanatorium treatment, and some without any treatment whatsoever. From this he contends that sanatoria for the treatment of tuberculosis are serious blunders from a medical as well as an economic standpoint, and their duplication in sufficient number to meet the situation is to be discouraged as a financial impossibility. It might just as well be argued that, there being a large number of people in the world unaffiliated with any church or religious order who yet remain decent in their morals and business methods, therefore the churches, etc., are monuments to man's stupidity and wastefulness, because the number of those actually obtaining spiritual benefit at their hands is insufficient for the time and treasure expended in maintaining them, which very few will believe; or, because many cases of wayward and criminal conduct remain unreached by the influences of correctional, punitive, and restraining institutions, these, like the sanatoria, are so inadequate in their work as to make their erection and maintenance a grossly mistaken policy by the State; or, again, because in the nature of things a goodly number of cases of physical distress and want must remain unrelieved by existing hospital and eleemosynary organizations, all systems of relief—orphanages, asylums, and the various phases of public and private philanthropy—have demonstrated their incompetency.

What does the doctor propose, for this generation at least, in place of sanatorium treatment, with its shortcomings, for that large class of tuberculous individuals of which he has such intimate knowledge—the indigent sweatshop laborer, mechanic, and artisan, whose homes as such practically cease to exist with the incidence of active disease in the bread winner? What "home" treatment is possible for the head of a family who can no longer perform the office of home keeper—who has become a burden instead of a support for those dependent upon him? This is just the class, Mr. Editor, that the Montefiore Home Country Sanitarium and many kindred institutions seek to reach and relieve, and which they do help—not in the measure that we all wish, it is true, yet the assistance is definite and lasting enough in a sufficient number of cases amply to justify every penny expended for their erection and support. Failures there are enough, but is this not true of every scheme of mankind for the alleviation of human misery? And the inadequacy of the measure is not the fault of the sanatoria, but the callous attitude of a large part of the prosperous public which permits a few devoted men and women to shoulder a burden in which all should have some share.

The doctor is in error in stating that only the incipient cases are accepted by the sanatoria. With but few exceptions, all the sanatoria admit a mixed class, rejecting only those hopelessly ill—and not, as the doctor implies, because these would unfavorably influence statistics, but because of the highly unfavorable psychical effect which dying patients will have on those who come to us hoping for recovery. The number of incipient cases in most places averages little more than 50 per cent. Indeed, it has been found impossible to fill sanatoria with exclusively incipient cases, not because they do not exist in sufficient number, but because it is exceedingly difficult to induce such individuals, who do not feel seriously ill, to give up their means of livelihood for a long period of time.

The doctor criticises the ultimate results attained by the sanatorium treatment, in so far as they are measurable, but he cannot offset the figures, despite their paucity, by anything save guesswork when he considers the ultimate results of treatment outside sanatoria. They are not as good as they should be, therefore another argument against the usefulness of such institutions. Who is there who claims perfection for the routine institutional treatment of tuberculosis? Does not the average man look upon it merely as a beginning, a foundation, for that treatment which is not to cease during the patient's life? And then the relapses, of which the doctor speaks much. Why should these be held forth as arguments against the utility of a given procedure? With the departure of the patient from the sanatorium the latter's rôle as foster mother ceases; other influences become operative, which may be innocuous or the reverse, more commonly the latter. But this is beyond the domain of the sanatorium as it now exists. It is a social and a sociological problem, which humanity will, I am confident, grapple with and ultimately solve. Shall we in the meantime cast aside a weapon which is clearing the ground for the struggle, if it is doing no more? Because of the admitted complexity and difficulties of the situation we should rather strengthen an agency that has made the first forward step in the assault on the citadel of a widespread disease—perhaps only a sortie—with many tactical errors, but at any rate the first definite one which mankind has made in the determination to overthrow a strongly-entrenched enemy.

L. Rosenberg, M.D.

Montefiore Home Country Sanitarium, Bedford Station, N. Y.

THE SENDING OF TUBERCULOUS PATIENTS FROM HOME.

To the Editor of the Medical Record:

Sir:—For a wholly unselfish purpose, I hope you will permit me to trespass upon your world-read columns to state a few facts and to urge upon the profession what I believe to be some practical conclusions.

Persons afflicted with general tuberculosis are being sent into the West and the Southwest by the hundreds every year. Many, probably most, of these persons are beyond all hope of recovery before they leave home. They have heard marvelous stories of recoveries, many of them largely fabricated, generally arising from irresponsible sources, and seem to conclude that a few weeks' more or less pleasant sojourn amid the blue skies of the Southwest will be all sufficient to restore them to robust health. The medical profession must bear a large share of the blame for sending some of the hundreds of pitiably hopeless cases to

this region. Many sufferers arrive here with preconceived opinions that reflect no credit upon their medical advisors. "Just go out to New Mexico and rough it on a ranch." This to a patient with an afternoon temperature of three degrees above the normal! It is useless to multiply individual instances illustrating the folly met with here every day. Miracles are not wrought in the Southwest or elsewhere. That a large region of our Southwestern country presents a favorable climate for the cure of some cases of incipient tuberculosis is nowhere denied; but climate is, as every experienced physician knows, only a small element, after all, in the treatment of tuberculosis. A favorable climate does help in properly selected cases, but I believe that this is as far as any scientific observer ought to go in talking with a patient. Some persons afflicted with tuberculosis in its milder forms undoubtedly recover in New Mexico, as they do in New York, Massachusetts, Ohio, and Illinois. My private judgment is that a good doctor, with some practical wisdom at command, is of vastly more importance than any climate on the face of the earth.

Another idea that seems to have taken deep root in the minds of some superficial observers might be expressed in these words: "the greater the discomfort the more certain the cure." Just get into a rickety tent, with a howling wind, plenty of dust, and all the elements of human misery at every turn, dress in the cold, lie awake and listen to the fitful gusts of wind and the cheerful notes of the prairie owl, and a sure cure is in sight. The tent nuisance has probably seen its best days. Just what there is, or ever was, about a tent to attract oxygen I have never been able to conceive.

What I now say is meant in no spirit of harshness, but it does appear that most of the patients who arrive in this region from the East seem to have left all of the saving grace of common sense behind them. They arrive without woolen underwear or overcoats, forgetting that nearly every night in this region is cool enough to require a woolen blanket and that even a short night ride over the plains demands warm covering. My heavy winter gloves are this moment loaned to a well-meaning tenderfoot from New York, who imagined he was landing in a lime-kiln when he got off his train. In conclusion, there is an economic feature that must have a plain word. Men and women must be fed, clothed, and sheltered in New York, even when well: why should sick people expect to recover from a malignant disease in New Mexico on pure air alone? Sick people seldom perform any profitable work in New York or Chicago, and why should they expect to work wonders in New Mexico? My final advice is, to any person afflicted with tuberculosis, if you want to get well, instead of spending fifty dollars for a ticket to New Mexico, invest a hundred dollars in your home doctor, being sure that you get a hundred dollar man, and accept his advice.

HOWARD CRUTCHER, M.D.

ROSWELL, NEW MEXICO, June 8, 1909.

RESPONSIBILITY FOR THE MEDICAL FEE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—We doctors are notoriously poor business men. We do not collect much more than half of what we earn because we are not up to date in our methods of transacting our business. We take up a patient, give him the best we have to offer of our time and effort and after it is all over we have to fight to get our fee. And sometimes the law is against us because of our ignorance of its technicalities.

Here is an illustration from a recent experience: Some time ago I was summoned by a 'phone message to a nearby factory to attend an employee who had her finger crushed while working at her sewing machine. I explained that I was not a general practitioner and suggested that a neighbor of mine be sent for. To this the man at the 'phone demurred, saying that the girl was in great pain and bleeding very much and urging me to come over. To this I consented. I treated the girl's finger and at the request of the girl and the man in the office I agreed to treat her until she was cured. After dressing the finger I went to the office and asked to be paid. The man in charge said: "Doctor, the girl will need further treatment. You treat her until she is cured and then send us the bill. We are insured against accidents. What will the fees be?" I told him and to this he agreed. The girl came to my office sixteen times and the damage was repaired with very good result. The bill was sent to the firm. No response. I then called in person, and was told by the head of the firm that he would pay the bill if it were cut in half. This I refused on the grounds that the fee had been agreed to in advance, and that it was a moderate one for the services rendered. After some words, in which the proprietor showed himself a master of profanity, I threatened to sue if the bill were not paid in twenty-four hours. Suit was brought. At the trial my lawyer brought out the facts in the case—how the man in charge of the office summoned me, that a fixed fee per visit was agreed to by him for the firm, that the services were rendered; also that the head of the firm offered to pay what he thought was the proper fee, and so forth. On cross examination I was asked if the head of the firm or his partner was present when I was engaged to treat the girl, to which I responded in the negative. The head of the firm went on the stand and in response to his lawyer's questions stated under oath that neither he nor his partner had engaged me to treat the girl, and that nobody in their employ had any authority to engage any doctor in case of accident to any of their employees. In other words, that the man who engaged me had no authority to do so at the expense of his firm. And I lost my case.

Here is the point I wish to make. When we are called to treat a person it is our duty first to find out by whose authority the call is made and whether those who are to pay have given this person the right to act for them.

M. D

OUR LONDON LETTER.

(From Our Regular Correspondent.)

PUBLIC HEALTH AND POOR LAW STATISTICS—A PENTOSE IN URINE IN PANCREATIC CASES—CANCER, AGE INCIDENCE IN MAN AND ANIMALS—ASTHENOPIA—DR. LUCAS-CHAMPIONIÈRE AT CARDIFF—LIVERPOOL HOSPITAL SCHOOL—OBITUARY.

LONDON, June 11, 1909.

THE Local Government Board has issued a volume of statistics concerning the two great departments of administration which it controls, Public Health and the Poor Law. Moreover, it has presented its figures flanked with statistics from other departments which assist in their comprehension. The book is copiously illustrated by maps and charts and gives a view of the changes in the life of the nation as complete as existing data allow. There are six sections illustrating as many divisions, but I can only refer to points relating more or less directly to medical or sanitary matters. During fifty years the population of England and Wales has practically doubled. A falling birth rate is more than neutralized by a falling death rate, which has been reduced from 22 to 15 per 1,000. Pauperism has decreased and thrift has increased; but the attraction of the towns for country people is persistent. In 1851 the men employed in agriculture were one in four: now they are only one in ten. For every 100 persons then living in London there are now 203, and in the 84 next largest towns the increase in the half century is greater, viz., 282 as against 100 in 1851. Nevertheless, the figures and charts demonstrate the success of the medical and sanitary campaign against numerous forms of disease. They show, too, that the death rate is falling even in these town areas. Typhus, typhoid, variola, scarlatina, diphtheria, tuberculosis all give proofs of the success. On the contrary, infantile mortality is still excessive. In 1907 it was 188 per 1,000. But even this rate is exceeded by all other countries except Holland, from which statistics are available. The local sanitary authorities are not as a rule insensible to the urgency of this state of infantile mortality and about 150 have appointed health visitors to give personal instruction in hygiene and motherhood. Of course, the expenditure of these authorities has enormously increased. The medical and sanitary services in 1870 were costing in urban districts something under £5,000,000 annually. To-day the expenditure is more than £20,000,000, and this will certainly go on increasing, for there is much land to be taken up. It is not without economical result, for the expectation of life in towns is now greater than it was in rural areas thirty years ago.

Dr. P. J. Cammidge reported to the Royal Society, on the 20th ult., that he had isolated from the urine of patients with disease of the pancreas a sugar which gives the reactions of a pentose and yields an osazone with a melting point of 178° to 180° C. He had not at present isolated the mother substance, but thought it was probably set free as the result of degenerative

changes in the pancreas and passing into the blood was removed by the kidney. The substance could not be obtained from normal urine, nor from that of patients having no signs of pancreatic affection. In 28 cases of such affection the observation had been confirmed at the post mortem. Moreover, in three days traumatic pancreatitis had been produced and the same body obtained from their urine.

At the Royal Society also Drs. Bashford and J. A. Murray related some further observations confirming their statements in 1904 as to the age incidence of cancer in animals. They also gave statistical confirmation of their previous results for the Imperial Cancer Research Fund, showing the close parallel, in many points complete identity between malignant growths in man and other vertebrates. The law of age incidence of cancer holds for the shortest-lived mammals just as for man. The facts as to other vertebrates, so far as they are known, point to the same conclusion. The law of age incidence is therefore most likely a general one, of course proportionate to the relative expectation of life in different animals. Any explanation of the etiology of cancer must therefore assent, these authors accord, with the circumstance that "when considered statistically cancer is a function of age, when considered biologically a function of senescence."

The Edinburgh Medico-Chirurgical Society has had a discussion on asthenopia. Mr. George Berry, who opened, preferred the older term to eyestrain, as when qualified by appropriate adjectives it would convey a definite meaning. Cases in which watering of the eyes and conjunctival or corneal irritation were prominent were often produced by working or reading in unsuitable light, particularly if the actinic rays were abundant. Reading in bed was more likely to strain by the light being insufficient, *e.g.* a single candle. With errors of refraction Mr. Berry held that lid-pressure was the cause of headache. A patient with slight astigmatism could temporarily improve vision by compressing the globe, as by frowning—a fact demonstrable by the ophthalmometer. He did not use cyclopegics, as their effect on astigmatism was only due to the dilatation of the pupil. He attached no importance to some degree of divergence or convergence. But marked deviation of one eye upward or downward was due to anatomical asymmetry of the orbit and could be corrected by prisms. Many cases were due to nervous or hysterical states, and he had cured some by subcutaneous injections of distilled water. Some cases of migraine were due to errors of refraction and some he thought might be traced to gout.

Dr. George Mackay said that though lid-pressure caused discomfort to astigmatics he thought that the action of the ciliary muscle also contributed. Cyclopegics were occasionally useful for studying more thoroughly refractive error in difficult cases.

Dr. Lyne agreed that slight divergence or convergence had been overruled and discussed the defects producing migraine.

Dr. Sinclair found many cases of hypermetropia were temporary and a patient whose health had run down could be helped by glasses and put them aside when he recovered.

Dr. Main, from experience in China, stated that the intense glare of the western sun caused no discomfort to the Chinese, even on prolonged exposure to it.

Dr. Lundie discussed the greater discomfort caused by the lesser degrees of error.

Dr. Thyne said refractive error did not cause a special form of headache, so that in any case which could not be traced to another cause the eyes should be carefully examined.

The visit of Dr. Lucas-Championière to Cardiff has evoked the enthusiasm, not only of the Welsh, but of the British profession generally. As the president of the International Surgical Society, he would, of course, have been received with all honor, but his visit was also timed so as to enable him to make the presentation to Mr. Lynn Thomas and Dr. Skyrme, which has been subscribed for by more than 2,000 practitioners. In presenting it he said he was proud to do so, for the occasion was international as well as British. Besides performing this ceremony, which closes the story of perhaps the most manful defense of professional right that has triumphed over all legal obstacles, Dr. Lucas-Championière delivered an address to the Medical Society of Cardiff on the "Modern Treatment of Fractures," the subject which may be termed his own and out of which the troubles ending in the presentation arose. He opened his address by telling how he visited this island early enough to see Listerism at its dawn and that ever since he rendered homage to the science of this country—not because, as some have said, that science has no country, but love of science is an additional sentiment to love of country, embracing all who in foreign countries have enriched science. He then passed on to expound the treatment of which he is the father as appropriate to the occasion because he found the profession here under the influence of the righteous emotion of the whole surgical world due to the unjust accusation made against the two surgeons whose work had been vindicated.

Sir Alfred Jones, speaking the other day of Northern Nigeria, said the work of the Tropical School of Medicine at Liverpool had reduced the death rate in tropical colonies from 25 to 5 per cent., and they had the satisfaction of seeing their work copied by all nations. The Liverpool school had spent £100,000 on this work and had stimulated an expenditure all over the world amounting to two millions devoted to saving life in the tropics.

The death has occurred of Major P. G. Ievers, R.A.M.C., at the age of 56. He had for some time been in charge of Forts Stamford, Staddon, etc. When the South African war broke out he had already retired from the army, but he offered his services and went through the campaign. He qualified in 1873-1874 in Dublin and Edinburgh. In 1881 he contributed "Ten Cases of Enteric Fever Treated by the Cold Bath" to the *Indian Medical Gazette*.

The death was announced yesterday of Henry John Hunt, J.P., late surgeon to the Bath Hospital at Harrogate, where he practised many years. He had also been surgeon to H. M. prison at Petworth.

Dr. Ch. Marshall Kempe, late Medical Officer of Health of Shoreham, died there on the 23d ult., aged 70. He was Medical Officer of Health to the port sanitary authorities and held other offices. He also took a part in municipal work and was greatly esteemed throughout the district where he spent so many years.

Dr. Henry Kay Ramsden died on the 1st inst. of malignant disease of the lung, aged 42. He was the son of a medical man and one of four sons, all of whom joined the protession. He served as a civil surgeon in the South African war.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

ANESTHESIA—PERITONITIS—ABDOMINAL COMPRESSION—BRAIN PUNCTURE—TRANSPLANTATIONS—CLEFT PALATE—ABSCESSES—MESSINA—ROENTGEN SOCIETY.

BERLIN, May 15, 1909.

THE early spring is in Berlin the height of the season of congresses. The Congress of the German Surgical Society, the Roentgen Congress, the Congress of the German Society of Tropical Medicine, the Congress of the German Urological Society, the Congress of the Orthopedic Society, and several others of minor importance have been held. It is at present impossible to give even a superficial review of the vast material covered by these congresses and I will, therefore, pick out but a few special subjects.

The Surgical Congress discussed extensively the subject of anesthesia. Among 71,000 inhalation anesthesias collected by members there were reported some 3,000 fatalities. The combination of scopalamine and morphine with the ether seemed to be best. The universal verdict favored tropococaine for spinal anesthesia in preference to all other drugs, Bier combining it with adrenal extract, von Ehrhardt with arabinic acid. A series of illustrated lectures demonstrated the great value of *x*-rays in surgical diseases of the abdomen. It appeared that the method of treating purulent peritonitis by vigorous washing of the abdominal cavity with large quantities of salt solution was winning more and more followers. Momburg, basing his remarks on an extensive material, brought up the discussion of a new therapeutic method. He obtained anemia of the abdomen by applying an Esmarch's rubber bandage firmly to the waist and so produced anemia of the entire lower portion of the body. The method was of great value both to surgeons and to obstetricians in controlling atonic postpartum hemorrhage. It was striking to see the powerful uterine contraction which occurred with the renewal of the circulation following the constriction. No bad results of the procedure had been observed as yet.

The old belief that the abdominal organs were with-

out sensation of pain did not seem to be confirmed by experimental research, and general anesthetics should be used in abdominal operation. Bramann of Halle had the opportunity of puncturing the corpus collosum in twenty-two cases in brain surgery. The purpose of the procedure was that in cases of increased intracerebral pressure a communication between the ventricles and the subdural space was made by perforation of the corpus collosum. Krause recommended in removing cerebral tumors the use of a suction pump to suck out the tumor mass.

The subject of transplantations also came up for prolonged consideration, as Unger was able to report a series of experiments carried out by Carrel of New York, in which he succeeded in implanting foreign kidneys into an animal. One dog lived for eighteen days with kidneys secreting normally. It was said that in bone transplantation the best results were obtained when the bone was transplanted with the periosteum. In animal experiments entire joints had been transplanted and had healed. In severe cases of complicated fractures of the extremities the "nail extension" method of Steinmann of Berne seemed to be winning more and more adherents. Helbing had been able to close extensive cleft palates by a new procedure. By the use of a metal bow he succeeded in approximating the two halves of the maxilla one to two centimeters in four to five weeks. Cold abscesses, according to Kollaczeck of Tübingen, could be treated by puncture if an antiferment were injected into the abscess cavity. The method was said to be ideal in cases with intact skin and smooth abscess walls. Colmers of Heidelberg, the chief of the German Relief Expedition to the Messina earthquake, has collected his experiences. He reported that as at the time of the shock most of the people were asleep the injuries were severe. As many were wedged for a long time between the ruins, in most cases decubitus and phlegmon were added to the severe lacerations. Often pressure paralyses were seen. In smaller injuries the scalp often suffered and bald spots—alopecia traumatica—were formed.

At the Congress of the Roentgen Society Albers-Schönberg brought up the treatment of myomata by the *x*-ray. Cessatio mensum could also be obtained by this method. The good results were confirmed by many speakers. The question of dosage in *x*-rays was much discussed. A uniform method of measuring the rays had not been obtained. Various animal experiments showed that great care was still required in using the *x*-rays. A goat was shown which a year previously had been exposed for thirty minutes to the rays. This half of the animal had ceased in its growth. Seven theses on *x*-ray injuries were presented by Gocht of Halle and a commission appointed to adjudge them. The further development of research in technique points toward using the shortest possible exposure. Grodel of Nauheim demonstrated various *x*-ray kinematograph pictures of the heart.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 17, 1909.

Diagnosis and Prognosis of Gallstone Disease from the Point of View of the Surgeon.—This question is considered carefully by M. H. Richardson, who asks why the diagnosis is in the majority of cases difficult. It is the wide variability of lesions and the still wider variations in their effects upon the patient and the latter's power of expressing his feelings in words. Besides gallstones, the following may cause pain in the right upper quadrant: (1) infection of the gall-bladder or ducts without stones (though the latter may have been expelled), (2) organic and functional diseases of the stomach and duodenum, (3) certain diseases of the right kidney, (4) appendicitis when the appendix is high, and (5) certain other rare conditions. The weight of evidence in favor of gallstones must come from a history of pain, and the recognition of it and of its significance is, in the great majority of cases, the diagnosis. A multitude of operations have proved the following facts: that with certain subjective symptoms gallstones are found, that the pathological condition found is sufficient to account for the symptoms present, that after removal of the stones causing distinct pathological changes the symptoms cease, that symptoms cease after the removal of gallstones which have caused no perceptible anatomical change, that the symptoms do not always cease after removal of gallstones, whether organic lesions are found or not, and that symptoms often cease after the draining of the gallbladder when no gallstones have been found. There are, broadly speaking, four classes of gall bladder cases (1) the stone offending slightly or not at all, (2) the successfully expelled stones (3) the impacted stones, and (4) the infected tract. "Shall we wait," asks the author, "for pathological changes of serious diseases to become so characteristic that diagnosis is unmistakable?" He replies: "We must study disease as we study the enemy in war. We must make our attack at the earliest possible moment after we have with reasonable accuracy located the enemy and ascertained his resources. Until the surgeon has taken all reasonable and safe precautions to make as positive diagnosis as can be made, he has no right to operate for gallstones or any other lesion. When he thus fails to make the diagnosis an error means increased suffering and ill health or death and disability; he must resort to an exploratory incision, and he can then with a clear conscience so do.

New York Medical Journal, June 19, 1909.

Some Indications for the Removal of the Faucial Tonsil and Suggestions as to Its Technique.—G. Hudson-Makuen discusses the modern aspects of the tonsil question and makes the following observations. The normal faucial tonsil is small and scarcely demonstrable without the aid of a palate retractor. The function of the faucial tonsil is still in doubt, although it is probably to guard against bacterial invasion of the system. The protective influence of the faucial tonsil, however, is destroyed as soon as the gland becomes diseased. The usual symptoms arising from the diseased faucial tonsils are sore throat, irritating cough, and foul smelling breath. The diseased faucial tonsil is a distinct menace, both to the organs of special sense in its immediate neighborhood and to the general health of the individual. The large faucial tonsil is not only unhygienic, but it is also obstructive to respiration, phonation, and articulation. The faucial tonsil may be very large or very small and its size is no criterion as to the extent of its disease. The rather common belief among the laity that the removal of the faucial tonsils impairs the voice is altogether without foundation, except in those cases in which injury is done to the palate or other surrounding structures. The largest faucial tonsil often appears small because it is held within the grasp of the faucial pillars and buried in the tissues of the neck. The so-called submerged faucial tonsils are especially harmful and difficult to remove. The chronically diseased faucial tonsil should be removed in its entirety, because remnants do not easily drain their crypts into the pharynx, and the secretions are more readily absorbed into the system. The base of a submerged tonsil left in a deep tonsillar fossa afterward protrudes itself into the fauces and leads to the supposition that the tonsil is returning. The tonsil is best removed under local anesthesia when the complete cooperation of the patient may be secured. General anesthesia is more satisfactory and safer in children, and should always be used when an adenoid is also to be removed. The faucial tonsils should be removed first, care being taken that all hemorrhage is controlled before going from one tonsil to the other. The instruments used in the operation vary with each individual case, and celerity in the performance of the operation should be sacrificed to thoroughness.

Some Practical Lessons from a Study of Two Hundred Cases of Weakened Feet.—J. M. Berry calls attention to the fact that pain in the back and limbs, pain and weakness in the knees, weak ankles, inability to skate, etc., may indicate that the primary trouble is in a weakened foot and ankle. Improper shoes are the main causative factor. Some trauma may call attention to a trouble which has existed for some time. A painful and enlarged big toe joint is very common in weakened conditions of the feet. Whenever callus forms on a foot something is wrong. One of the most difficult conditions to differentiate from weakened feet is intermittent claudication or limping. In some cases of this disease practically all the symptoms are referable to the feet; in fact, the disease may produce a weakened condition of the feet and the patient suffers from both conditions at the same time. The characteristic symptom that distinguishes intermittent claudication from weakened feet is that in intermittent claudication, while the pain and discomfort in the feet from walking may become almost unbearable, after a short rest the trouble clears up and the patient can go on again. A diagnosis of intermittent claudication

is of special value as regards prognosis. Shoes and braces and other appropriate treatment for weakened feet will aid the patient in so far as the weakened condition of the feet is concerned, but will not, of course, cure the intermittent claudication. An important aid to treatment of weakened feet is to get the patient interested in what is being done. Get him to further the process of cure by home gymnastics, massage, etc. The home treatment of weak feet would make a good subject matter for an article. Another important element in the treatment is the careful supervision of the patient. The patients have to be told that the braces are going to be uncomfortable at first. It is not a good plan to let them wear the braces home from the office, but wait and put them on at home in the morning, wear them as long as possible, then remove them, and when the feet are rested put the braces back again, remembering that the more they wear them the quicker they will get used to them. The patient should report every few days for massage and vibratory treatment. This helps a great deal in overcoming the stiffness of the foot and in relieving the pain and discomfort of braces.

An Expeditious Method for Submucous Resection of the Triangular Cartilage of the Nose.—W. P. Porcher's patient was a man of fifty-nine, whose triangular cartilage was dislocated on the right side, causing considerable flattening of the end of the nose, and almost complete occlusion of that nostril. The pateney of the tubes on both sides was very poor. In consequence of his deafness his enunciation had also become seriously affected, so that he could neither speak distinctly nor hear when spoken to, and his breathing while asleep was very stertorous. After dissecting up the mucous membrane over the dislocated portion of cartilage, the author determined to use the electric trephine instead of the knife or forceps because the cartilage proved to be very tough and situated somewhat further back in the nose than usual. With a rather long Curtis trephine two large cones of cartilage were drilled away, the trephine passing through the mucous membrane in the rear. When we remember how rapidly the trephine works we can appreciate the quickness, simplicity, and ease with which the operation was performed. The projecting ends of the cartilage having been removed, the septum resumed its erect position. The mucous membrane was allowed to fall back into position, and a compress of cotton was used to hold it so until union took place, which was by first intention.

Journal of the American Medical Association, June 19, 1909.

Phagocytosis.—F. M. Pottenger offers the following conclusions, deduced from experiments with the blood of various patients presenting considerable variation in the number of cells belonging to the different classes of Arneth, in order to determine if the different classes of cells retained a constant relative phagocytic power: "1. There is more or less definite phagocytic value for each variety of neutrophile (Arneth's classification) acting on staphylococci. 2. This fact will surely throw light on the varying phagocytic values of neutrophiles obtained from various sources. 3. It may aid in the solution of the question of leucocytosis induced for therapeutic purposes. 4. It is evident that Wright's early assumption, namely, that the leucocyte is a comparatively indifferent factor, is wrong."

Scissors-Magnet Extraction of Foreign Bodies from the Eyeball.—E. Jackson points out that in a considerable number of cases the electromagnet, whatever its form and however used, fails to remove pieces of iron capable of magnetic attraction from the eyeball on account of their being embedded too firmly in recent exudate or organized tissue. In such cases he thinks we have a resource in the use of scissors attached to the magnet, and he reports two cases in which this method was successfully used. Somewhat similar methods with a knife or strabismus hook attached to the magnet have been reported by Connor and Lang, but this is different from the use of the magnet force to direct a cutting instrument to the foreign body as used by him. The special technique of introducing the scissors and a description of the instrument is also given. The article is illustrated.

The Faucial Tonsils and the Teeth.—G. Hudson-Makuen emphasizes the importance of the faucial tonsils from the dentist's standpoint. Diseased faucial tonsils affect the teeth in three ways: First, by impairing the general nutrition; second, by contributing very largely to the local invasion of the teeth by the numerous bacteria that infest their crypts; and third, by their pressure, they interfere with the alignment of the teeth and with the normal development of the maxillary bones. That diseased tonsils affect the general health has been proved beyond the shadow of a doubt and the teeth suffer with it, as well as directly by contact with its filthy catarrhal secretion. The third manner in which the teeth are affected by hypertrophied tonsils has, so far as Makuen is aware, not been mentioned in the literature, but he considers it of no little importance. These glands are sometimes very large and dense, and their constant pressure on the surrounding structures may cause changes that will seriously embarrass the normal circulation and respiration, produce neuralgias, etc., as well as interfering with the normal development and arrangement of the teeth. The indirect effect of diseased and hypertrophied tonsils on the teeth and their settings through forced mouth-breathing, has been described fully by numerous observers. Makuen pleads, therefore, for the eradication of all glandular obstructions to the normal development of the teeth and alveolar arches, prior to any attempt to remedy the structural defects of these organs. He thus sums up his conclusions. The faucial tonsils and the teeth are in close approximation and they are alike subject to disease or degeneration. Diseased tonsils and teeth are locally and systematically unhygienic. Secretions from the tonsils may infect the teeth, and, contrariwise, the tonsils may be infected by the teeth. Diseased tonsils and teeth cause headache, earache, and facial neuralgia, and they become a direct source of infection to the glands of the neck and, through the efferent lymphatics, to the general respiratory and circulatory systems. Hypertrophied faucial tonsils often become so large as to affect the ear, the circulation of blood, the nerve supply of the face and head, and the normal development of the alveolar arches. The teeth serve important purposes, but the exact function of the tonsil has not yet been demonstrated. The importance of preserving the teeth has been fully recognized, but the diseased tonsil is not worth preserving, for it has lost its usefulness and becomes a menace to the human economy. The only rational remedy for diseased tonsils is total extirpation.

Amebic Dysentery.—Granville S. Hanes remarks that it was recently believed that amebic dysentery was purely a tropical disease or acquired only in those regions. A theory has been suggested, that cases occurring in our climate are due to eating uncooked tropical fruits on which the ameba had been imported. There is no scientific evidence in the support of this theory and cases occur in which its possibility can be excluded. He and his partner Dr. Mathews have had half a dozen such cases under their care in the past few months, two of which are reported. In both of these the evidence was strongly in favor of impure drinking water as the cause. He thinks that amebæ are indigenous in this country, but the less favorable environment than in the tropics renders them less in number and virulence, and the disease caused by them is consequently rarer and less severe. The diagnosis is always made with the microscope and he does not rely on the examinations of the dejections alone, but inverts the patient and scrapes the ulcers with a sharp curette. In this way the amebæ will be observed at once if they can be found at all. It may be difficult to find motile amebæ, while the patient is under actual treatment, and in such cases he discontinues the treatment for a few days and they appear again. Warming the stage is also an important measure in detecting them under the microscope. He is convinced that there are large numbers of people in this country suffering from unrecognized amebic dpsentery, cancer or tuberculosis being the most usual diagnosis after the patient becomes emaciated. No one plan of treatment has been found universally successful and relapses are always to be anticipated as possible. When the interval, however, is a number of years, Hanes thinks we should consider reinfection as the possible cause. There is nothing that will prevent possible reinfection as long as the patient's environment is unchanged. Too restricted diet he thinks is a great mistake in these cases, but rest is an important feature in the treatment of the disease. Of remedies given internally, ipecacuanha is the most to be relied on. It does not perhaps kill the ameba but it destroys its pathogenic power. A large number of parasiticide injections have been employed but none is universally effective. Quinine has been largely used but it is sometimes an absolute failure. Hanes has employed coal oil, knowing its generally parasiticide effects. He at first employed it with great caution, but latterly has come to use it with boldness, and he now has no hesitancy in injecting a quart or more of undiluted coal oil through the rectum or, in the cases of appendicostomy, through the appendix, the patient being then requested to

keep the recumbent posture for half an hour or longer. He is not prepared to make definite statements as to the influence of oil on the amebæ, but expects to be able to do so in the future. All the patients in whom he has employed this treatment except two have responded beautifully. In the two cases mentioned he was not allowed to carry out the method in detail, and he has advised appendicostomy and will keep the patients under observation and report later on the results.

The Lancet, June 12, 1909.

Preliminary Note on the Vaccine Treatment of Typhoid Fever.—A tabulated statement is presented by D. Semple. His conclusions follow: (1) It will be seen that the administration of bacterial vaccines in cases of enteric fever is a practical method of increasing the bacteriotropic substances in the blood as evidenced by an increase in the opsonic index of those treated by this method. (2) When appropriate doses are given the method is devoid of all risks, is easily carried out, produces no apparent disturbance in the patient's condition and does not interfere with any other treatment the physician may deem necessary. (3) It would not be possible to generalize from the few cases here recorded as to whether vaccine has a marked effect in cutting short the fever period. Two cases treated with stock vaccine and two with autogenous vaccines would seem to indicate that it may have this effect. (4) In six of the nine cases here recorded, well-marked improvement set in after the inoculations. This was especially noticeable in the two cases treated with the autogenous vaccines. In the remaining three there was an amelioration of the clinical symptoms.

Surgical Treatment of Colitis.—The paper of G. Heaton considers the question from the modern surgical standpoint but presents nothing new. Excluding specific infections like dysentery and various secondary affections, he divides the colonic inflammations into (1) acute and simple chronic colitis, (2) mucomembranous colitis, (3) acute ulcerative colitis and (4) chronic ulcerative colitis. Simple acute colitis is purely a medical disease. In simple chronic colitis we have a malady liable to extend at any time to the appendix. When this becomes periodically attacked it should be removed but it should be made clear to the patient that the operation is being undertaken to remove the risk of the bursting of the appendix and that the symptoms which are due to the colitis may still remain. Again, the author says that in some of these cases appendix removal will cure the trouble although the appendix may appear not diseased. For mucomembranous colitis cecostomy and appendicostomy are the operations of choice. The latter is preferable because it is much easier (the shock and risks of operating being practically nil), it is free from the danger of leakage of irritating intestinal contents through the artificial opening which is the great disadvantage of cecostomy, the opening in the appendix can be kept open almost indefinitely and does not confine the patient to the house or render him an invalid, and finally the opening is extremely easy to close. It will close spontaneously very often if not kept open by the regular passage of a catheter. In acute ulcerative colitis, a disease about which we know but little, cecostomy may be performed. In chronic ulcerative colitis, mild measures may be given a prolonged trial but when the diarrhea continues with the passage of blood and mucus and the patient is progressively losing weight and passing into a neurasthenic condition, an appendicostomy with a daily irrigation of the colon will in many cases effect a cure.

Fatal Hemorrhage in the Pons Varolii in a Young Infant.—Sidney Phillips reports the case of a baby breast-fed until the eleventh month and then placed on diluted cow's milk. At the fourteenth month she had a sudden attack of what was thought by the mother to be bronchitis and was taken to hospital. She recovered in a few days and was taken home. One day the mother went out and on her return home found the baby in the position she had left it, unconscious and surrounded by vomitus. She at once took the child back to hospital where it was received comatose and with complete flaccidity of all the limbs. Pupils did not react, knee-jerks were present but not Kernig's sign. No sign of organic disease could be found in chest or abdomen. There were respiratory crises, the respiratory rate rising rapidly and the bronchial tubes being flooded by a copious secretion of mucus with loud rhonchi all over the chest, whereupon the breathing would then become quiet and tranquil, about 14 to 16 per minute. Death came in 14 days after the second admission to hospital. At autopsy, as the brain was removed, some partly altered blood was seen in the subdural space at the base of the brain and extending upward toward the vertex. There was also a collection of recently extravasated blood in the subdural space around the right lateral lobe of the cerebellum. On section of the pons in its right half throughout its whole length was a brownish semi-fluid, apparently a hemorrhage with partial absorption and decomposition of the clot. It came close to the median line but did not reach the surface of the brain at any point and was not in communication with the subdural effusion. The dura was everywhere adherent to the cranial bones, which were roughened. There was no sign of an injury to the skull. The author thinks that the sudden prolonged coma evidently resulted from the hemorrhage into the pons; the subdural hemorrhage was more recent and perhaps gave rise to the slight movements of the lips and arm noticed during the course of the disease. The cause of the bleeding was not explainable. There were no indications of syphilis or cachexia of any sort.

British Medical Journal, June 12, 1909.

Hypertrophic Osteoarthropathy of Hands Without Visceral or Constitutional Disease.—R. C. Worsley reports the case of a man of 47 years and shows four photographs of the manual deformities referred to in the title of his paper. The only other abnormality in the entire family was the fusing of two toes on one foot of a brother. At birth the patient's hands were apparently normal except that the middle finger of the right hand was crooked at the top joint. At two years of age, this and the index finger of that hand and the same two of the left hand began to grow out of proportion to the general rate of growth and the enlargement was most marked from the eighth to the fourteenth year. The only movement now possible is at the metacarpal-phalangeal joint of the deformed fingers, the other fingers and thumbs having normal movements. All the other interphalangeal joints are ankylosed. At most of these joints there are large craggy nodosities which feel cartilaginous and over the dorsal surface of the metacarpophalangeal joints of the first and second fingers of the left hand and middle one of the right are to be felt movable bodies, evidently cartilaginous, of ½ in. to ¾ in. diameter, and one or two smaller pieces like "melon seed bodies." The enlarged fingers are transparent looking at the more distal portions, and traversed by fine pink-colored venules. The palms, especially the left, have huge pachydermatous pads, well seen in the photograph; the smaller pad next the thumb can be picked up, and has a thick, broad pedicle. The man generally carries his hands in his pockets. He is a boot finisher by trade, and says he can make a good living by it when work is plentiful. He has refused any operative interference.

Biotripsis or Life-Wear; Trophic Changes in Old Age.—G. L. Cheatle says that if it can be shown that biotriptic changes (which occur most markedly at areas where there is a special liability to papilloma and cancer) are related to neurotrophic changes, the demonstration would support two theories: 1st that a neurotrophic disturbance is concerned either directly or indirectly with the genesis of cancer, and 2nd, that a neurotrophic influence bears on the direction and limitation of the spread of cancer. The biotriptic changes are observed most commonly on the backs of the hands, the temples and the foreheads of old people, occasionally on the lower lips, cheeks, forearms, and elsewhere. The skin becomes shiny, smooth, thin, inelastic, pigmented, and apparently scarred. The best place for observation is the second metacarpal bone. The condition resembles the bronzing of skin which has been subjected to prolonged exposure to *x*-rays. If we examine people in a country village who have grown up together and have lived the same kind of life, there will be found a great variation in the extent to which these changes have gone. Anesthetic leprosy, Addison's disease, melanodermia, leucodermia, moles, and the grayness seen in the hair of people who are as we say "turning gray" all indicated by their distribution or associated nerve lesions a possible connection between pigmentation and nervous influences. It is surprising that cutaneous pigmentation does not occur with greater frequency after operative and traumatic injuries. Whether pigmentation can be associated in any way with the cancer question or not, is still an open question. It is well known that pigmented cancer represents malignancy of a virulent type. Does the presence of the pigment in the malignant epithelial cells mean that they possess greater resistance and vitality? Experiments show that normal pigmented epithelial cells of variegated guinea pigs possess greater vitality or resisting power than their white epithelial cells when both kinds are grafted on to the same raw surfaces. There is at present no evidence to show that cancer is more frequent in negro than in white races nor can one say that the skin

of brunettes is more liable to cancer than is that of blonds, nor is cancer known to be more common on the pigmented parts of any person, black or white.

Notes on a Thirty Days' Fast.—The record of F. Penny is one of personal experience. He is a physician of 46 years, 5 ft. 7 in. high and previous to 1905 had averaged 157 pounds in weight. Since that date he has been on a purin-free diet and has lost from 10 to 14 pounds. He felt himself to be in good condition but undertook to fast in order to satisfy himself whether the accumulation of waste and unnecessary material in the system is the real cause of much disease or whether a prolonged fast is a sound method of elimination and as such, conducive to better health. He notes in tabular form his vital records on the days of his fast. His drink consisted of distilled water with a little salt added. Bowels acted only after enemata. He thus describes his mode of life during the fasting period: "My time was occupied chiefly in reading, exercise, and conversation. I retired generally between 10 and 11 P.M., and generally spent twelve to fourteen hours in bed with the windows wide open. My average loss of weight was 1 lb. a day. My exercise was walking three miles and a half and cycling five miles and one-fifth a day. After the first two days I felt no hunger. I suffered much from cold, especially in the feet and hands, probably to some extent due to my being too lightly clothed for this climate. At times I was very irritable. Throughout the fast my tongue was coated and my breath offensive. During the last eight days I had very little inclination for exertion of any kind. This fast was broken on the completion of thirty days with 1 lb. of fruit, in spite of eating which my weight dropped 1 lb. during the next seventeen hours, and my urine was loaded with "urates." Then I took fuller meals of milk, rice, fruit, toast, honey, etc., and gained weight rapidly (4½ lb. in two days). I then had some traveling to get through, and on the third day took a long railway journey, including crossing London: on the fourth day I cycled fifteen miles, and took another long railway journey, and during the following night I had acute dyspepsia with very violent diarrhea, which latter continued, with intermissions, for three days. After this I ate well and steadily, gained weight (10 lb. in ten days). During the third week my mouth was very tender, and my sublingual glands were considerably swollen, and during this week I gained 3 lb. in weight. For some days during the second and third weeks there was very free diuresis. This fast was not carried to a finish—that is, until my tongue cleaned and natural hunger returned, as described by Dr. Dewey—and I have not yet completely satisfied myself with regard to the objects for which the fast was undertaken, but I hope for better success next time."

Deutsche medizinische Wochenschrift, May 20, 1909.

The Relation of the Pancreas to Achylia and Anacidity of the Stomach.—Ehrmann and Lederer discuss the earlier literature on the relation to acidity in the stomach to the secretion of pancreatic juice. Pawlow stated that the gastric acidity was the specific stimulant of the pancreatic juice. Boas recommended that in cases of achylia gastrica that acid be given to stimulate the pancreatic secretion. Boldyreff showed that if a large dose of oil was given into the stomach that a decided reflux of intestinal contents would occur into the stomach. Volhard from this devised the method of investigating the pancreatic secretion by giving 200 c.c. of oil and then removing the stomach contents in a half hour. The authors made use of this method in the present investigation, using either the Volhard oil test meal or Ewald's test breakfast on 98 patients. Fuld's method of ferment estimation was used. They also did some fistula experiments on dogs. Their conclusions are as follows: (1) Contrary to the previous belief in achlyia and anacidity, the pancreatic secretion is not injured, and is even greater than under normal conditions. (2) It is therefore unnecessary to give hydrochloric acid to stimulate pancreatic secretion. (3) This is further unnecessary because, according to the present experiments on dogs with pancreatic fistulæ, hydrochloric acid can no longer be considered as a specific stimulant for pancreatic secretion. (4) Following both Volhard's and Ewald's meals, trypsin can usually be found in the stomach in both achylia and anacidity. If repeated examinations are made it is always demonstrated. (5) In hyperacidity cases the oil breakfast usually fails to show trypsin. In other cases it is present only in traces, which may be increased by giving sodium bicarbonate. (6) Usually the quantity of trypsin varies directly with the amount of bile. (7) On the contrary, cases occur in which trypsin is absent in spite of an alkaline content rich in bile. (8) The cause of the failure or reduction in the amount of trypsin in the stomach in hyperacidity is apparently not alone its distruction by the acid, but is probably due to the absolute reduction of ferment secretion as observed by the authors, or possibly to the manner of action of the pylorus. (9) It has not been definitely proved in man that fat causes a physiological reflux of intestinal contents, as Boldyreff claimed in dogs, as mechanical actions, as the passing of the tube, strangling, and abdominal pressure, play an important rôle. (10) The method of estimating the pancreatic functions quantitatively by the reflux into the stomach is of little value. Complete loss of functional activity can, however, be proved in other ways. (11) When one wishes merely a qualitative estimation of trypsin in the stomach, probably the simpler Ewald test meal is more satisfactory, as one can make better comparisons with it.

The Occurrence of Spontaneous Cure of Brain Tumors.—Under this head Anton discusses the reasons for the apparent improvement in some cases of brain tumor. He suggests that this may be due to an adjustment of the circulation around a tumor which is not progressing. He then mentions the possibility of softening of the tumor itself. Aneurysm, gummata, and echinococcus cysts may recover. A tumor may become encapsulated or undergo cystic degeneration. Changes in the skull may reduce the pressure, as softening of the skull cap itself or erosions of the bone. The cerebrospinal fluid may escape through the nose or eyes. Lumbar puncture has been used extensively to reduce the pressure. This is sometimes followed by serious results in cases of brain tumor. A better method is puncture of the corpus collosum, as the author and v. Bramann have done it. This makes a permanent opening between the ventricle and the subdural space. The author raises the question whether the reduction of pressure may not increase the rapidity of growth of the tumor. This he thinks is not the case, but that the decreased pressure aids the resisting power of the normal nerve tissue and so reduces the progression of the tumor. He reports in full a case in point.

Tumor of the Hypophysis with Peculiar Visual Symptoms.—Crzellitzer describes a case of brain tumor. The patient was a light drinker and smoker. In January, 1908, he first noticed impairment of vision. In February the examination of the eyes was as follows: Bilaterally externally, loss of corneal reflex. Pupils equally dilated: right in dark 7 mm., in light 4 mm.; left, sluggish. Both optic nerves blue white on temporal sides. Arteries constricted; borders of the optic nerve indistinct. Maculæ normal. Vision O. D. 5-30, O. S. 5-50. Not improved by glasses. No astigmatism. Both visual fields slightly contracted. O. D. increased blind spot, for white; more so for red. Outer border of red normal. O. S. absolute central scotoma for all colors from 8° to 10°. The patient made no improvement on specific treatment. Later convergence paralysis appeared. An *x*-ray picture demonstrated a tumor in the region of the hypophysis. There were no symptoms of acromegaly and no glycosuria. The patient was still living at the time of the report. The author gives the literature of similar cases and discusses the cause of the symptoms.

Vasectomy of Criminals.—Indiana and Oregon have legalized the sterilization of criminals and other defectives in order to prevent procreation. In Indiana over 800 criminals have been operated on, 200 at their own request.

Hypodermoclysis with Artificial Oxygenated Serum in Typhoid Fever.—Agide Magi, after making use of oxygenated artificial serum in three cases of typhoid fever, recommends the use of this method of treatment. He finds that the subcutaneous injection of artificial serum produces a favorable influence on the circulatory system by increasing cardiac energy, raising blood pressure and regulating the pulse; assists the nervous system by general tonic action; increases the emunctory action of the skin and kidneys, producing diuresis and diaphoresis; lowers temperature, and acts favorably on the condition of intoxication of the system, increasing elimination of poisons by way of the urine, which increases in its toxicity. Artificial oxygenated serum used by hypodermoclysis in severe cases, and by enteroclysis in less severe ones, should occupy a high place as a therapeutic measure.—*Rivista Critica di Clinica Medica.*

Book Reviews.

THE OPHTHALMIC AND CUTANEOUS DIAGNOSIS OF TUBERCULOSIS. (The Cutaneous and Conjunctival Tuberculin Reactions According to v. Pirquet and Wolff-Eisner.) Together with a Discussion of the Clinical Methods for the Early Diagnosis of Pulmonary Tuberculosis. By Dr. ALFRED WOLFF-EISNER. A Preface by Prof. H. SENATOR and an Introductory Note to the English Reader. By C. THEODORE WILLIAMS, M.V.O., M.D., F.R.C.P., Consulting Physician to King Edward VII Sanatorium and the Brompton Hospital; Vice-President of the International Central Bureau for the Prevention of Consumption; Vice-Chairman of the National Association for the Prevention of Consumption. Translated from the German by BERNARD I. ROBERT. New York: William Wood & Co., 1908.

THE subject of the early diagnosis of tuberculosis is of such importance and interest that this small work should find a ready welcome in the library of every physician. It forms a complete review of the subject of local reaction tuberculin tests and contains much original work done by the author and his colleagues. A complete bibliography of over two hundred references, covering the work up to the time of publication, is appended.

Considerable space is given to a discussion of the theoretical and clinical values of the conjunctival and cutaneous tests, the author holding that the former test is largely of service in diagnostic work, while the cutaneous reaction furnishes a method upon which one may, with considerable accuracy, base a prognosis. He believes that if the reaction is prompt and marked after the application of a small amount of tuberculin there is indicated a strong resisting power in the body. On the other hand, "weak, rapid reactions, or even altogether negative ones, point to an unfavorable course of the disease." Inasmuch as clinically healthy individuals may react to both the conjunctival and cutaneous test, and as only positive reactions to very small doses of tuberculin appear to have much diagnostic importance, there still remains considerable to be done for the ascertainment of the real value of these tests.

Numerous charts showing the author's method of classifying and recording the results of local tuberculin tests are placed convenient for reference to the text. To Calmette has frequently been assigned the credit of originating the ophthalmo-tuberculin test, but Wolff-Eisner shows clearly in this work his own priority in suggesting its use clinically. The last section of the book, consisting of about fifty pages, is devoted to a thorough consideration of other methods of diagnosing pulmonary tuberculosis, and is deserving of the most careful perusal. Except for an apparent slight confusion as to the use of "tuberculous" and "tubercular," the translation from the German to the English text seems in every way to be satisfactory.

THE THEORY AND PRACTICE OF INFANT FEEDING. With Notes on Development. By HENRY DWIGHT CHAPIN, A.M., M.D., Professor of Diseases of Children at the New York Post-Graduate Medical School and Hospital; Attending Physician to the Post-Graduate, Willard Parker, and Riverside Hospitals; Consulting Physician to the Randall's Island Hospital and to St. Agnes Hospital, White Plains. Third Edition, Revised. With Numerous Illustrations. New York: William Wood & Co., 1909.

THE present time marks a turning point in the theory and practice of feeding, for the so-called "percentage" method has been used long enough to allow a final judgment to be passed upon its merits. Due acknowledgment can be made to the progress which its introduction marked in the history of artificial feedinig; it has become quite evident, however, that mere adjustment by quantitative methods of the differences between cow's milk and breast milk is only a part of the problem. Experience has shown that a number of methods, condemned as unscientific according to the standards of the "percentage" method, are strictly in accord with biological laws of nutrition and are successful in practice. Dr. Chapin's book represents such judgment in the theory and practice of feeding, founded upon long experience in the subject and a critical study of the various steps in its progress. His book is really a treatise on nutrition in general, for he devotes a number of chapters to the biological processes occurring in the nutrition of animals, using these as an introduction to formulating a plan of rational artificial feeding of infants. The materials are then considered—that is, cow's milk, its bacteriology, preservation, methods of testing, and common adulterations. As illustrative examples are taken from actual examinations of milk sold in New York City, the chapters are intensely practical. Cereals, vegetable foods, proprietary foods, meats, and eggs are then considered. Dr. Chapin was among the first to point out the value of cereals in infant feeding, and his teaching in this branch of the subject has been amply proved correct by his experience and by the experience of his followers. Part III of the book is devoted to practical feeding, all the details in reference to breast feeding and to the preparation of artificial food mixtures being given. While general principles are stated, direct and clear descriptions of practical methods are given most attention, so that an intelligent nurse or mother can obtain all the information necessary for carrying on the nutrition of a child. Finally, feeding in disease, diet of older children, and the data of growth and development of infants are considered.

Throughout the book the author endeavors to show how the demands of science in the question of feeding may be realized with the materials and under the circumstances existing in modern city life. This makes the book a practical guide for all interested in the subject, whether physicians, nurses, parents, or students. To the latter, especially, the book is recommended, for, beyond serving as a text book, it will prove of great assistance in their early years of practice.

KRIEGSCHIRURGISCHE RÜCK- UND AUSBLICKE VOM ASIATISCHEN KRIEGSCHAUPLATZE. By Dr. HERMANN FISCHER, Professor of Surgery. Berlin: Hirschwald, 1909.

WHILE the reports of the various military observers with the Russian and Japanese armies in the recent war in Manchuria record in detail conditions as studied from their respective standpoints, this book of 200 pages discusses the medico-military aspects of the war as a whole from both sides. The book is well planned, complete in detail, clearly written and concise in expression. The experiences of the various observers have been freely drawn upon in its preparation, and the result is the most generally valuable single book available on sanitary organization, field hygiene, modern weapons of war, wounds and their treatment, aid stations and hospitals, and other matters important to the military surgeon.

PURE MILK AND THE PUBLIC HEALTH. A Manual of Milk and Dairy Inspection. By ARCHIBALD ROBINSON WARD, B.S.A., D.V.M., Assistant Professor of Bacteriology and Director of the State Hygienic Laboratory, University of California. With two chapters by MYER EDWARD JAFFA, M.S., Professor of Nutrition and Director of the State Food and Drug Laboratory, University of California. Ithaca, N. Y.: Taylor & Carpenter, 1909.

IN this manual the author has attempted to collect the main facts required for an intelligent understanding of the duties of milk and dairy inspectors. The book contains a large amount of cold fact, and numerous copies of Department of Agriculture "dairy score cards," requirements and directions of milk commissioners, details of analytical methods, and similar valuable material. The book takes up the common modes of contamination of milk at the farm and dairy, the diseases commonly carried by milk and the problem of bovine and human tuberculosis. The second half discusses the sanitary control of milk, bacteriological and chemical analytical methods, and the precaution in obtaining certified and Pasteurized milk for the market. Each statement is backed by its reference, so those wishing to look deeply into the subject of pure milk may find therein a very full bibliography. The book has its uses in this way. It is, however, written in a jerky style that renders it difficult to read consecutively. The slightly freer use of conjunctions and rearrangement of some sentences would improve its value. We notice, too, the frequent incorrect use of the word tubercular where the author means tuberculous.

THÉRAPEUTIQUE VÉNÉRIENNE. Par le Dr. M. DEGUY, ancien interne des Hôpitaux, ancien chef de laboratoire à la Faculté, Paris: G. Steinheil, 1909.

THE author premises at least a working knowledge of the pathology, symptomatology, diagnosis, and prognosis of venereal diseases and of some dermal infections. In a purely therapeutic sense, one-third of the book thoroughly presents the newest views regarding these affections. Deguy supports his statements with the results of personal experience. The remaining pages are devoted to two excellent chapters on laboratory researches, directed to the diagnosis of syphilis, in which the most modern methods, including ultramicroscopy, are discussed. Unfortunately, this new author does not bring us nearer the ability to make a positive diagnosis of the presence or absence of syphilis in a larger percentage of cases than did his predecessors. On the other hand, however, he clearly details the complete technique of all the methods; in doing so he emphasizes the hope that the time is not remote when lues will be as surely diagnozable as now are typhoid fever and diphtheria.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixtieth Annual Meeting, Held at Atlantic City, N. J., June 8, 9, 10, and 11, 1909.

(Special Report to the MEDICAL RECORD.)

(*Continued from Vol. 75, p. 1125.*)

SECTION ON MEDICINE.

Thursday, June 10—Third Day.

Election of Officers.—*Chairman,* Dr. George Blumer of New Haven; *Secretary,* Dr. Wilder Tileston of Boston; *Delegate,* Dr. James Capps of Chicago; *Alternate,* Dr. Alexander Lambert of New York; *Orator,* Dr. Richard C. Cabot of Boston.

The Association of Aortic Insufficiency with Syphilitic Aortitis.—Dr. WARFIELD T. LONGCOPE of Philadelphia said that among 930 autopsies they had found 74 cases in which the aortic valves were sufficiently diseased to be noted as chronic aortic endocarditis in an anatomical diagnosis. They divided these cases into several groups. One, those in which the disease of the aortic valve was associated with lesions of the mitral or tricuspid valves. Secondly, those in which the aortic valve alone was affected. There were 20 cases of combined lesions, usually occurring in young persons with a history of rheumatic fever. In only three of these cases was there some calcification present. The second group again was divided into (1) those cases of chronic endocarditis associated with a peculiar type of cirrhosis; (2) those cases associated with other types of cirrhosis or in lesions of the aorta itself. Thirty-one cases of pure aortic endocarditis fell in this group and there was more or less thickening and stiffening, often calcification, of the aortic segments. Twenty-two cases were over fifty years of age. There were 20 cases with more or less thickening and curling of the valves, with retraction and without calcification and associated with a peculiar type of cirrhosis. All but four were under the age of 50. There were 14 males and six females. Fourteen were colored and six were white. Microscopically, the aorta was the seat of irregular pittings and corrugations, with occasionally soft semitranslucent patches of thickening. There was no calcification. Microscopically the intima presented various grades of thickening due to heaping up of cells of connective tissue type but there were no marked degenerative changes. In the media there were areas of necrosis. It was a matter of common knowledge that syphilis was a common cause of aortic insufficiency. Pure aortic insufficiency was rare after the fifth decade. It was seldom associated with the type of arteriosclerosis known as endarteritis deformans. The vast majority of the cases of pure aortic insufficiency were associated with a characteristic type of cirrhosis, mesarteritis. Syphilis was certainly the commonest cause although perhaps not the only cause of this type of cirrhosis.

DR. RICHARD C. CABOT of Boston said that some of these cases could now be recognized since the introduction of Wassermann's reaction. Some of these cases of aortic disease without any history of rheumatism or pyogenic infection, with a history of syphilis and with a positive Wassermann reaction in the blood responded to the antisyphilitic treatment even better than one would expect cases to respond when treated by rest, digitalis, purgation, and cardiac stimulants. Antisyphilitic treatment should be pushed in all cases of prolonged aortic diseases, especially where there was a history of syphilis and a positive Wassermann reaction.

DR. ALLEN A. JONES of Buffalo reported the case of a man, 46 years old, who had syphilis; shortly before death he gave positive Wassermann reaction but there were no evidences of aortic insufficiency. He had, however, three attacks of angina pectoris and died in the third attack.

Dr. Longcope said that he reported a case in which the patient had severe substernal pain and one or two attacks of angina. This was of course quite common in this type of cases because of syphilitic involvement of the coronary arteries.

Clinical Value of Recent Studies in Experimental Nephritis.—Dr. HENRY A. CHRISTIAN of Boston referred to the results of recent work in experimental nephritis. He did this, not because the results were of such great importance, but, because it seemed likely that the experimental method applied to the study of nephritis would throw much light on the problems connected with this disease. The phases of nephritis that were of clinical interest in man were the urinary changes, particularly the albuminuria and cylindruria, the uremia, the edema, the hypertension and associated cardiac hypertrophy, and finally the cause and cure. The consensus of opinion in regard to albuminuria was that the albumin of the urine, in a very large proportion of cases, came from the soluble proteins of the circulating blood and appeared in the urine as the results of pathologically increased permeability of the glomerular tuft. Degeneration of the epithelial cells might have a small part in producing this condition. In studying the origin of urinary casts produced experimentally, a variety of irritants such as cantharidin, corrosive sublimate, uranium nitrate, potassium chromate, when given to animals, would produce change in the kidney leading to the appearance of albumin and casts in the urine. Wallerstein concluded from his experiments that all casts were formed from degenerated, disintegrated, and metamorphosed tubular epithelium. Ribbery and Schlect, in studying the excretion of carmine through the kidney, had concluded that the hyaline casts were derived from the albumin excreted through the glomeruli, while the granular casts were derived from tubular epithelium. R. M. Smith had been investigating this subject at Harvard and had divided the irritants used into those which produced extensive changes of a degenerative character in the tubular epithelium, uranium nitrate, potassium chromate and mercuric chloride, and those which, while producing evidence of acute nephritis, produced comparatively slight changes in the tubular epithelium, such as cantharidin and arsenic. By varying the size, number, and intervals between doses of these various irritants, and by varying the length of the experiments, it had been possible very largely to control the lesions. It was found that the irritants which produced marked degenerative changes in the epithelium of the tubules gave rise to a more abundant cast formation than did the other group of irritants. Most casts were produced by those irritants which produced the most marked degenerative changes of the epithelium of the tubules. This indicated that there was a close association between changes of the epithelium of the tubules and cast formation. By studying histologically kidneys of animals receiving different irritants in varying doses cast formation could be traced morphologically. The first change seemed to be granular degeneration of the epithelium lining the distal convoluted tubules, which increased in severity until the epithelium became converted into a granular material. The current of fluid washed this granular material along the tubules into the lower levels of the tubules. In the early stages of the process urine analysis showed the presence of a number of casts, at first coarsely granular and later finely granular. With a longer interval and a less intense local process the casts became more hyaline in character. From a morphological point of view, supported by the results of urinary analysis, it seemed that both granular and hyaline casts in these animals arose from degenerative processes in the epithelium and that the

granular cases came earlier than the hyaline. These observations on animals were quite in harmony with the observed conditions in man. Attempts had been made to produce the condition analogous to uremia in man experimentally in animals but it could not be said that the studies in experimental nephritis had thrown much light upon the condition of uremia beyond giving support to the view that the condition was a toxic one with renal lesion. The relation of edema to nephritis had been the subject of much discussion and investigation, but even morphological studies had yielded no explanation of the occurrence of edema. In recent years physicochemical methods had been applied and special reference had been placed on salt retention with corresponding changes in osmotic tension. There was a growing skepticism toward salt retention as a primal cause of nephritic edema, though in many cases it might be a contributing factor, and the withholding of salt from the food might be therapeutically effective. There was increasing evidence to show that peripheral vascular lesions played a large role in the production of edema. The experiments of Heineke, Meyerstein, and Blanck, though not constant in their results, were very suggestive of the importance of the rôle of circulating toxic substances in the blood in nephritic edema. Some of the theories advanced for the hypertension and associated cardiac hypertrophy of chronic nephritis had been submitted to experimental test. A critical review of this work showed that results had been very inconstant. One group of observers believed that the internal secretion of the kidney was a factor in raising the blood pressure but the experimental work seemed to indicate that at the present time no very great amount of importance could be attached to the internal secretion of the kidney as a factor in causing hypertension. In a number of experimentally produced chronic renal lesions there was evidence of cardiac hypertrophy. Since the various experiments suggested that they could experimentally control the production of cardiac hypertrophy and obtain the result by producing chronic renal lesions, chronic myocardial lesions and chronic vascular lesions, it might be possible by such studies to arrive at the causal factor which acted chiefly in any one of these types.

The Causes of Hypertension in Nephritis.—Dr. John H. Musser of Philadelphia stated that one had no exact knowledge of the causes of hypertension in nephritis. The theories elaborated had been mostly based on clinical observations. While neither the clinical experience nor the experimental evidence was at all conclusive, each in its way pointed to an explanation through the action of some chemical substance influencing the circulatory system. What this substance might be or how it acted they did not know. Hypertension like uremia was an evidence of renal insufficiency. It was naturally suggested that the poison of uremia was identical with that causing hypertension, or, if different, it was formed at the same time and was due to the same causes, or possibly one was the derivative of the other. If there was but one poison it was possible to conceive that in small amounts it affected the vasomotor apparatus and in large amounts exerted a toxic effect on the nervous system, producing uremia. This chemical theory was supported by the frequent clinical experience that the degree of the uremic manifestations and the recovery from these had a close relation to the blood pressure. Moreover, true uremia without hypertension seldom occurred. In connection with this chemical or retention theory the effects of diet were suggestive. Experiment had shown that rich protein diet increased the tension and disturbed the general condition for the worse. This probably meant a retention of the products of nitrogenous metabolism and possibly of that nitrogen which in the urinary partition was known as undetermined nitrogen. The increase of these substances in the blood of that group of renal diseases in which uremia occurred suggested that they might be the cause of uremia and that they might also be the substances responsible for increased tension. There was nothing at present to add to this view that hypertension was to be explained by retained products of metabolism. Dr. Musser thought that the theory in regard to the internal secretion of the kidney could be dismissed. A closely related theory was that which assumed a correlation between the kidney of chronic interstitial nephritis and the secretion of the adrenal. French investigators had described a localized or diffuse hyperplasia of the adrenals accompanying chronic nephritis in those cases which did not run too rapid a course. This hyperplasia was considered as an indication of the functions of the gland. This theory had a relation also to the arteriosclerosis associated so constantly with the interstitial type of nephritis. As reports multiplied and the lesions were found in other conditions the importance of the observation diminished. The attempts to demonstrate adrenalin or adrenalin-like bodies in the serum of nephritis was also of interest in this connection but more evidence would have to accumulate before the observations made could be of any value. The chief difficulty in explaining hypertension in chronic interstitial nephritis was the almost constant presence of arteriosclerosis. It was a question whether the kidney injury was primary and led to arteriosclerosis or whether a poison first affected the blood vessels and the kidneys secondarily through the disease of their own arteries. The latter view seemed to be the one gaining adherents. However, many poisons might simultaneously affect both the kidneys and the vascular system. The study of renal disease following infectious diseases threw some light upon this subject. Here hypertension appeared to be primary and the heart hypertrophy and arteriosclerosis secondary. In scarlatinal nephritis hypertension came on very early and the only explanation that could be offered was that of increased peripheral resistance, a contraction of the arterial terminals. This contraction was the result of some chemical influence but again they were brought back to the theories just discussed as concerning which they had come to no definite conclusion. There was an important field for investigation. First as to the tension in various forms of epithelial lesions and secondly, a cooperation between the clinician and the pathologist as to the relation of hypertension to histological changes, with special regard to the glomeruli. Experiments definitely demonstrated that the high pressure associated with glomerular lesions could not be explained by the earlier theory of diminution of vascular territory in the kidney. Loeb offered as a hypothesis, that since the renal activity varied directly with the blood supply, lesions of the glomeruli would limit local vasodilation. When the renal activity demanded more than the local conditions allowed, the stimulus went beyond the kidney and exerted reflexly a splanchnic contraction which led to an increased flow of blood through the glomeruli. This theory brought out the fact that hypertension, be its cause what it might, was essentially a conservative process having for its object the maximum functioning power of the kidney. Passler and Heineke, by reducing the kidney substance in animals by successive excisions, had concluded that in the state of renal insufficiency thus produced the heart hypertrophy was due to the increased work resulting from the tendency to arterial spasm and that this in turn was due to the effect of retained toxic substances. This again brought them back to the chemical theory of retention, but they knew nothing of the substances retained, and here was the problem of the cause of hypertension in nephritis, a problem that could only be solved by methods of chemistry and physiology assisted by clinical observation.

The Value and Limitations of Salt-Free Diet and Restriction of Fluids in Nephritis.—Dr. Victor C.

Vaughan of Ann Arbor presented this paper. The following points seemed to be fairly well established. (1) Urea and uric acid were not important constituents of the urine so far as their toxicity was concerned. (2) About 85 per cent. of the toxicity of the urine was due to its inorganic constituents, the most toxic of which was potassium chloride. (3) There were present in normal urine certain organic poisons, the nature of which had not yet been ascertained. (4) Although the inorganic constituents, notably potassium chloride, were markedly poisonous, they could not be regarded as a direct causal relation to that complex of symptoms which they designated as uremia. He felt confident that in withholding salts from their nephritics they were not withholding the direct cause of uremia. The best that they could hope for in the use of a salt free diet was to protect the kidneys by decreasing their labor and thus conserving their capacity as organs of elimination. The inorganic salts were not, singly or combined, the active and direct cause of uremia. There were reasons for suspecting not only that the inorganic constituents in the urine were in part neutralized by the organism, but also in part by one another. It was quite evident that poisoning due to the retention of normal constituents of the urine and uremia were two quite distinct and different things. A point he wished to emphasize was that poisoning from anuria and uremia were two distinct things, and while the inorganic salts were the most poisonous constituents of the urine, their retention in the body could not be regarded as the cause of uremia, certainly not the direct cause. It was suggested by Widal in 1903 that nephritic edema was due to chloride retention, that with the disappearance of the edema the elimination of chloride was increased, and that the proper treatment of the edema of nephritis should provide a diet that was largely salt free. The reports, however, of clinicians had not been so satisfactory. There was some clinical evidence that edema did increase the danger of uremia. At least uremic symptoms had been seen to disappear with the disappearance of the edema and to return with the accumulation of fluid in the tissues. However, there was a causal relation between edema and uremia, because the latter was frequently seen in interstitial nephritis when the former was absent or but slightly developed. Edema in nephritis was due to diverse causes, and certainly not always due to salt retention.

Management of Uremia.—Dr. Edward F. Wells of Chicago read this paper and said that for the purposes of this discussion uremia might be tentatively defined as an auto-intoxication, which affected mainly the nervous system, and occurred in connection with renal insufficiency. It was due to the retention in the blood, tissue, lymph, and cells of the body of certain indeterminate, but specific, products of perverted, or normal, tissue metabolism, which were not excreted by the inadequate kidneys, were not taken up by the lymphatic radicles, or were not neutralized or destroyed by the lymphatic glands or other protective organs. He confined himself to a consideration of some of the problems in the management of uremia, with particular reference to the disturbances of the intra- and extravascular circulation, in that protean malady known technically as chronic interstitial nephritis. Upon making a diagnosis of chronic interstitial nephritis the physician should make earnest efforts towards preventing the development, or recurrence of recognizable uremia. The diet should be so arranged along the established lines, as to maintain nutritive equilibrium at the highest possible level, with the smallest total amount of protein and carbohydrate foods. The total liquids should be so adjusted as to carry off the largest amount of excrementitious materials. The regimen should consider such important matters as residence, clothing, occupation, exercises, environment, etc. The amount and character of the physical exercises should be adjusted to meet the varying capacity and requirements. Extraordinary care should be made to avoid infectious diseases. Ordinarily the high tension was conservative and should not be interfered with. When there was a sudden exaltation of tension, with the patient in great distress, the best interests were served by anticipating the near-inevitable by artificially lowering the excessive pressure. The uremia of the cardionephritic dropsical patient was due to vital, and not to mere mechanical, disturbances. It was significant that the serum obtained from the liquid bowel movements of such nephritic patients had been much heavier laden with chlorides, and often with sulphates too, than in others with pure cardiac dropsies. Edema interfered greatly with the composition of the blood and the extravascular lymph, and with cellular nutrition. The capillaries and lymphatic radicles were compressed, with interference with their function; the tissue lymph became stagnant and laden with specific toxins and tissue waste materials; the extravascular circulation was short-circuited. During the first day the diet should consist of thin gruels, cream and water, vegetable soups, tea, coffee, cocoa, water, and carbonated waters. From these there should be omitted the gruels on the second, and the soups on the third day; during the fourth and fifth days very little should be taken; on the sixth day the soups should be replaced, and on the seventh day the gruels; later the ordinary careful dietary of the nephritic should be gradually resumed. Every night of the first three days the patient should take 10 grains of mercurial mass, in two recently made pills of 5 grains each, followed by an efficient dose of sodium or magnesium saline in the morning. Beginning on the fourth morning, after free action of the saline, there should be given 1/30 grain of pure elaterin hourly for three doses; 1/24 grain every two hours for three doses; finally 1/18 grain every three hours until ten or twelve copious watery bowel movements have been induced. During the time the elaterin is being given the patient should remain in bed. He should be informed of the abdominal distress, nausea, and vomiting which the drug sometimes induced.

Dr. David L. Edsall of Philadelphia said that it was quite clear from what had been stated in the papers regarding the chloride-free diet that many erroneous conclusions had been reached. For various reasons the theories regarding the important relation of the chloride-free diet and the edema were not at all established; there were many reasons for thinking that the conclusions reached were erroneous. Whatever one might think regarding the relation of salt to the symptoms of nephritis it was clearly a valuable procedure to limit strictly the amount of certain substances, and particularly table salt. A great deal of good could be given by more attention to the diet of these patients. In the treatment of uremia of persistent form, attended by a state of high tension and circulatory failure, with the patient in a very bad state rebelling against everything, he believed in actual starvation. The kidneys should be relieved as much as posible for a brief period.

Dr. De Lancey Rochester of Buffalo commended the treatment of uremia as outlined by Dr. Wells but, in addition, there was one thing of great value, namely, the consideration of the skin as an eliminative organ. Profuse sweating did much good and was easily produced by giving minute doses of pilocarpine about ten or fifteen minutes before giving the hot bath or pack. Of great value in these cases was the use of small doses of elaterium twice daily.

Dr. James Tyson of Philadelphia said that it was a matter of clinical experience to find hyaline casts first, and not the granular casts. Not enough stress had been laid upon the treatment of the hypertrophy and the high tension *per se*. One should strike at the root of the evil and

remove the cause of the high tension. It was difficult to have the starvation treatment, as referred to by Dr. Edsall, properly carried out. Twenty years ago they treated the nephritides with small does of milk, giving as little food as possible. Where it seemed desirable to give nourishment one should not give large quantities of milk, but small quantities of diluted milk.

Dr. John A. Licity of Pittsburg reported some interesting cases. One man, twenty-four years old, had a severe form of nephritis following an attack of scarlet fever, and had been consulting regarding it with Dr. Tyson of Philadelphia and Dr. Janeway of New York. The albumin and casts remained in his urine year after year. An interval operation for appendicitis was decided upon as being necessary; this was done and without any disturbance in the urinary excretion at all. Another patient had diphtheria followed by general anasarca. Dr. Osler saw this case, a very severe one. This patient also had to be operated upon and the ether narcosis had no effect upon the kidneys. He saw another case with a colleague; the amount of urine passed was supposed to be normal and the kidneys as well; yet after an operation there was a shower of casts and albumin, together with an acidosis, and the patient died within twenty-four hours. With this experience in mind it seemed to him that after all their knowledge of this condition, so far as it came down to the individual, was not very extensive.

Dr. John N. Upshur of Richmond, Va., entered a protest against the administration of morphine or any opiate as a temporary palliative in the treatment of uremia. One should test the kidneys and at the same time increase elimination; in this way they would accomplish more than if they got their heads in the bushes by giving morphine, thinking they were accomplishing something.

Dr. C. W. Smith of Baltimore said that the papers and discussion showed what had been done in experimental medicine which was corroborated by clinical observation; these were the only two measures by which they were to secure progress in the treatment of this affection, or in fact, in the treatment of any other. He was glad to hear mentioned the importance as an etiological factor of vascular disease in these cases of edema, and the benefit to be derived from actual starvation. No bad results had ever followed two days actual starvation in these cases with edema.

Dr. Boardman Reed of Los Angeles, Cal., said that fasting or starvation was of value not only in nephritic conditions with edema, but also in other affections; they all knew that in gastric ulcer and cases of hyperchlorhydria starvation or very light diet was of considerable value, particularly when there was high tension.

Dr. Hugo A. Freund of Detroit condemned the desultory use of the sphygmograph; if this instrument was properly used in many cases an oncoming uremia could be foretold long before the convulsions or gastrointestinal disturbances made their appearance. The sphygmographic tracings carefully studied would give far better indications for treatment and would give better results than were obtained in the haphazard way.

Operative Treatment of Cirrhosis of the Liver.—Dr. George Dock of New Orleans said that the statistics of the Talma-Morison operation and its modifications and substitutes were unfavorable partly because many cases had been operated upon too late to do good, and when the risk of death was excessively great on account of other organic diseases. The death rate and the shortening of life must not be compared with similar incidents in persons previously healthy, or persons with trivial diseases. As in so many borderline cases, they should think chiefly of the pain and disability, and the inevitable death within a time not very long, under the usual methods of treatment. From that standpoint a single patient made comfortable for a time beyond the usual expectations, outweighed many others whose days might have been lessened, though they lost nothing they ever could have gained in function. In such a case the matter should be put as plainly as possible before the patient, and he should decide. Many would prefer the cathartic and trocar; some, however, would prefer a definite risk with the hope of relief. He had found one case that seemed an ideal subject, a man with recently developed ascites and distinct but not severe symptoms of cirrhosis, no cachexia, and no anomalies in the urine. Paracentesis gave no characteristic fluid and showed the liver not enlarged. This patient chose operation which was performed by an experienced surgeon. The liver was moderately cirrhotic, the spleen enlarged, the veins in the omentum and under the parietal peritoneum were distended. Death occurred on the third day from septic peritonitis. Such an event was discouraging, but it gave him all the greater pleasure to report another case in which the duration of life and maintenance of function seemed unmistakably lengthened, notwithstanding many adverse circumstances. A brief summary was as follows: The patient had symptoms of cirrhosis of the liver, with ascites, following a history of hard work and hard drinking; he was tapped for the ascites fourteen times, and then an omentopexy was performed in December, 1902; he was tapped ten times after that, up to June, 1903, and since that time had been able to do hard work, only at long intervals having symptoms, which were easily relieved by medicine. Dr. Dock was inclined to agree with Rolleston in attributing the benefit chiefly to the lessening of venous pressure, enabling the liver to deal more readily with the toxic substances passing through it, the improved circulation following the reduction of venous pressure, and the greater chance of compensatory hyperplasia.

Report of the Committee on the Revision of the Pharmacopeia.—Dr. Thomas McCrae presented this report of the committee which was composed of Drs. Joseph A. Capps of Chicago, Joseph H. Pratt of Boston, Thomas McCrae of Baltimore, and John T. Halsey of New Orleans. It had not been the aim of this committee to do more than to bring forward what seemed to be the changes which might advisably be made in the revision of the pharmacopeia from the standpoint of the clinician. An important point which should be kept in mind was the possibility of making the pharmacopeia something which would come into constant use by the members of the profession generally. In bringing this about one important thing was the reduction in size, which seemed to be a point worth considering. Might it not be possible to omit the appendix? Another point was in regard to the publication of an annual bulletin. Another point was as to the advisability of introducing any substance "which cannot be produced otherwise than under a patented process or which is protected by proprietary rights." The advisability of doing this had been hinted at in the eighth pharmacopeia. The committee felt that this would be a mistake and that the position taken in the last pharmacopeia should be maintained. The following was a partial list of the drugs the committees thought should be dropped: Acetum opii, acidum camphoricum, aconitina, adeps, althea, anthemis, berberis, calamus, calendula, cassia fistula, chimaphila, chirata, cimicifuga, cinchonidinae sulphas, cinchoninae sulphas, cypripedium, euonymus, eupatorium, frangula, gambir, geranium, hedeoma, krameria, lappa, limimentum saponis mollis, marrubium, matico, matricaria, mezereum, oleum coriandri, oleum erigerontis, oleum sabinae, oleum sinapis volatile, pareira, phytolacca, pimenta, piperina, pulvis acetanilidi compositus, quillaja, rhus glabra, rubus, sabal, safrolum, scutellaria, staphisagria, unguntum potassii iodidi, unguentum zinci stearatis, unguentum hydrargyri, unguentum hydrargyri dilutum, and xanthoxylum. Regarding the drugs which should be added, the

following seemed worthy of consideration: Calcium lactate, phenolphthalein, arsenic (the value of sodium cacodylate and sodium aminophenyl arsenate hypodermically seem definitely established), theobromine, bile salts, diacetyl-morphine, and theobromine-sodio-salicylate. There seemed to be good ground for the feeling that they should go slowly in adding to what had been too voluminous already.

Dr. M. I. Wilbert of Philadelphia said that there was no question but that physicians should be the dictators regarding the omissions and admissions of drugs to the pharmacopeia; that was their province; it was their duty. They should dictate just what this book should contain. At the same time the clinician did not require reprentation on the revision committee; there was nothing in connection with the revision committee of direct interest to him or to which he could materially contribute. The clinician hampered their work. Much was said regarding the size of the pharmacopeia; the committee believed that it could be divided with benefit into two halves, one of which would appeal to the medical man, whereas the total would be necessary to the pharmacist. There was now very much in the appendix that was absolutely of no interest to the medical practitioner; again there was much material in the pharmacopeia which could be relegated to the appendix.

Dr. L. A. Conner of New York believed that the pharmacopeia as it existed to-day did not entirely meet the needs of physicians. The question arose, how could it be made to meet their needs more adequately. A volume not one-third the size of the present one would serve them well. Dr. Conner believed that the whole matter of the introduction of new drugs should be properly in the hands of the Council on Pharmacy and Chemistry. This Council might publish yearly or frequent bulletins to aid them in the selection of comparatively new drugs. They much preferred not to use drugs that were patented; but it seemed perfectly obvious that many patented drugs were used, would be and should be used.

Dr. John F. Anderson of Washington believed that in the list should be included the tetanus antitoxin; its value as a prophylactic entitled it to admission to the pharmacopeia.

Dr. W. Clayton Thrush of Philadelphia said that preparations of the adrenal gland was supplied by different firms under different names and that it would be well to have them admitted under one name; they all consisted of a 1-1,000 strength in physiological saline solution.

Rocky Mountain Spotted Fever.—Dr. H. T. Ricketts of Chicago showed by means of lantern slides the geographical distribution of this disease and called attention to its epidemiological features and their correspondence with the life cycle and habits of the tick.

Dr. Woods Hutchinson of New York spoke of the great variation in the virulence of this disease as he had met with it on the Pacific Coast: in Montana there was a high mortality, as well as in Idaho, whereas in the eastern part of Oregon it appeared as a mild infection, the vast majority of the cases ending in recovery.

Algid Malarial Fever, with Report of Cases.—Dr. Thomas D. Coleman of Augusta, Ga., read this paper. He said the pernicious types of malarial fever were of absorbing interest because of their diverse clinical features and their high mortality. From his study of the classification of others and from his own experience with this type of disease he thought that a subdivision into the comatose, hemorrhagic, and algid varieties was all that was needed for accuracy and elasticity. He had seen no variety that could not be placed under one of these subdivisions. A multiplication of them was therefore, not only confusing but unnecessary. It was generally conceded that pernicious malaria was produced by the action of the estivoautumnal variety of the *Plasmodium malariæ;* why then were some of the cases produced by them mild or malignant and others severe or pernicious? Unfortunately one must depend here upon reasoning from analogy and from one's knowledge of the life history of the parasite. First, one might assume that the number of the invading parasites with the toxins secreted by them was sufficient to bring about the pernicious symptoms. Against this it might be argued that in many fatal cases few parasites had been found. In such cases it might be, and likely was, that the parasites had collected in the internal organs. Secondly, it might be argued that either the parasites possessed an unusual virulence or that the resisting power of the individual had been lessened by preceding attacks of this or some other disease, or some vice of constitution. Thirdly, it might be supposed that the parasites for reasons unknown tended to accumulate in some portion of the anatomy, interfering with the circulation there and causing greater absorption of their toxins at the point of attack. It might be that some or all of these factors were operative. Algid malaria might be defined as a pernicious type of malaria, caused by the estivoautumnal form of *Plasmodium malariæ,* and characterized by profound prostration, cold and clammy skin, and an unclouded intellect. This disease occurred in all tropical and subtropical countries where malaria was found. Its pathology did not differ in any essential particulars from that of other forms of pernicious malaria, with the single exception of hemorrhagic malaria, in which the urine was more or less surcharged with hemoglobin, giving to it the name of "black-water fever." The symptoms were clear cut and definite, and from them it got its name algid malaria. The prognosis was usually grave and, in his experience, the mortality was 100 per cent.

Dr. John A. Witherspoon of Nashville said that the cases reported by Dr. Coleman were those in which the patient was overwhelmed by the toxemia of malaria. The cases described by him with choleraic diarrhea, nausea, vomiting, rice water discharges, purging, etc., were fortunately rare. He had seen only two cases of the type described by Dr. Coleman; one patient died one hour after he reached the bedside; the other thirty-six hours after. They both died of an overwhelming toxemia. There was evidently little to be done for such cases. The only hope was in artificial heat, saline irrigations, and transfusions and injections. The hypodermic injection of solutions of quinine, injected deeply, which gave good results in other forms of malaria, was practically useless; the only hope for benefit in these cases he believed to be in the intravenous introduction of quinine. That was the only way to reach the toxemia, and considerable sized doses should be used. In most cases fifteen or twenty grains was sufficient, although he had used as high as 140 grains in three hours. He was glad to report that malaria in the south was being materially lessened.

Dr. James B. McElroy of Memphis, Tenn., believed that the best classification was the one mentioned by Dr. Coleman, the comatose, algid, and hemorrhagic forms. There were the pernicious paroxysms occurring every five or six hours in conformity with what was known regarding the cycle of the parasite; the behavior of the parasites in the so-called "black-water fever" was entirely different from what was seen in the ordinary forms of pernicious malaria; when the blood was examined twenty-four hours after the onset, hemoglobinuria was seldom or never found; therefore, he thought the so-called black-water fever should be excluded from the hemorrhagic group.

The Value of Alimentary Levulosuria in the Diagnosis of Hepatic Cirrhosis.—Dr. Edward H. Goodman of Philadelphia read this paper and concluded as follows: (1) Alimentary levulosuria was almost a constant phenomenon in cirrhosis of the liver. (2) The early or late

appearance of levulose might be regarded as a sign of severe or mild hepatic disease. (3) Alimentary levulosuria was a useful aid in diagnosing between cirrhosis on the one hand and chronic passive congestion on the other. (4) In addition to levulose, a study of the hepatic function with glucose and with saccharose was to be desired, inasmuch as there might be an individual intolerance to carbohydrates. (5) While not indicative of any specific organic lesion of the liver, alimentary levulosuria was most frequently observed in cirrhosis.

The Nature and Treatment of Anemia.—Dr. S. P. Beebe and Dr. W. Gilman Thompson of New York called attention to the studies in metabolism which had been made on patients suffering from pernicious anemia, and gave the results of these studies, particularly with reference to the nitrogenous metabolism. In the idiopathic form (not referring to those conditions which could be explained by intestinal infections) they found that good hygiene, fresh air, abundance of good food, and rest were very important factors. They had found that in this condition there was no secretion of hydrochloric acid, or, if any, very little. Digestion could be improved, both in the stomach and intestines, by the administration of hydrochloric acid, and their best results were obtained from considerable quantities, not ten or fifteen drops of the diluted acid, but a solution of such concentration as would approach that contained in the normal gastric juice. Arsenic in its various forms had been tried. No benefit at all was derived from the use of iron in any form.

Dr. De Lancey Rochester of Buffalo reported a case of pernicious anemia which improved under the use of Fowler's solution and apparently recovered; eighteen months later he had a relapse, and again apparently got well; he finally died of pernicious anemia as the autopsy showed.

Dr. Theodore Potter of Indianapolis said there was great difficulty in judging of the value of the various forms of treatment recommended in this disease; improvement very often followed, but sooner or later, under any treatment so far advocated, the patients succumbed to the disease.

Dr. Louis G. Heyn of Cincinnati spoke of prohibiting the use of nitrogenous foods; if given they were apt to undergo putrefactive changes in the bowels. He could see benefit from the use of hydrochloric acid given in large quantities in aiding digestion.

Dr. Joseph L. Miller of Chicago called attention to the danger of using large doses of arsenic subcutaneously; very often there was caused an optic neuritis.

Dr. Walter J. Bjerring of Iowa City, Ia., said that one year ago he had reported a series of cases of pernicious anemia and in none of them was the free hydrochloric acid anywhere near the normal limit; these patients apparently improved under the use of arsenic, colonic irrigations, careful feeding, and various remedies; but in reality nothing had any effect upon the course of the disease. All the patients he reported then were dead.

Dr. S. P. Beebe of New York said he did not intend to give the impression that the administration of hydrochloric acid cured these patients; that was very far from the meaning he wished to convey. At the same time he did believe that a considerable number of these patients would be improved by it. Attention to hygiene often gave as good results as did the giving of medicines; he emphasized the importance of fresh air, good food, rest, etc. With regard to nitrogenous metabolism in these cases he thought they were justified in saying that metabolism was nearly normal; they had not been able to find any abnormality about the nitrogen in the urine.

The Work of a Cooperative Hydrotherapeutic Establishment.—Dr. Joseph H. Pratt of Boston called attention to the neglect of scientific hydrotherapy in America and the lack of instruction in the subject in the medical schools. A noncommercial hydrotherapeutic institution had been established in Boston, and he told of its influence in advancing physical therapeutics in that locality. He gave the results of his observations and studies carried on in the Boston establishment.

Dr. John A. Lichty of Pittsburg believed that such an institution was a very necessary adjunct to the therapeutic armamentarium. If the physicians would not take this matter up the quack would, and with great harm to the patients. He reported a case of a patient with loss of cardiac compensation, enlarged liver, etc., who was treated by massage and exercises with serious results in the endeavor to reduce the size of the enlarged liver. Physicians should protect themselves, and unless they established such institutions they were at the mercy of these people. He was glad to report that such an institution was about to be opened in Pittsburg.

Dr. C. W. Smith of Baltimore said that Dr. Pratt's work in Boston was well known and appreciated throughout New England. He called attention to a class of cases that was particularly adapted to this form of treatment, namely, vasomotor conditions with a neurotic etiology and vasomotor conditions arising from cardiac diseases, so often seen in young boys and girls; they were quickly relieved by hydrotherapeutic measures, but little benefit followed the use of drugs in these cases; but they could be very satisfactorily treated by sanitary measures, an open air life, proper diet, and hydrotherapy.

Dr. Andrew MacFarlane of Albany, N. Y., said the first duty of the physician was to cure his patient, and the way to do that was first to learn the cause of his trouble and remove it. That, however, did not appeal to the popular mind. The medical profession did not appreciate the value of physical therapy; they relied too much upon the giving of prescriptions. He thought it was a disgrace to the medical profession that an ex-prize fighter should be able to make a success of a sanatorium in the State of New York, a sanatorium which attracted not the ignorant, but the most intelligent men in the United States; it seemed that this man could do what the scientific medical profession could not do.

(*To be continued.*)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners, State of Georgia.

Augusta, Ga., May 3 and 4, 1909.

ANATOMY.

1. Name articulations of occipital bone.
2. With what bones does the clavicle articulate?
3. What bones make up the pelvis?
4. Name bones of tarsus.
5. What muscles form quadriceps extensor, and where is its conjoined tendon inserted?
6. What muscles comprise pectoral group?
7. Give origin and insertion of pectoralis major muscle.
8. What blood-vessels pass to and from liver?
9. Name branches of external carotid artery.
10. Name branch of femoral artery.
11. How is circle of Willis formed?
12. In anatomy of brain what is corpus callosum?
13. Give origin and exit of pneumogastric nerve.
14. Give origin and exit of trifacial nerve.
15. What is contained in middle mediastinum?
16. Name subdivisions of alimentary canal.
17. Where in the topography of the abdomen is the sigmoid flexure? The appendix?
18. Into what and how far from the pyloric orifice of the stomach does the ductus communis choledochus open?

PHYSIOLOGY.

1. What four elements do all quaternary proximate principles contain? Practically into what must albuminoids be changed before absorption?

2. Name the intestinal glands. Tell where each variety is situated. What do they secrete and name the ferments.
3. Describe the renal circulation.
4. Give the chemistry of respiration.
5. Give origin and function of the hypoglossal nerve.

CHEMISTRY.

1. Give tests by which mercuric compounds can be distinguished from mercurous compounds.
2. Give the chemical and pharmaceutical names and formulas of two preparations of sodium.
3. What are leucomains? Antitoxins?
4. Give a chemical and physiological antidote for morphine. Explain action of each.
5. What is the normal reaction of pancreatic juice, and to what is it due? Of gastric juice? To what is it due?

MATERIA MEDICA AND THERAPEUTICS.

1. Give classification of medicines with definition, and example of each group in their alphabetical order.
2. Veratrum viride: Preparations, physiological action, therapy.
3. Gelsemium: Preparations, physiological action, therapy.
4. Opium: Preparations, its six principal alkaloids; official preparations of morphine; treatment of acute poisoning.
5. Salol: Definition, physiological action, therapy.

PATHOLOGY.

1. Describe the pathological changes in the three stages of acute lobar pneumonitis.
2. What pathological changes occur in the air-cells during pulmonary hepatization?
3. Give the morbid anatomy in acute yellow atrophy of the liver.
4. (*a*) What is productive inflammation? (*b*) What is suppurative inflammation?
5. Describe fatty degeneration as distinguished from fatty infiltration of tissue.

PRACTICE OF MEDICINE.

1. Acute articular rheumatism: Definition, etiology, morbid anatomy, symptoms, complications, diagnosis, treatment.
2. Cholera asiatica: Definition, etiology, morbid anatomy, symptoms, complications and sequelæ, diagnosis, prophylaxis, treatment.
3. Dysentery: Definition, etiology, clinical forms, anatomy of each form, diagnosis, treatment.
4. Hydrophobia: Definition, pathology, symptoms, diagnosis, prognosis, treatment.
5. Uncinariasis: Definition, etiology, pathology, diagnosis, treatment.

OBSTETRICS.

1. What attention should be given to the kidneys of pregnant women?
2. What are the symptoms of threatened eclampsia?
3. What are the causes of antepartum hemorrhage? How should they be managed?
4. What is the usual procedure in the delivery of the placenta?
5. How would you manage a breech presentation?

PEDIATRICS.

1. Give etiology, complications, and duration of pertussis.
2. Give treatment of acute adenitis.
3. Define ophthalmia neonatorum and give its treatment.
4. Give synonym and treatment of scabies.
5. Give diagnosis and treatment of bronchopneumonia.

GYNECOLOGY.

1. Define endometritis, and give its causes, varieties, and treatment.
2. Give a differential diagnosis between ovaritis and ovaralgia.
3. Give the pathology of (*a*) hydrosalpinx, (*b*) hematosalpinx; give the diagnosis and treatment of each.
4. Is ventrofixation of the uterus justifiable? If so, state under what circumstances, and describe the operation.
5. What is the menopause, and in what manner would you explain the theory that it is a critical period in a woman's life?

SURGERY.

1. Define abscess; aneurysm. With what condition may aneurysm be confounded?
2. Make briefly a diagnosis of coma from injury, apoplexy, uremia, opium poisoning, and alcoholic intoxication.
3. Define peritonitis.
4. State two or more ways in which the peritoneum may be invaded by bacteria.
5. What are the contraindications respectively to the use of the three principal anesthetics—nitrous oxide, ether, chloroform?
6. What is dislocation? Fracture?
7. Give differential diagnosis between fracture and dislocation.
8. Describe Colles' fracture.
9. Outline treatment of same.
10. What is hemorrhage?
11. How would you arrest epistaxis?
12. Describe operation for ligation of subclavian artery in its third portion.
13. What arteries require ligating in amputation, at middle third of leg?
14. Describe complete indirect inguinal hernia.
15. Give symptoms of strangulation, methods of reduction, and operation if strangulation exists.
16. Describe an approved operation for the radical cure of oblique inguinal hernia.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS, STATE OF GEORGIA.

Augusta, Ga., May 3 and 4, 1909.

ANATOMY.

1. The *occipitol bone articulates* with:—two parietals, two temporals, atlas, and sphenoid.
2. The *clavicle articulates* with:—sternum, scapula, and cartilage of first rib.
3. The *bones which make up the pelvis* are:—Two ossa innominata (each composed of the ilium, ischium, and pubis), sacrum, and coccyx.
4. The *bones of the tarsus* are:—The os calcis, astragalus, cuboid, scaphoid, and internal, middle, and external cuneiform.
5. The *muscles which form the quadriceps extensor* are:—Vastus externus, vastus internus, rectus femoris, and crureus. It is inserted into the tuberosity of the tibia (it is sometimes described as being inserted into the patella).
6. The *muscles of the pectoral group* are:—Pectoralis major, pectoralis minor, subclavius, and serratus magnus.
7. PECTORALIS MAJOR. *Origin*:—Anterior surface of inner half of clavicle, anterior surface of sternum, from the cartilages of the second to sixth ribs, and from the aponeurosis of the external oblique of the abdomen. *Insertion*:—Into the outer bicipital ridge of the humerus.
8. *To* the liver, there pass the hepatic artery, and the portal vein; *from* the liver, pass the hepatic veins.
9. The *branches of the external carotid artery* are:—Superior thyroid, lingual, facial, occipital, posterior auricular, ascending pharyngeal, superficial temporal, and internal maxillary.
10. The *branches of the femoral artery* are.—Superficial epigastric, superficial circumflex iliac, superficial external pudic, deep external pudic, muscular, anastomotica magna, and profunda femoris (with branches: external circumflex, internal circumflex, and three perforating).
11. The *Circle of Willis* is formed:—In front by the two anterior cerebral arteries (branches of the internal carotid), which are connected by the anterior communicating artery; behind, by the two posterior cerebrals (branches of the basilar artery), which are connected to the internal carotid on each side by the posterior communicating artery.
12. The corpus callosum is the great transverse commissure, which lies at the bottom of the great longitudinal fissure, and connects the two cerebral hemispheres.
13. PNEUMOGASTRIC NERVE. *Origin*:—(1) *Superficial*, from the groove between the olivary and restiform bodies; (2) *Deep*, from the nucleus vagi, at the lower part of the floor of the fourth ventricle. *Exit*:—By the jugular foramen.
14. TRIFACIAL NERVE. *Origin*:—(1) *Superficial*, from the side of the pons varolii; (2) *Deep* (sensory root), from the medulla, and upper part of cord; (motor root) from floor of fourth ventricle, and side of the aqueduct of Sylvius. *Exit*:—The ophthalmic division, through the sphenoidal fissure; the superior maxillary division, through the foramen rotundum; the inferior maxillary division, through the foramen ovale.
15. The *middle mediastinum* contains:—The heart in the pericardium, ascending aorta, lower half of superior vena cava, pulmonary artery, pulmonary veins, phrenic

nerve, termination of vena azygos major, roots of lungs, and some bronchial lymphatic glands.

16. The *subdivisions of the alimentary canal*, are:—Mouth, pharynx, esophagus, stomach, small intestine (duodenum, jejunum, and ileum), and large intestine (cecum, colon and rectum).

17. The sigmoid flexure is in the left inguinal region; the vermiform appendix is in the right inguinal region.

18. The ductus communis choledochus opens into the duodenum, about three or four inches below the pyloric orifice.

PHYSIOLOGY.

1. The four elements contained in all quaternary proximate principles, are: Carbon, hydrogen, nitrogen, and oxygen.

Practically, all albuminoids must be changed into peptones before absorption.

2. The intestinal glands, are: (1) Brunner's glands, found chiefly in the duodenum; (2) Lieberkuhn's glands, found throughout the small and in the large intestine; (3) the solitary glands, found throughout the small and large intestine; (4) Peyer's glands, are found throughout the small intestine, but chiefly in the ileum.

The secretion of all the glands of the small intestine (but particularly from Lieberkuhn's glands) constitutes the succus entericus; this contains the following ferments: Enterokinase, erepsin, secretin, maltase, lactase, and invertase or invertin.

5. HYPOGLOSSAL NERVE. *Origin*: (1) Superficial, from groove between the pyramidal and olivary bodies of the medulla; (2) *Deep*, from nucleus on floor of fourth ventricle. *Function*: Motor nerve of tongue.

CHEMISTRY.

1.

MERCUROUS COMPOUNDS.	MERCURIC COMPOUNDS.
(1) H_2S a black ppt., insol. in NH_4HS, HCl, or HNO_3.	ppt. at first white, then orange, then black.
(2) NH_4HS a black ppt., insol. in excess.	ppt. white to black, insol. in excess, except in presence of organic matter.
(3) KHO a dark gray ppt., insol. in excess.	yellowish-red ppt.
(4) KI a greenish ppt.	yellow to salmon to red ppt.

(From Witthaus' *Laboratory Guide.*)

2. TWO PREPARATIONS OF SODIUM—

CHEMICAL NAME.	FORMULA.	PHARMACEUTCAL NAME.
Disodic tetraborate.	$Na_2B_4O_7$.	Sodium borate, or borax.
Sodium sulphate.	Na_2SO_4.	Glauber's salt.

3. *Leucomains* are basic nitrogenous substances produced in living animals, by the decomposition of proteid matter, during normal metabolism.

Antitoxins are substances in the blood serum of an animal which will protect that animal from a specific disease, or counteract the poisonous effect of toxins.

4. *Chemical antidote to morphine*, is solution of potassium permanganate; it acts by destroying the morphine.

The *physiological antidote* is atropine; it acts by antagonizing the action of the morphine on the respiration and circulation.

5.

	NORMAL REACTION.	TO WHAT DUE.
Pancreatic juice.	Alkaline.	Sodium and potassium carbonate.
Gastric juice.	Acid.	Hydrochloric acid.

MATERIA MEDICA AND THERAPEUTICS.

2. VERATRUM VIRIDE. *Preparations*: Fluid extract of veratrum; tincture of veratrum, veratrine (with oleate and ointment of veratrine).

Physiological actions: "On the skin it causes tingling, numbness, and anesthesia, and, applied to the mucous membrane of the nose and throat, violent sneezing and coughing. Internally it produces gastro-intestinal irritation, prolonged relaxation of striped and cardiac muscle, reduction of arterial pressure, depression of respiration, convulsions from stimulation of the spinal cord, free diaphoresis, and reduction of temperature."

Therapeutical action: "As a circulatory depressant, given early, in croupous pneumonia, pleurisy, hepatitis, maniacal delirium, etc., with strong, bounding pulse and other sthenic conditions; in puerperal convulsions and the early stage of peritonitis, phlebitis and other inflammatory affections of the puerperal state; also acute rheumatism, tonsilitis, aneurysm, and wounds of the head, pericardium and peritoneum."—(Wilcox, *Materia Medica.*)

3. GELSEMIUM. *Preparations*: Fluid extract of gelsemium; tincture of gelsemium.

Physiological action: "When given internally gelsemium acts as a powerful depressant to the respiratory circulatory, and nervous systems. It acts as a depressant to the heart muscle and vagus nerves, and under its influence there is a diminution in the pulse force and blood pressure. It primarily depresses the sensory side of the spinal cord; but later, if given in large amount, depresses the motor side. The drug has no effect upon the spinal nerves, but the motor cranial nerves are paralyzed by large doses. In moderate amounts it causes the respiration to become slow and feeble, and in lethal quantities paralyzes the respiratory centers."—(*U. S. Dispensatory.*)

Therapeutic indications: Headache, migraine, asthma, whooping cough, nervous cough, spasmodic dysmenorrhea, torticollis, and other conditions depending upon localized muscular spasm.

4. OPIUM. *Official preparations*: Pulvis opii, extractum opii; pulvis ipecacuanhæ et opii, acetum opii, tinctura opii, tinctura opii camphorata, tinctura opii deodorata, tinctura ipecacuanhæ et opii, vinum opii.

Six principal alkaloids: Morphine, codeine, narcotine, thebaine, narceine and papaverine.

Official preparations of morphine: Morphine hydrochloride, acetate, and sulphate; and pulvis morphinæ compositus.

Treatment of acute poisoning: "Wash out the stomach with a dilute solution of potassium permanganate, leaving about 500 c.c. in the stomach; and maintain the respiration. In the first or second stage the 'ambulatory treatment' should be adopted to prevent, if possible, the establishment of the third stage. If this stage develop, the main reliance is to be placed in maintaining the respiration by artificial methods, until the poison has been eliminated. Strong coffee, or caffein, by the mouth or rectum, are of benefit. The same cannot be said of atropin. The urine should be drawn by the catheter."—(Witthaus' *Essentials of Chemistry.*)

5. SALOL is phenyl salicylate; the salicylic ester of phenyl.

Physiological action: Antiseptic, germicidal, anodyne, and antipyretic; it combines in most respects the actions of phenol and salicylic acid.

Therapeutic uses: As a disinfectant, in inflammation of the mouth and pharynx, in cystitis, as an intestinal antiseptic in typhoid fever, in muscular rheumatism, in intestinal indigestion and fermentation, in cholera.

PATHOLOGY.

3. *In acute yellow atrophy of the liver*: "The liver is decreased in size and becomes remarkably soft and friable. On section there is found a variegated appearance, the prevailing color being a brownish or grayish-yellow, in which are scattered bright or dark-red areas. The yellowish areas represent the degenerated and pigmented hepatic cells; the reddish areas foci of hemorrhagic infiltration or pigmentation. The process usually begins in the left lobe, but rapidly involves the entire organ. Sometimes the liver is increased in size during the initial stages, and occasionally a liver enlarged by previous disease suffers terminal acute atrophy. Microscopically the hepatic cells are found to have undergone rapid fatty degeneration or necrosis, and are filled with or replaced by yellowish pigment particles. As the process advances, the cells are completely destroyed. In the red areas referred to, infiltration with blood-cells and hematogenous pigmentation are observed."—(Stengel's *Pathology.*)

4. (*a*) In *productive inflammation*, the proliferative changes are in excess of the exudation and degeneration.

(*b*) *Suppurative inflammation* is a special form of inflammation, in which the exudate is unusually prolific in cells, and in which pus is found. The cause of suppuration is the invasion of the tissues by pus producing bacteria, when the said tissues are in a state of lowered vitality or are not capable of withstanding and disposing of the bacteria and their products.

5. In *fatty infiltration* the tissues contain fat brought from without; there is no change in the cell protoplasm, and such damage as the tissue undergoes is due to the mechanical pressure caused by the fat.

In *fatty degeneration* the cell protoplasm undergoes change; the fat is in the cells, and not between them

OBSTETRICS.

2. The *symptoms of threatened eclampsia* are: Headache; tinnitus aurium; dizziness; pain over stomach; digestive, visual and nervous disturbances; general debility; insomnia, vomiting and vertigo.

3. The *causes of antepartum hemorrhage* are: Placenta prævia premature separation of the placenta; apoplexy of the decidua or placenta; rupture of varicose veins; abortion (threatened, or inevitable, or incomplete), and ectopic gestation.

PEDIATRICS.

1. PERTUSSIS. *Etiology*: It is most likely due to an organism, not yet identified; it is infectious and contagious; occurs in epidemics; and as a rule only occurs once in the same person.

Complications: Bronchitis, emphysema, pneumonia, collapse of lung, pleurisy, convulsions, hemorrhages, vomiting, diarrhea, pericarditis, and endocarditis.

Duration: Uncertain, but quite long. It is not safe for a child to return to school in less than five or six weeks from the beginning of the attack, and not even then unless the "whoop" and spasmodic cough have ceased for at least two weeks.

2. The *treatment of acute adenitis* consists in: Prompt and frequent application of ice-bags; an ointment of ichthyol and zinc oxide may be used; the source of the infection must be treated, hence adenoids, carious teeth, enlarged tonsils, grippe, diphtheria, tonsillitis, scarlet fever or other exanthemata must be properly treated if present. Free incision and drainage are indicated if pus is present.

3. Ophthalmia neonatorum is an infectious, purulent inflammation of the conjunctiva in the new-born.

It is due to the gonococcus or some other pyogenic germ; and is produced by contact of the eye with the vaginal secretion of the mother during labor, or infected fingers, or instruments, etc.

The treatment is: (1) *Prophylactic*: Whenever there is the possibility of infection, or in every case, wash the eyelids of the new-born child with clean warm water, and drop on the cornea of each eye one drop of a one or two per cent solution of nitrate of silver, immediately after birth. (2) *Remedial*: Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a two per cent solution of nitrate silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

4. SCABIES. *Symptoms*: The Itch.

Treatment: This consists in a protracted bath with soap and hot water, followed by the application of sulphur ointment (℥i to ℥i) or other parasiticide every night for one week. In the meantime, the bed linen and underclothing should be sterilized by heat. At the end of a week another bath should be taken and some sedative ointment or lotion should be prescribed. Sulphur may be substituted by beta-naphthol, balsam of Peru, styrax, tar, staphisagria, etc. (Gould's and Pyle's *Cyclopedia of Medicine and Surgery*.)

GYNECOLOGY.

2. In *Ovaritis*: There is generally a history of pelvic inflammation, the pain is more or less constant, and on examination the ovary is found to be enlarged and tender.

In *Ovaralgia*: There is no history of pelvic inflammation, the pain is not constant, and on examination the ovary is found to be normal.

4. Yes; ventrofixation of the uterus is justifiable. Circumstances justifying it are: Extreme retroflexion, and prolapse of the uterus.

5. The *menopause* is the period when menstruation ceases.

The following (from Dudley's Gynecology) will explain why the menopause is a critical period in a woman's life:

The symptoms of the menopause are referable to two stages: a stage of menstrual irregularity preceding the cessation of the menses, and a post-cessation stage of variable systemic disturbances. In normal or nearly normal cases the irregularities are not excessive; the systemic disturbances are slight. There is a period of unstable equilibrium. The woman may at times be unusually capricious and emotional; yet she passes through this physiological crisis with only a few minor disturbances. She may have the characteristic vasomotor flushes, perspiration, vertigo, somnolence, numbness, and faintness. The menstrual function ceases as it began, with marked symptoms referable to the nervous system. Irritability, apprehensiveness, hysteria, melancholia, and other psychic disturbances are common in the abnormal cases, and may be exaggerated. The menstrual deviations vary in wide limits. The flow may gradually decrease and come at lengthening intervals until it altogether ceases; it may occur at short intervals or become continuous; it may become so excessive as almost to amount to dangerous hemorrhage; or life may be jeopardized by a slow, continuous drain. There is an increased tendency to malignant disease of the uterus and breasts during this period. The excessive fear of this may prey injuriously on the mind of the woman.

SURGERY.

1. An *abscess* is a circumscribed collection of pus in a cavity of new formation.

An *aneurysm* is a pulsating sac containing blood, and communicating with the lumen of an artery.

An aneurysm may be confounded with: Tumors, cysts or abscesses lying over or in close proximity to the course of the artery; vessels which are pulsating abnormally; vascular tumors such as goiter or sarcoma.

2. The following table (from Eisendrath's *Surgical Diagnosis*) gives the diagnosis:

COMA FROM INTRACRANIAL INJURY.	APOPLECTIC COMA.	UREMIC COMA.	ALCOHOLIC COMA.	OPIUM POISONING.
Deep coma; may have history of onset after fall or injury. Evidence of fracture of vertex or base.	Deep coma; sudden onset. If any injury, only a scalp wound.	Deep coma. Slow onset unless convulsions have preceded the coma.	Can be aroused by supraorbital pressure unless very profound.	Can be aroused unless very deep.
Pupil dilated on side of lesion. Choked disc.	Pupils unequal or dilated. Contracted in hemorrhage into the pons.	Albuminuric retinitis.	Pupils normal or somewhat dilated.	Pupils contracted to pinpoint size.
Pulse very slow.	Pulse full and slow, often arteriosclerotic, high-tension pulse.	Pulse rapid.	Pulse more rapid than normal and full.	Pulse rapid, may be irregular.
Respiration slow and stertorous.	Respiration slow and irregular.	Respiration frequent and irregular.	Regular respiration.	Respiration very slow—may be 6 to 8 per minute.
Temperature higher—101°.	Temperature higher on paralyzed side, but lower in rectum.		May be low or normal.	
Urine normal or contains trace of albumin.	Urine contains trace of albumin, but may be same as in uremia.	Urine shows albumin, casts, and low urea percentage.	Normal.	Normal.
Hemiplegia on opposite side to that of injury. If contusion of brain is also present, may have generalized convulsions.	Hemiplegia with convulsions on one side.			

3. *Peritonitis* is inflammation of the peritoneum.

4. *Ways in which the peritoneum may be invaded by bacteria*: By penetrating wounds; from injury, perforation or ulcer of the stomach or intestines; from gonorrhea, through the fallopian tubes; from septic infection of the female genital tract.

5. *Contraindications to use of nitrous oxide*: Vascular degeneration; advanced heart disease; conditions in which muscular relaxation is required.

The following contraindications for ether and chloroform are from Hare's *Practical Therapeutics*: "Ether should not be used by inhalation in bronchitis or acute nephritis, because of its irritant properties; in peritonitis or gastritis, because it is apt to induce vomiting; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood-vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma; and if anemia is present and an examination of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible.

"*Chloroform* is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idiosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although ether is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

6. *Dislocation* is a displacement (partial or complete) of the articular end of a bone.

Fracture is a sudden forcible solution of the continuity of a bone.

7.

FRACTURE.	DISLOCATION.
1. Crepitus may be present.	1. Crepitus never present.
2. Preternatural mobility.	2. Rigidity rather than mobility.
3. Easily reduced—but	3. Difficult to reduce—but
4. Deformity more liable to recur after reduction.	4. Deformity less liable to recur after reduction.
5. The head of the bone is in its proper place.	5. The head of the bone is not in its proper place.
6. The socket containing the head of the bone is not empty.	6. The socket which should contain the head of the bone is empty.
7. When rotated the bone does not move as one piece.	7. When rotated the bone moves as one piece.

8. *Colles' fracture* is a fracture of the lower end of the radius; it is generally transverse, and is usually within an inch or an inch and a half of the articular surface. There is a characteristic deformity caused by the lower fragment, and the carpus forming a prominence on the dorsal surface; at the same time there is a projection on the palmar surface just above the wrist, caused by the upper fragment. The hand is abducted and pronated, and the styloid process of the ulna becomes very prominent. It is generally caused by a fall on the outstretched palm.

10. *Hemorrhage* is loss of blood from some part of the arterio-venous system.

11. *To arrest epistaxis*: (1) Try to cauterize the bleeding point; (2) plug the nasal cavity with gauze soaked in adrenalin; (3) inject into the nares a solution of peroxide of hydrogen; (4) plugging the nares, anteriorly and posteriorly; (5) an inflating plug may be used.

12. LIGATION OF THE SUBCLAVIAN ARTERY IN ITS THIRD PORTION: "*Position.* Patient supine; shoulders raised; head thrown back and to the opposite side; operated shoulder depressed by arm drawn downward and placed under the back (to open out the posterior cervical triangle). Surgeon in front of shoulder. *Incision.*—With the skin of the posterior cervical triangle drawn down over the clavicle by the left hand, an incision about three inches is made transversely over the clavicle down to the bone, from the posterior border of the sternomastoid to the anterior border of the trapezius, and with its center about one inch internal to the center of the superior border of the clavicle. *Operation.*—(1) This incision will divide the skin, fascia, platysma, some supraclavicular nerves, and maybe a connecting vein between the cephalic and internal jugular—but will avoid the external jugular, which passes through the deep fascia above the clavicle. The incision will lie about half inch above the clavicle when the tension upon the skin is relaxed. (2) The margins of the sternomastoid and trapezius will be exposed, and, if more room be needed, may be divided along the clavicle as far as necessary. (3) The deep cervical fascia is next incised, the external jugular vein being carefully exposed and retracted, or divided between double ligatures. Tributary veins of the external jugular are to be similarly treated, especially the transversalis colli and suprascapular. (4) Generally the transversalis colli artery lies transversely above the incision, and the suprascapular transversely below it, under the clavicle and out of the way; but one or both may be present in the field, and are to be carefully preserved for collateral circulation. Retract the posterior belly of the omohyoid upward if in the way. Identify the outer margin of the scalenus anticus (just under the outer margin of the sternomastoid) as a guide to the artery, and follow its outer border downward until the finger reaches the tubercle on the upper border of the first rib, which lies between the subclavian vein in front and the subclavian artery behind—when the artery will be recognized and may be traced upward. (5) Expose the lowest cord of the brachial plexus—for the purpose of henceforth avoiding it (as it has been mistaken and ligated for the artery). The subclavian vein will lie anteriorly and inferiorly to the artery. (6) Open the sheath—clear the artery—and pass the needle from the brachial plexus, guarding the subclavian vein and the pleura." (From Bickham's *Operative Surgery.*)

13. The arteries which require ligating in amputation at middle third of leg, are: Anterior tibial, posterior tibial, and peroneal.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION
Alabama*	W. H. Sanders, Montgomery	Montgomery July 13
Arizona*	Ancil Martin, Phoenix	Phoenix July 5
Arkansas*	F. T. Murphy, Brinkley	Little Rock July 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco Aug. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver July 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven July 13
Delaware	J. H. Wilson, Dover	Dover Dec. 14
Dist. of Col'bia	Geo. C. Ober, Washington	Washington July 13
Florida*	J. D. Fernandez, Jacksonville	Jacksonville Nov. 10
Georgia	E. R. Anthony, Griffin	Atlanta Oct. 12
Idaho*	W. F. Howard, Pocatello	Boise Oct. —
Illinois	J. A. Egan, Springfield	Chicago July 20
Indiana	W. T. Gott, Crawfordsville	Indianapolis July 13
Iowa	Louis A. Thomas, Des Moines	Des Moines Sept. —
Kansas	D. P. Cook, Clay Center	Kansas City Oct. 12
Kentucky	J. N. McCormick, Bowling Green	Louisville July 6
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans Oct. 1
Maine	Wm. J. Maybury, Saco	Augusta Nov. —
Maryland	J. McP. Scott, Hagerstown	Baltimore Dec. 14
Massachusetts*	E. B. Harvey, State House, Boston	Boston July 13
Michigan	D. D. Harison, 205 Whitney Building, Detroit	Lansing Oct. 12
Minnesota	W. S. Fullerton, St. Paul	St. Paul Oct. 5
Mississippi	S. H. McLean, Jackson	Jackson Oct. 12
Missouri	J. A. B. Adcock, Warrensburg	Kansas City Sept. 20
Montana*	Wm. C. Riddell, Helena	Helena Oct. 5
Nebraska	E. J. C. Sward, Oakland	Lincoln Aug. 3
Nevada	S. L. Lee, Carson City	Carson City Nov. 1
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord
New Jersey	J. W. Bennett, Long Branch	Trenton Oct. 19
New Mexico	J. A. Massie, Santa Fe	Santa Fe July 12
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo Asheville Sept. 21
N. Carolina	B. K. Hays, Oxford	
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks July
Ohio	Geo. H. Matson, Columbus	Columbus Dec. 14
Oklahoma*	F. P. Davis, Enid	Guthrie July 13
Oregon*	B. E. Miller, Portland	Portland July
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia Dec. 14 Pittsburg
Rhode Island*	G. T. Swarts, Providence	Providence Oct. 7
S. Carolina	H. H. Wyman, Aiken	Columbia June —
S. Dakota*	H. E. McNutt, Aberdeen	Watertown July 14
Tennessee	C. A. Abernathy, Pulaski	Memphis Nashville May — Knoxville
Texas	C. B. Foscue, Waco	Cleburne
Utah	R. W. Fisher, Salt Lake City	Salt Lake City July 5
Vermont	W. Scott Nay, Underhill	Burlington July 13
Virginia	R. S. Martin Stuart	Richmond Dec. 14
Washington*	K. Turner, Seattle	Seattle July
W. Virginia	H. A. Barbee, Point Pleasant	Charleston July 13
Wisconsin	J. V. Stevens, Jefferson	Madison July 13
Wyoming	S. B. Miller, Laramie	Laramie

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Magnesium Sulphate in Tetanus.—McPhedron reports a case of tetanus in a boy of thirteen. The incubation period was seven days. For ten days chloral and morphine were given, with no improvement. On the tenth day antitetanic serum was used. The boy grew worse. On the twelfth day 2 c.c. of a 25 per cent solution of magnesium sulphate were injected intra-spinally and 3 c.c. more the next morning. There were no further convulsions, and the boy improved steadily and recovered. McPhedron says that to date eleven cases of tetanus treated by this method of Meltzer have been reported, with six recoveries.—*The Canadian Journal of Medicine and Surgery.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the weeks ending June 19 and 26, 1909:

	June 19		June 26	
	Cases	Deaths	Cases	Deaths
Tuberculosis Pulmonalis	394	145	518	171
Diphtheria	397	38	303	38
Measles	1,331	25	1,100	35
Scarlet Fever	221	21	207	19
Smallpox	..	....	..	....
Varicella	152	....	124	....
Typhoid Fever	24	7	28	11
Whooping Cough	55	6	62	10
Cerebrospinal Meningitis	3	5	8	6
Malarial Fever	....	....	....	....
Totals	2,577	247	2,350	280

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending June 18, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Sacramento	May 22–29	1	..
Delaware, Millboro	May 6–June 10	2	..
Florida, Pensacola	May 1–31	..	1
Georgia, Macon	May 31–June 6	3	..
Indiana, Fort Wayne	May 28–June 5	8	..
South Bend	May 28–June 5	1	..
Kansas, Kansas City	May 28–June 5	6	..
Kentucky, Lexington	May 29–June 5	1	..
Newport	May 30–June 6	1	..
Paducah	May 23–30	1	..
Louisiana, Hammond	May 15–June 5	1	..
Michigan, Grand Rapids	May 29–June 5	1	..
Minnesota, Duluth	May 28–June 4	2	..
Missouri, Kansas City	May 28–June 4	1	..
Montana, Butte	May 26–June 3	7	..
New Jersey, Hoboken	May 28–June 5	1	..
Pennsylvania, Bullis Mills	Apr. 29–June 14	9	..
Harmony	May 15–June 14	1	..
Ohio, Cincinati	May 27–June 4	5	..
Geneva	Apr. 20–June 10	7	..
Plain City	Mar. 1–June 10	74	..
Texas, San Antonio	May 28–June 5	11	..
Virginia, Richmond	May 28–June 5	5	..
Washington, Tacoma	May 23–30	3	..
Walla Walla	May 28–June 5	1	..
West Virginia, Wheeling	May 28–June 5	2	..
Wisconsin, La Crosse	May 28–June 5	1	..
Marinette	May 22–29	1	..
Milwaukee	May 22–29	1	..

SMALLPOX—FOREIGN.

Canada, Halifax	May 24–31	2	..
Winnipeg	May 22–29	2	..
Ceylon, Colombo	Apr. 17–24	3	..
China, Canton	Apr. 17–Mar. 1	10	..
France, Paris	Jan. 16–23	4	Received
	Feb. 20–27	3	out of date
	May 8–22	4	..
Germany, Hamburg	May 16–23	2	Russian emigrants
Great Britain, Bristol	May 15–22	2	2
India, Bombay	May 4–11	..	24
Calcutta	Apr. 24–May 1	100	..
Madras	May 1–7	..	4
Rangoon	Apr. 24–May 1	..	8
Indo-China, Saigon	Apr. 10–May 1	10	4
Italy	May 16–23	10	4
Turin	May 14–21	1	..
Java, Batavia	Apr. 24–May 1	4	..
Mexico, Guadalajara	May 20–27	..	3
Mexico	Apr. 17–May 8	..	66
Monterey	May 23–30	..	5
Persia, Astrabad	Apr. 13–24	..	Epidemic
Portugal, Lisbon	May 15–29	12	..
Russia, Moscow	May 8–15	29	6
Riga	May 15–29	18	..
St. Petersburg	Apr. 24–May 8	28	13
Warsaw	Mar. 20–Apr. 3	..	5
Servia, Belgrade	May 8–15	4	4
Spain, Barcelona	May 17–24	..	6
Valencia	May 8–15	10	1
Switzerland, Geneva	May 8–15	2	..
Turkey, Constantinople	May 8–16	2	..
Smyrna	Apr. 29–May 6	1	..
Uruguay, Montevideo	Mar. 1–31	8	..

YELLOW FEVER.

Barbados	May 15–29	3	..
Brazil, Manaos	May 8–15	9	4
Para	May 8–22	10	10
Mexico, Merida	May 30–June 2	2	..
Portugal, Lisbon	June 1–14	2	In quarantine from S.S. Langirane from Para
Venezuela, Maiquetia	May 24	1	1

CHOLERA.

India, Bombay	May 4–11	..	10
Calcutta	Apr. 24–May 1	105	..
Rangoon	Apr. 24–May 1	..	7
Russia, St. Petersburg	May 20–27	4	..

PLAGUE.

Chile, Antofagasta	May 1	5	..
Arica	May 13	..	Present
Iquique	May 8	20	14
China, Amoy	May 5	..	Present

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending June 25, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Stockton	Jan. 1–Feb. 28	20	..
Georgia, Columbus	June 5–12	..	1
Macon	June 6–13	5	..
Illinois, Danville	June 6–13	5	..
Moline	June 6–13	1	..
Indiana, Evansville	June 5–12	1	..
Indianapolis	June 6–13	1	..
La Fayette	June 7–14	1	..
South Bend	June 5–12	15	..
Iowa, Council Bluffs	June 7–14	1	..
Davenport	June 6–13	2	..
Sioux City	June 5–12	1	..
Kansas, Kansas City	June 5–12	1	..
Wichita	May 22–29	5	..
	June 5–12	2	..
Kentucky, Covington	June 5–12	2	..
Henderson	May 1–31	2	..
Lexington	June 5–12	2	..
Louisiana, New Orleans	June 5–12	8	..
Michigan, Saginaw	May 22–29	2	..
Montana, Butte	June 3–10	9	..
Nebraska, South Omaha	May 15–22	2	..
New York, New York	June 5–12	1	..
Ohio, Cincinnati	June 4–11	3	..
Cleveland	June 4–11	1	..
Eaton	To June 15	1	..
Salineville	Apr. 5–11	46	..
Tennessee, Knoxville	June 5–12	5	..
Texas, El Paso	June 8–15	1	..
Fort Worth	May 1–31	21	2
Galveston	June 4–11	1	..
San Antonio	June 5–12	3	..
Utah, Salt Lake City	May 1–31	56	..
Washington, Spokane	May 22–June 5	6	..
Tacoma	May 30–June 6	1	..
Wisconsin, Marinette	June 5–12	1	..
Milwaukee	June 7–14	7	..

SMALLPOX—INSULAR.

Philippine Islands, Manila	Apr. 24–May 1	8	1

SMALLPOX—FOREIGN.

Brazil, Bahia	Apr. 30–May 7	5	3
Rio de Janeiro	Apr. 25–May 6	32	11
Sao Paulo	Apr. 12–May 2	..	8
Canada, Halifax	May 30–June 5	1	..
Vancouver	May 1–31	6	..
China, Hongkong	Apr. 3–May 1	5	1
Tientsin	May 1–8	1	..
Ceylon, Colombo	Apr. 24–May 8	5	..
Egypt, Alexandria	Apr. 1–30	5	1
Cairo	May 6–13	4	2
Suez	Mar. 25–May 20	56	3
Great Britain, Bristol	May 22–29	1	..
India, Bombay	May 11–18	..	11
Calcutta	May 1–8	..	25
Madras	May 8–14	..	2
Rangoon	May 1–8	..	7
Indo-China, Saigon	May 1–8	6	2
Italy	May 23–30	6	..
Genoa	May 1–15	2	..
Naples	May 23–30	17	..
Japan, Formosa	May 1–8	3	..
Mexico, Chichuahua	May 31–June 6	2	3
Monterey	Apr. 29–May 6	..	3
Portugal, Lisbon	Apr. 26–May 2	3	..
	May 9–16	6	..
Russia, Odessa	May 8–29	8	2
Warsaw	Apr. 3–24	..	6
Spain, Barcelona	May 24–31	..	4
Valencia	May 15–22	8	..
Vigo	May 22–29	..	2
Turkey, Constantinople	May 16–23	..	4

YELLOW FEVER.

Barbados, Parish, St. Joseph	June 5–12	3	..
Brazil, Bahia	Apr. 30–May 7	8	3
Manaos	May 15–22	..	2
Cuba, Habana	June 21	1	on S.S. Fürst Bismarch from Veracruz.
Ecuador, Guayaquil	May 1–22	..	21
Trinidad	Mar. 27–Apr. 3	1	1

CHOLERA—INSULAR.

Philippine Islands, Provinces	Apr. 24–May 1	16	11

CHOLERA—FOREIGN.

China, Amoy	June 19	..	Present
Swatow	May 1	..	Present
India, Bombay	May 11–18	..	2
Calcutta	May 1–8	..	68
Rangoon	May 1–8	..	1
Russia, St. Petersburg	May 25–June 1	5	4
Straits Settlements, Singapore	Apr. 24–May 1	..	1

PLAGUE.

Brazil, Rio de Janeiro	May 2–9	1	..
China, Hongkong	Apr. 3–May 1	12	8
Swatow	Apr. 10–May 15	..	2,050 In 14 districts in vicinity.
Ecuador, Guayaquil	May 1–22	..	29
Egypt	May 13–June 2	51	26
India	Apr. 24–May 8	10,353	8,690
Bombay	May 11–18	..	212
Calcutta	May 1–8	..	255
Rangoon	May 1–8	..	18
Indo-China, Saigon	May 1–8	2	1
Japan, Formosa	May 1–15	116	98
Yokohama	May 15–22	2	..
Venezuela, Caracas	June 9–17	5	..

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Original Articles.

LEPROSY.

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THE great popular interest and excitement which has been aroused by the long imprisonment of a suspected leper, in Washington, D. C., warrants a medical consideration of leprosy in a manner which may perhaps, in some way, tend to a greater enlightenment on the subject; this refers not only to the public at large, but also to those in the profession who possibly may not yet have perfectly clear ideas on the subject.

Ever since Biblical times the leper has been considered as "unclean," and in certain localities, even up to the present time, the afflicted person cries out, or by a bell or other means indicates his presence, that he may be shunned, from the supposed fear of infecting others. The great dread of the disease leprosy has undoubtedly been furthered by many writers of fiction, and such books as "Ben Hur" have had great influence; on the other hand, there has been very little said or done to check or lessen the popular prejudice in this direction, which has been too often shared by physicians, who, not having devoted special attention to the matter, accept thoughtlessly the general verdict.

Undoubtedly this popular prejudice against leprosy has also been fostered by the fact that in many countries it has seemed advisable to provide special hospitals or asylums for lepers, where they can be better cared for than in their poor, crowded homes, and also by means of which the slight possibility of the spread of the disease, by methods thus far unknown, may be minimized.

So that to-day it may safely be said that the word "leprosy" strikes more terror into the heart of its victim, or suspected victim, and also into the mind of the average layman, or even physician, than that of almost any other disease known; and yet, to those who are really well informed, it bears no comparison to either cancer or tuberculosis in the mental distress which it should cause in those afflicted, while syphilis and many other diseases should inspire far more dread of contagion. Few realize that, in this climate at least, leprosy is really a harmless affection to those who may come in contact with it. A good many years ago the Leprosy Committee of the Royal College of Physicians of London wrote as follows*: "The all but unanimous conviction of the most experienced observers in different parts of the world is quite opposed to the belief that leprosy is contagious or communicable by proximity or contact with the disease." And recently, in connection with the Early case, Dr. William H. Welch, of John Hopkins Hospital, remarked: "Leprosy is practically the least contagious of all the infectious diseases."

It may be interesting to briefly refer again to the Biblical use of the word leprosy, whence has come so much of the inspiration toward the senseless fear which still pervades so many.

It may seem a little startling, but, after careful, prolonged and repeated study of Leviticus, chap. 13 and 14, and of all the other references to leprosy in the Bible, I am convinced that what we now know by that name was not intended or included in the descriptions given; I am supported in this view by one of the brightest and most learned of the professors in the Union Theological Seminary. So that it is improper to apply the term, "the leprosy of the Bible" to the disease under discussion, lepra, or elephantiasis Græcorum, as studied so thoroughly in Norway and observed abundantly in the East, and more or less over various portions of the earth.

It would lead us too far away from our main subject if we attempted to analyze here all the material found in the Bible concerning what is there called "a leprosy," but brief mention of some points may not be without interest.

It is to be remembered that the Levitical law was given at Sinai, or soon after, when there was an enormous, untrained horde of Israelites, recently escaped from bondage, who were being welded into a nation, during forty years of a roving, nomad life. In order rightly to shape this people the great lawgiver Moses, by divine direction, formulated many laws and rules, in regard to health as well as in regard to moral and religious matters, which formed the basis for the national life of the Jews for many centuries, and are operative in a measure even to the present day.

Now among the many ordinances relating to health it became necessary to treat of diseases appearing on the skin, some of which are contagious and which, if neglected, would readily spread among those living together in tents, unless some sanitary precautions were taken. We must remember, however, that there were no books and no medical science in those days, but that the priests were about the only ones who possessed knowledge of any kind. Consequently we find in Leviticus just about what we would expect, a layman (in medicine) Moses, writing for lay priests, and consequently it is by no means a scientific discussion of the subject of leprosy.

It is, therefore, no wonder that the description of the various conditions found on the skin should be more or less confused, so that only by the most careful study can one make out what is intended. Several who have investigated the matter state that undoubtedly a number of different diseases appearing on the skin are included in the Biblical accounts, and one can discover indistinct references sufficient to identify some of them; thus, writers have found

*Report on Leprosy, by the Royal College of Physicians, London, 1867.

allusion to syphilis, favus, ringworm, pinta, scabies, psoriasis, eczema, morphœa, leucoderma, and perhaps other affections on the skin, but, as intimated before, no one well acquainted with true leprosy, as recognized to-day, would be able to find any description at all fitting to any of its symptoms in the Bible. The cry of "unclean, unclean," and the separation of those afflicted, without the camp, related therefore to various eruptions on the skin and not at all to present-day leprosy, and affords not the slightest reason for such action to-day.

This study of the use of the word leprosy in the Bible is a most interesting one, but cannot here be pursued much further for want of space. It may be interesting to note that in several places the expression is used, "a leper white as snow." Now we know that neither the tubercular nor the macular leprosy ever presents a white diseased surface, and these instances probably related to psoriasis, as in the case of Moses' hand, Miriam, and Gehazi; also in many places the Bible speaks of the skin turning white with white hair on it, referring to leucoderma, etc. It is to be remembered that not long ago the word lepra, now exclusively applied to leprosy, or elephantiasis Græcorum, was a common designation for psoriasis, used thus by Mr. Erasmus Wilson of London, and also as the title of quite a large book on psoriasis, by George Gaskoin; while the word "lepra" is used in the Greek New Testament to indicate the leprosy of the Bible, and this word lepra means scales. Finally, the word *zara'ath*, translated leprosy in the Old Testament, signifies a smiting or stroke, and in the German of the middle ages the same word was translated *aussasaig*, indicating an outcast, or one unfit to live with others.

In regard to the manner in which leprosy, as we now know it, is considered by those who come often in contact with it, it may be mentioned that in all the clinics in Europe, and in this country, as far as I know, patients thus afflicted mingle freely with others and are lectured upon and handled just as any other patients, and never has there been known any instance of harm therefrom. They are also constantly admitted to the beds of hospitals, without any thought of danger. In 1868, over forty years ago, before the days of antisepsis, when the writer was interne in the old New York Hospital, a most distressing case of tubercular anesthetic leprosy, with much ulceration and mutilation, was for a long time in the medical wards, and was then transferred to the surgical service, where a portion of the foot was amputated without an anesthetic, there being no pain. The proof that none of these cases proved contagious is found in the fact that among the many patients with unquestioned leprosy who are brought before the New York Dermatological and other societies, there are very seldom any instances of leprosy found which have developed *de novo* without having been in countries where the disease is endemic.

The testimony which could be given in regard to the non-contagiousness of leprosy is very great, and from all parts of the world. Perhaps the most striking is that furnished by Father Clement, whose death was very recently reported from Honolulu. Father Clement went from France in 1863, with Father Damien, to devote his life work among the lepers in the settlement on Molokai; he had thus been there for forty-six years, in constant contact with lepers, and finally died of other cause, without having contracted the disease.

Similar testimony is furnished from innumerable leper hospitals and asylums, many dating back fifty years and more, where scores and hundreds of nurses have cared for patients with leprosy, in all forms and stages of the disease, without becoming affected, and that also even in districts where leprosy is endemic. Dr. Beaven Rake, for many years medical superintendent of the leper hospital in Trinidad, wrote a while ago as follows: "The Trinidad Leper Asylum has been nursed by Dominican nuns since 1868. These sisters are in daily contact with the patients, washing their sores, applying poultices and bandaging their crippled limbs; yet no sister, nor any other of the attendants has yet developed the disease." The same testimony is borne by Dr. Van Allen in regard to the leper hospital in Madras, India, where there were one hundred and fifty lepers, none of the dressers who freely handle even ulcerated surfaces have contracted the disease. In very few places is segregation compulsory, and even in Norway lepers are allowed to live in their own houses if they desire.

If leprosy, therefore, is not contracted by contagion or contact, in what way is the disease acquired? Unfortunately this question has not yet been answered definitely, for neither race, climate, soil, nor hygiene can be charged, so universally spread is the disease; heredity has been excluded by many observers. Some argued that the bacillus finds entrance through the air passages, and it has been thought that the primary lesion occurred in the nose; but this has never been satisfactorily demonstrated.

There is one more great means by which the organism may enter the system, and that is through food or drink. For a great many years various observers have claimed, with more or less force, that there was the greatest probability that the disease was conveyed through fish, in some way or other. Mr. Jonathan Hutchinson of London, well known as a minute observer and careful thinker, has of late years been the chief advocate of this mode of the diffusion of the disease; and in the light of modern knowledge regarding the conveyance of various diseases by means of lower animal life, the theory would seem to have fresh scientific support. Of course, this would not relate to all fish, but to certain kinds, and even these might not give the disease unless they had in some way acquired the contagious principle, even as the mosquito may be harmless except when infested with the germ of malaria or yellow fever. I know that Mr. Hutchinson's continued and warm advocacy of the fish theory has been subjected to much ridicule, and is not generally accepted; but to my mind it offers the most satisfactory solution of the problem, and better accounts than any other, both for the great prevalence of the disease in certain localities, and also for sporadic cases of leprosy in those who have never been in leprous districts or who have never in any way been exposed with those thus affected. Mr. Hutchinson's arguments in favor of the fish hypothesis are so clear and strong that I must give some of them, condensed:

"No other article of food can be mentioned which is in use in all leprosy districts. Most of the places where leprosy is largely prevalent are on the sea coast, and it is especially common on islands. Wherever a community is found which subsists largely on fish, there leprosy is present. Almost all the large fish-curing locations are the homes of leprosy, and it is often met with also in the countries to which their products are most freely exported. It is not necessary, of course, that a large quantity of fish

be eaten, for the smallest portion, if it contains the germ can introduce the disease. Thorough cooking of fresh fish probably destroys its power of communicating leprosy, if it chance to be infected, but it is known that fish are often eaten raw, or improperly cooked, and also that very large quantities of dried fish are consumed throughout the world, often as a condiment with vegetable food, and even by those belonging to religious castes who will not take animal life."

An illustration of a possible mode of conveyance is found in Russian *caviare*, made from the roe of several varieties of fish, which is always eaten uncooked. If the raw oyster can be the means of communicating typhoid fever, what is there unreasonable in believing that fish, under certain circumstances, can introduce leprosy? Not long ago Mr. Hutchinson restudied the subject, and made an extensive trip to countries where leprosy is endemic, and was more than ever convinced of the truth of the fish hypothesis. There is certainly enough reasonableness in the theory to warrant careful scientific inquiry along modern lines of bacterial research.

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DIAGNOSIS AND LOCALIZATION OF APPENDICAL ABSCESSES.*

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Of the many diseases of the abdominal viscera that are brought to the general surgeon's attention, none are more numerous than appendicitis and its complications; the symptoms of typical appendicitis are so marked and readily recognized that a wrong diagnosis is seldom and should never be made. Quite the contrary can be said of the obscure atypical forms.

It will be the endeavor of the writer to review his experience, and although nothing new may be presented, it is hoped that it may enable some one to make an earlier diagnosis in obscure appendicitis than is often done so that the surgeon can achieve greater success after operation, thereby lowering the mortality following the operation for appendicitis. I will quote no authority, although I may repeat what has been written many times before. Therefore, I claim nothing original for this paper, simply appendicitis as I have found it in the home, the hospital, and the operating-room.

The appendix is a part of the alimentary tract, its base attached to and its lumen communicating with the cecum, its apex occluded and unattached. Its normal length is from two to three and one-half inches, although it may be wanting or merely a rudimentary stump not more than one-half inch in length, or it may be abnormally long—from eight to nine inches. The lumen is small, not exceeding, as a rule, one to two-tenths of an inch. The location of the appendix depends upon that of the cecum, as it is attached to the distal end of the cecum and moves with it, and wherever it is possible for the cecum to wander in the abdominal cavity, it takes the appendix with it.

Development of the Appendix (Fig. 1).—The alimentary canal at fourth week. (Bonnet.) The intestinal canal grows in length much more rapidly than does the embryonic body. Therefore, the tube becomes bent and thrown into convolutions.

During the sixth week the alimentary canal has not only increased in length but certain changes in position of the organs have taken place. A U-shaped tube has appeared and attached itself to the ventral wall, a point in the lower limb of the U-shaped tube now increases rapidly in size, this forms the cecum.

At the end of the sixth week the cecum and colon lift themselves forward and assume a position ventral to the small intestines, the cecum occupying a position to the right hypochondrium (Fig. 2) region and the colon passing transversely across the abdomen ventral to the duodenum. In the third month the appendix has already formed. When the cecum was first formed no appendix was present, but soon

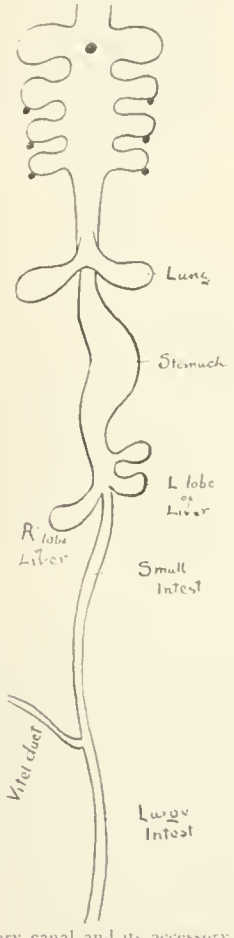

Fig. 1.—The alimentary canal and its accessory organs, in the fourth week (after Bonnet).

the cecum increases in size much faster than the distal portion and a slender tube is the result. The cecum now begins to move downward so that in the seventh month it is below the right kidney (Fig. 3), while in the eighth month it passes the crest of the ilium (Fig. 4).

Normally the base of the appendix is located at a point about one-third the distance from the anterior superior spinous process of the ilium to the umbilicus. If the cecum and descending colon are abnormally long or movable it may extend into the true pelvis, and the appendix, therefore, be located, in the female, back of the uterus and even into the cul-de-sac (Case I, Fig. 5), and in the male, back of the bladder (Case II). It may be located in a right inguinal hernia and an abscess be located in the scrotum (Case III, Fig. 6), rarely in a left inguinal hernia. It may be found in a femoral hernia. The

*Read before the Chicago Medical Society.

cecum may appear abnormally short, almost absent, with a short ascending colon, with the appendix lying near the hepatic flexure in close apposition to the liver. An abscess will be sub-phrenic or subhepatic (Case IV, Fig. 7). The appendix may lie

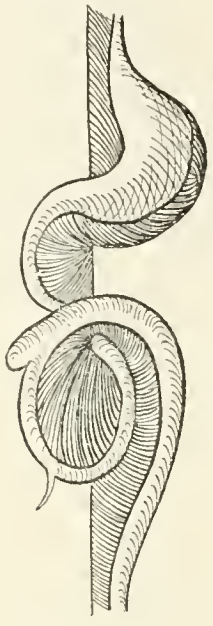

Fig. 2.—The cecum in the region of the liver, at the third month (Heisler).

transversely across the abdominal cavity, its body and apex adherent to the sigmoid flexure, an abscess located on the left side (Case V, Fig. 8). The appendix may be wholly intraperitoneal. It may be attached by a short mesoappendix, and the direction of the appendix in relation to the cecum may be first downward and lying in an S-shaped position (Fig. 9), normal position; second, the mesoappendix may be long or wanting so that the direction of the appendix is downward, its body crossing the illiac vessels and the tip extending into the pelvis. It may be turned so that its apex is directed upward toward the liver. This may be (1) anterocecal, lying in front of and between the cecum and the ascending colon and the anterior abdominal wall. An abscess will be anterior to the ascending colon (Case VI); (2) retrocecal, lying back of and between the ascending colon and the posterior abdominal wall, the appendix touching or lying back of the liver. An abscess will cause a sub-phrenic abscess (Fig. 10). It may be turned along the cecum until it reaches the iliocecal valve and extend along the ilium the remainder of its course (Case VII, Fig. 11). An abscess will cause intestinal obstruction.

In any of the above positions it may be perfectly free from adhesions, normal in all respects, and cause absolutely no difficulty or symptoms. It may become inflamed and bound down by adhesions in any of these positions, when it becomes a factor of grave importance.

If the tip is directed toward and extending into the pelvis, an acute suppurative condition will simulate a pelvic abscess and be complicated with all the findings of a true pelvic abscess. Symptoms of cystitis are almost invariably present in males, and of pyosalpinx in the female (Cases I and II, respectively), as well as painful defication in both.

The appendix may extend along the cord and be adherent to it within the inguinal canal (Case IX). In the non-descendent variety of appendicitis where there is a descended cecum, the tip of the appendix is directed upward and forward, or upward and backward. The symptoms may be very severe, or, on the other hand, may be almost absent, and the condition be of equal gravity. In the variety in which the symptoms are severe they are usually accompanied or followed by an acute suppurative condition; while the symptoms that appear to be less severe are usually followed by a gangrenous condition. Either may be complicated by symptoms simulating intestinal obstruction, empyema of the gall-bladder, pancreatitis, pyloric obstruction, subphrenic abscess, ulceration or gangrene or the hepatic flexure of the colon, pleurisy and pneumonia.

Nature has a tendency to wall off an inflamed appendix from the abdominal cavity and the omentum is frequently found wrapped entirely around it, forming a tumor with the appendix in the center of the mass. If an abscess forms after the omental tumor is formed there is little danger of diffuse peritonitis.

The complications of non-descendent intraperitoneal appendicitis are emphema of the gall-bladder, ulceration and gangrene of the hepatic flexure of the colon, inflammation of the duodenum and pancreas (Case X, Fig. 11), subphrenic abscess (Case IV, Fig. 7). Any of these may be complicated with localized or diffuse peritonitis.

The appendix may be wholly or partially extraperitoneal: (1) The base may be intraperitoneal, its direction backward and upward so that the body is wholly extraperitoneal and the tip appearing intraperitoneal so that a rupture of the appendix near the base or the tip will cause intraperitoneal infection. Rupture of the base will form an abscess in the right inguinal region. This may extend and localize in the left inguinal region, the attachment of the

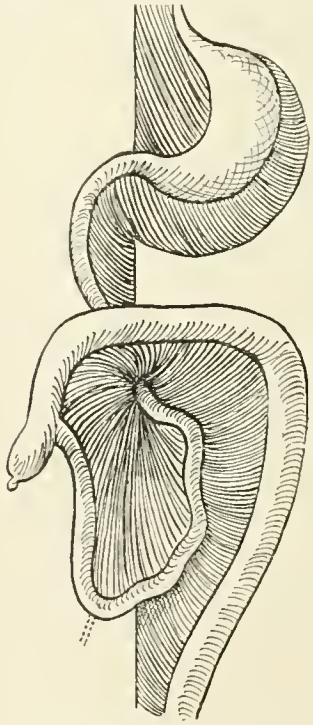

Fig. 3.—The cecum at the lower pole of the kidney, at the seventh month (Heisler).

mesentery of the small intestines directing the pus to the left inguinal region. Rupture of the tip will cause a subphrenic abscess (Fig. 13), while rupture of the body will cause an extraperitoneal abscess. (2) The base and body may be extraperitoneal, the

tip intraperitoneal, in this case a rupture of the base and body causing an extraperitoneal infection and of the tip an intraperitoneal infection (Fig. 14). (3) The base may be intraperitoneal and one side of the appendix covered its entire length with

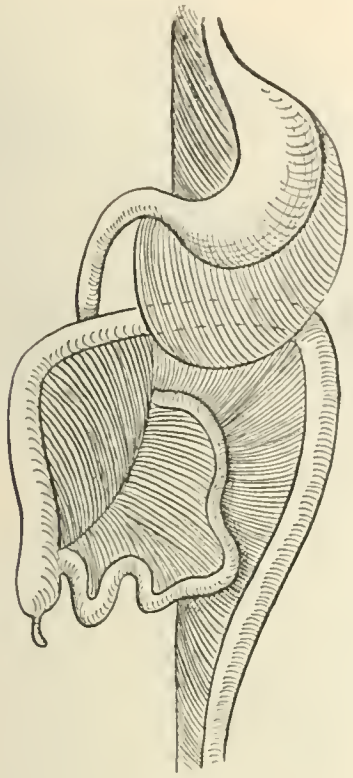

Fig. 4.—The cecum below the crest of the ilium, at the eighth month (Heisler).

peritoneum, while the other side is extraperitoneal. In this instance a rupture of the side covered with peritoneum will cause an intraperitoneal infection, while a rupture of the side devoid of peritoneum will cause an extraperitoneal abscess (Fig. 15). An appendix located close to and parallel with the ureter may cause inflammation of the ureter and symptoms of renal colic as well as pyelitis (Case X, Fig. 16). (4) In other cases the cecum may be well attached and high up so that to find the base of the appendix the surgeon must go through the peritoneum, the appendix being wholly extraperitoneal and a rupture along any of its course will cause an extraperitoneal abscess (Case XI, Fig. 17). It is in this variety of cases that the amateur surgeon operates on what appears to be a typical case of appendicitis, seeks for the appendix, fails to find it, closes the abdomen thinking that the patient has no appendix and that the diagnosis is wrong; but discovers a few days later that the patient has, what appears to be a paranephritic abscess, drains, and finds a colon bacillus infection and an appendix extraperitoneal.

The appendix may become attached to the abdominal wall, the lumen patulous forming a fecal fistula (Case XII, Fig. 18).

Case I. (Fig. 5).—Appendix lying back of the uterus, apex in the cul-de-sac, the condition simulating pyosalpinx. Mrs. S., aged 43. Entered the Willard Hospital May 2, 1907. Family history negative with the exception that patient stated she had pneumonia in January, but recovered completely. Ten days previous to entering the hospital she was again seized by pains in the left pleural region; also, diffuse abdominal pains, at which time she was seen by Dr. Hood, who made a diagnosis of pleurisy. She improved until the day before entering the hospital, when she was again seized by diffuse abdominal pain, nausea, and vomiting.

Blood analysis: Hemoglobin, 80 per cent.; 57,530 leucocytes, over 97 per cent. of which were polymorphonuclears.

I saw her with Dr. Hood, and diagnosis of pelvic abscess was confirmed. She was taken to the operating-room at 9.10 A.M. The cul-de-sac was opened and a large appendical abscess was drained through the vagina. She left the operating room at 9.45. May 10 the temperature suddely rose to 103, respirations rapid and shallow. On aspirating the left pleural cavity pus was found. May 11 she was taken to the operating-room at 10.30 A.M. and again anesthetized, chloroform being used. The eighth rib was resected and rubber-tube drainage established. She left the operating-room at 10.50. Leucocytes at this time were 36,400, polymorphonuclears 90 per cent. May 16 the temperature was 100°, pulse, 110; respiration, 40; 26,200 leucocytes; polymorphonuclears, 82 per cent. At the request of the patient and her husband, she was removed from the hospital to her home, where she died two weeks later from pneumonia.

Case II.—Appendix lying back of the bladder; inflammation simulating cystitis. Mr. C. The patient was brought to the West Side Hospital after an illness of one week. He first complained of painful and frequent urination, when a diagnosis of cystitis was made and the patient was placed on the appropriate treatment. On the third day the patient complained of abdominal pain which was accompanied by nausea and vomiting, also constipation. A brisk cathartic was administered, the patient complaining of excruciating pain on defecation. He steadily grew worse, and when I saw

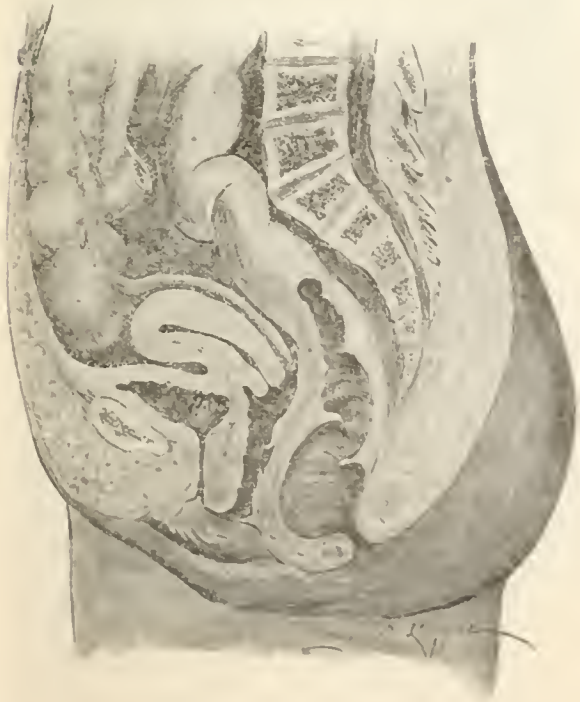

Fig. 5.—Case I: Appendix lying back of the uterus, suppuration resulting in an abscess in Douglas' cul-de-sac.

him he was suffering from diffuse extending peritonitis. A diagnosis of peritonitis following appendicitis was made. Upon incision in the right inguinal region the abdominal cavity was found to be free from adhesions; the appendix, located well

back of the bladder, was removed, the condition being a ruptured acute suppurative appendicitis which first formed an abscess back of the bladder followed by a general peritonitis. Drainage was established by passing a rubber tube well into the pelvis, the patient placed in the Fowler position. Normal saline solution was given per rectum, but the patient died two days later as result of the diffuse peritonitis. This was a case of prolapsed cecum with the appendix lying in the pelvis back of the bladder, an abscess had formed which irritated the bladder, giving rise to symptoms of cystitis, and a mistaken diagnosis running over a period of seven days proved fatal.

Case III (Fig. 6).—Appendix located in the lower part of the scrotum in a right inguinal hernia. Mr. M., aged 51. Entered the Frances Willard Hospital Oct. 16, 1906, and was operated for right inguinal hernia. The hernial opening was

Fig. 6.—Case III: Appendix in the lower part of the sac of a central hernia, suppuration resulting in an abscess of the scrotum.

very large, the scrotum the size of a cocanut. Incision was made for typical Baccini operation. When the sac was opened it was found to contain the cecum, the appendix in the lower portion of the sac. The sac was emptied of its contents, the appendix removed, and the wound closed by the Baccini method. Patient made an uneventful recovery and left the hospital at the end of the third week.

Case IV. (Fig. 7)—Appendix directed upward and backward, the body adherent to the gall-bladder and the tip to the liver. Mr. S., aged 23. Dental student. Taken ill Feb. 23, 1907, with excruciating pains in the right hypochondriac region. physician was called and diagnosis of hepatic colic was made, and he was sent to the hospital where a like diagnosis was made. He soon became jaundiced, remained in the hospital for two days, when he was removed to the Frances Willard Hospital, Feb. 25, at 2.30 P.M., where I first saw him. At this time he was suffering with diffuse abdominal pain, was jaundiced, had marked rigidity of the abdominal wall; temperature, 103; blood count, leucocytes,

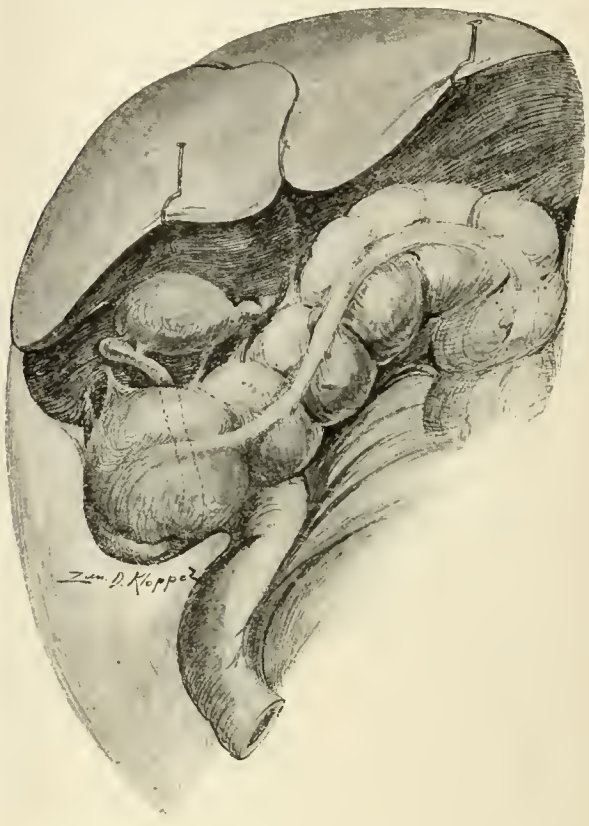

Fig. 7.—Case IV: Non-descended appendix, tip adherent to the gall-bladder, suppuration resulting in empyema of the gall-bladder.

11,000; polymorphonuclears, 86 per cent. Diagnosis of appendicitis was made. He was immediately taken to the operating-room, chloroform administered, and an incision made along the linea semilunaris from the margin of the ribs to opposite the umbilicus. The ascending colon was markedly inflamed and areas of gangrene were found. The ascending colon was followed downward until the cecum was reached, when the base of the appendix

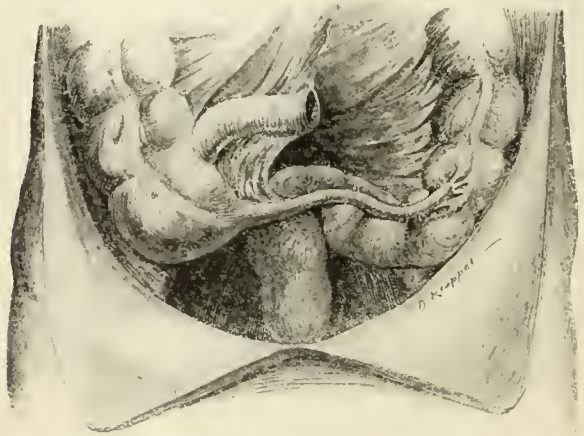

Fig. 8.—Case V: Appendix lying transversely, tip attached to the sigmoid flexure; suppuration resulted in an abscess in the left inguinal region as well as ulceration of the sigmoid.

was found to be gangrenous, and it was removed. Stripping it from between the ascending colon and the posterior abdominal wall, the tip was found adherent to the gall-bladder and the liver. The ap-

pendix was removed, and the field drained by strips of iodoform gauze. The patient made a slow but steady recovery and left the hospital at the end of the fifth week, and has had no further trouble.

Case V. (Fig. 8)—Chronic appendicitis, the appendix attached to the sigmoid flexure and the pain located in the left inguinal region. Mrs. N., Marshalltown, Ia. Entered the West Side Hospital complaining of pain in the left inguinal region, stating she had had attacks of pain lasting from two days to two weeks duration extending over a period of ten years. The pain sometimes would disappear and not recur for months, then it might occur in a very short time. Vaginal examination was negative. As she had complained of pain for so many years and had continually doctored during this period, an exploratory laparotomy was advised. The appendix was found pointing toward the left inguinal region and attached to the sigmoid flexure for at least three-quarters of its length. The adhesions were old and firm and it was with some difficulty that the appendix was loosened so that it could

Fig. 9.—Normal appendix.

be removed. Since the operation the patient has entirely recovered, and now, over five years, has not had a single recurrence of pain.

Case VI.—Appendix lying anterocecal, the tip directed upward. Mr. C., aged 39. Entered the Frances Willard Hospital Dec. 7, 1906; temperature, 101.4; pulse, 100; respirations, 24. Said that he had been suffering for twenty-four hours with excruciating abdominal pain; abdomen was distended, and very tender over its entire surface. Blood count: Reds, 4,500,000; leucocytes, 16,000; 89 per cent. polymorphonuclears. He complained of great nausea and vomiting as well as prostration. The onset of the disease being very sudden, the rigidity of the abdominal muscles suggested peritonitis. Incision was made along the right linea semilunaris and an inflamed bowel presented itself. The patient, not being well anesthetized, coughed, when a large inflamed appendix, the apex directed upward, came into sight and was very easily removed. This was a case of the appendix directed upward and lying anterocecal, situated between the cecum and ascending colon and the abdominal wall.

Case VII. (Fig. 11)—Appendix directed along the cecum to the ileocecal valve and then lying along the ileum the rest of its course. Ethel L., aged 5

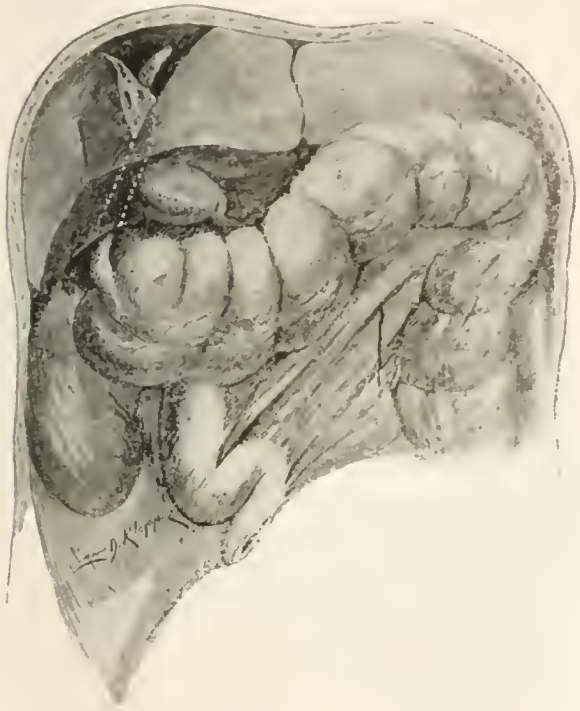

Fig. 10.—Case XIV: Non-descended appendix, tip back of the liver, suppuration resulting in a subphrenic abscess.

years, weight, 45 pounds. Had been entirely well until two days previous to entering the hospital, Jan. 18, 1907, at 2.00 P.M., when I first saw her in consultation with Dr. Hood. Temperature was 102°; pulse, 110; respirations, 30. For two days she had complained of abdominal pain, with nausea and vomiting. Diagnosis of appendicitis with localized peritonitis was made; she was taken to the Willard Hospital where the diagnosis was confirmed by operation at 3.30 P.M. The appendix was found extending along the cecum to the small intestine

Fig. 11.—Case VII: Appendix attached to the small intestine, inflammation causing intestinal obstruction.

and adherent to the cecum about two-thirds of its length. The appendix was removed and the abdomen drained with six strips of iodoform gauze. The patient progressed nicely until Jan. 29, when

the temperature rose to 102°; Jan. 30, the temperature at 8.00 o'clock in the evening was 103.6°. Blood count: Reds, 5,200,000; leucocytes, 24,000; polymorphonuclears, 79 per cent.; large mononuclears, 7 per cent.; ensinophiles, 4 per cent.; small mononuclears, 10 per cent. Palpation revealed marked ten-

Fig. 12.—Case IX: Non-descended appendix, tip adherent to the pancreas, suppuration resulting in acute pancreatitis.

derness in the left inguinal region, where the tumor could be felt. At 10.20 the patient was given a general anesthetic, chloroform being used, and an abscess in the left inguinal region was drained, the abscess extending into the pelvic cavity. The temperature gradually subsided, and the patient left the hospital well, Feb. 15, 1907.

Case VIII.—Appendix adherent to the cord in a right inguinal congenital hernia. Mr. L. Entered the West Side Hospital July 2, 1904. Complained of pain in the right inguinal region. Said he had a hernia, but that it was impossible for him to wear a truss because it produced pain, which was soon followed by nausea and vomiting. On examination, the incomplete inguinal hernia could be detected, and pressure over the cord caused pain. The following day he was anesthetized, chloroform being used, an incision was made for the Baccini operation, and upon coming to the sac and opening it the congenital hernia was found. The appendix, with a long mesoappendix, extended along the cord and was firmly adherent to it. The appendix was removed and the sac ligated and removed by the typical Baccini method.

Case IX. (Fig. 12).—A case of tuberculous pancreatitis secondary to tuberculous appendicitis. Miss Y., aged 7 years. Never well since one year of age, when she had some intestinal trouble. After she was old enough to talk she complained at intervals of pain in her stomach, and would locate the pain in the region of the gall-bladder. When she was 2 years old a diagnosis of intestinal obstruction was made. Cathartics were given and the obstruction was supposed to be relieved. She continued having the pain until two years ago, when she suddenly was taken with diffuse abdominal pains, nausea, and vomiting. This attack simulated the previous attacks, but was more severe. Her father is a physician, and in consulting some of his neighboring physicians a diagnosis of chronic appendicitis was made. She recovered from this attack and remained comparatively well for about a year. When first I saw her she was emaciated, complained of severe abdominal pain, nausea, vomiting; temperature elevated. Blood count: Reds, 4,000,000; leucocytes, 10,000; polymorphonuclears, 30 per cent.; small lymphocytes, 60 per cent. From the condition of the blood we suspected pancreatic trouble. The finding of pentose in the urine further assisted us in our diagnosis. She was taken to the hospital, anesthetized, incision made opposite the umbilicus at the linea semilunaris. The appendix was found extending to the pancreas, it was inflamed, and the head of the pancreas contained numerous hard nodules about the size of a buckshot. Many mesenteric glands were enlarged. Diagnosis of tuberculosis of the mesenteric glands and pancreas was made. The appendix was removed. The patient died two weeks later of general pelvic and abdominal lymphatic tuberculosis as well as a general tuberculous peritonitis, causing intestinal obstruction. Postmortem findings: The lungs contained old healed tubercular areas. The mesenteric lymphatic glands and pancreas were tuberculous. Operation was performed in the Christian Hospital, Valparaiso, Ind.

Case X. (Fig. 16)—Extraperitoneal appendicitis diagnosed for three days, renal colic. Mr. McC., aged 42. April 2, 1907, while moving a piece of stage scenery, was suddenly seized with pain in the lumbar region and was taken to a hospital where diagnosis of renal colic was made. He remained in the hospital two days, when he was transferred to the Frances Willard Hospital, where I first saw him. Having seen the patient in numerous attacks of a similar nature and having repeatedly made a diagnosis of appendicitis, I again advised operation,

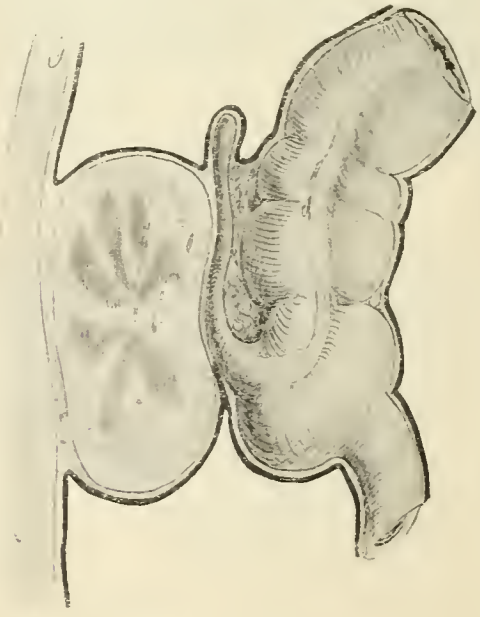

Fig. 13.—Normal appendix; body extraperitoneal; tip, above kidney, and base intraperitoneal.

which he accepted. He was taken to the operating-room at 4.00 o'clock P.M., and anesthetized, chloroform and ether being used. The temperature at the time of entering the operating-room was 98.8; pulse, 90; respirations, 20. Patient stated that the pain on the right side was almost unbearable, and

he had been vomiting almost constantly for two days. Incision was made at the outer border of the right rectus muscle, the center of the incision opposite the umbilicus. The cecum was found, but no appendix. Following the linear band of the large intestine, it was seen to go extraperitoneal.

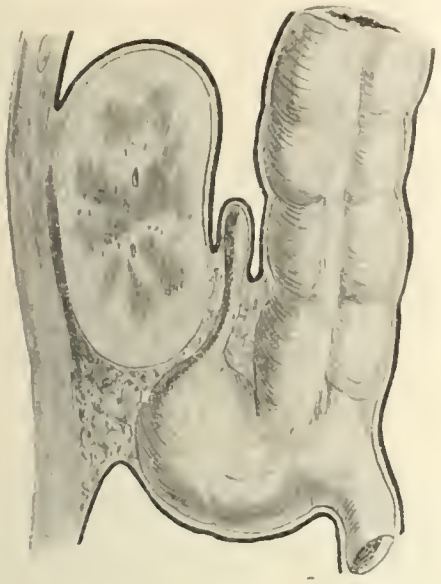

Fig. 14.—Normal appendix lying outside the peritoneum along the ureter.

The posterior peritoneum was incised and the band followed upward, when the appendix was discovered. Using my index finger through this opening the appendix was finally loosened and brought into the abdominal cavity and removed. The incision in the posterior peritoneum was closed with catgut, no infection being present the abdominal incision was closed by a continuous subcutaneous silkworm gut suture. Patient left the hospital at the end of the third week, and has had no pain in the right side nor in the abdomen since the operation, the longest period of time that he has been free from abdominal pain in ten years. This was a case of extraperitoneal appendicitis, the appendix being wholly extraperitoneal and its inflammatory condition exactly simulating renal colic.

Case XI. (Fig. 18)—Paranephritic abscess due to extraperitoneal appendicitis. Felix H., aged 39. On April 1, 1907, he was taken with severe pain in the right side radiating to the shoulder and down the arm. Said that a week previous to this he had had a similar attack that lasted only a few hours. He was seen by Dr. Hood, April 2, 1907, and was at once brought to the Frances Willard Hospital, where I first saw him. Diagnosis of appendical abscess was made. He was taken to the operating-room at 5.15 P.M. Temperature at this time was 99.4°; pulse, 82; respirations, 30. Reds, 4,500,000; whites, 29,000; 90 polonuclears. An incision was made on the right side at the outer edge of the rectus muscle, the middle of the incision opposite the umbilicus. The cecum was found, the appendix was diseased, and a large abscess was lying back of the ascending colon. The appendix was removed, a counter opening made in the back and through and through drainage was established, a soft rubber tube being used in addition to several strips of iodoform gauze. The patient made an uneventful recovery, leaving the hospital at the end of the third week.

Case XII. (Fig. 18)—Mrs. R., age 32 years. Irish, married. Has one child living and well, age 2 years. When the patient was 2 years of age she swallowed a pin. In about two months she complained of pain in the right inguinal region. An abscess formed, was opened by a local surgeon and the pin was removed from the abscess cavity. The sinus remained which refused to heal under all treatment. This persisted for 30 years when she decided to have an operation to cure a fecal fistula. At the operation the tip of the appendix was found grown to the abdominal wall and the lumen of the appendix formed a sinus. All that was necessary to cure the fecal fistula was to remove the appendix.

Case XIII.—Tuberculous appendicitis. Miss H., aged 20, nurse in training. March 4, 1907, was seized by diffuse abdominal pains. Blood analysis at this time: Hemoglobin, 85 per cent; reds, 4,250,000; leucocytes, 4,600. She remained in bed two days, by which time she had markedly improved, and she arose and went to work. March 10 she complained of feeling great discomfort in the abdominal cavity, claiming that she was bloated. Another blood count was ordered: Hemoglobin, 50 per cent; reds, 4,150,000; chucocytes, 7,200. March 11 she complained of excruciating abdominal pain which localized in the region of McBurney's point. The abdomen was still markedly distended; temperature, 97.8°; pulse, 110; respirations, 26. An exploratory laparotomy was advised and accepted. At 7.30 P.M. she was anesthetized, chloroform being used, incision was made over the region of the appendix, a large quantity of fluid escaping through the incision. The small intestines were coiled upon themselves in an S-shape and adherent, producing an intestinal obstruction. The appendix was diseased and adherent to the small intestines. The intestines had a moldy appearance, and a diagnosis of tuberculous peritonitis as well as of appendicitis was made. The appendix was removed, the intestines exposed to the air, drainage established by strips of iodoform gauze, and was free for several weeks. Through the kindness of Dr. Clark, she was

Fig. 15.—Normal appendix; the tip surrounded by peritoneum, the base not invested by serous membrane.

given tuberculin every tenth day. She made a slow but steady recovery and left the hospital June 18, and writes us from her home that she has regained her strength and apparently is entirely well.

Case XIV. (Fig. 10)—Intraperitoneal nondescended appendix, the tip lying between the liver

and the diaphragm, the condition simulating pleurisy. Mr. P. Entered the Frances Willard Hospital April 26, 1907. Said that for thirty-six hours he had suffered excruciating pain localized on the right side in the region of the gall-bladder, also had excruciating pain on deep inspiration. Blood count:

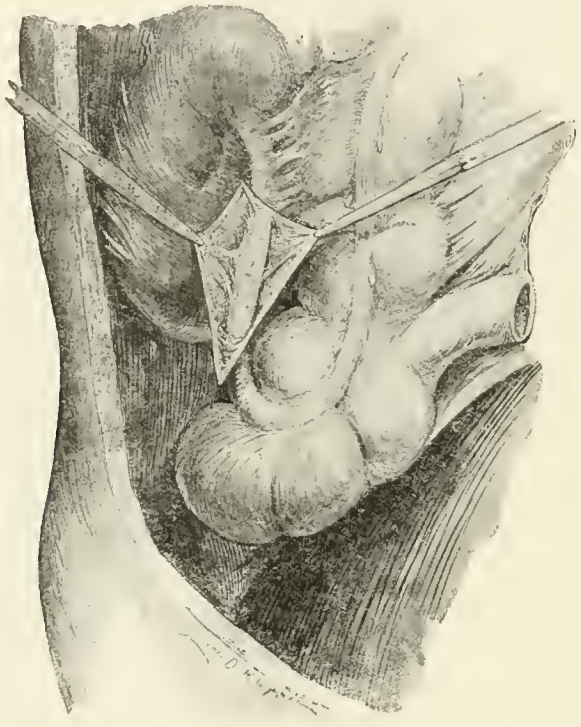

Fig. 16.—Case X: Nondescended extraperitoneal appendix lying along the ureter, suppuration resulting in perinephritic abscess.

Reds, 4,600,000; leucocytes, 23,000; polymorphonuclears, 88 per cent; temperature, 99.6°; pulse, 68; respirations, 24. Deep pressure continued along the linea semilunaris caused pain in the region of the liver and increased tenderness. There was pain in both the right and left lumbar regions. Diagnosis of gangrenous appendicitis was made and confirmed. The cecum was very short, the appendix lying well back of the liver between the liver and the diaphragm. The appendix was removed and strips of iodoform gauze were placed between the liver and the diaphragm for drainage. Patient made an uneventful recovery and left the hospital at the end of the third week.

I have cited a few of the rare cases which have come under my observation. A record of these cases can be found in the files of the West Side Hospital and the Frances Willard Hospital, Chicago.

The diagnosis of the different forms of appendicitis should be readily made, and radical treatment at once advised. The diagnosis of nondescending appendicitis simulating gall-bladder trouble or pancreatitis, etc., cannot be readily diagnosed. Only by careful and systematic examination can a diagnosis be made.

The three painful points of appendicitis are: (1) In the region of the appendix on deep palpation, (2) in the region of the right, and (3) left lumbar plexus on deep palpation. Pressure on these points will produce pain in the region of the gall-bladder in a nondescending appendicitis which irritates the gall-bladder. Pressure on the above points does not produce pain in simple hepatic or gall-stone colic. The same can be said of acute suppurative or gangrenous nondescending extraperitoneal appendicitis, simulating renal colic; pressure in the regiion of the kidney produces pain, but this pain can be traced to the three regions of pain in acute gangrenous or suppurative appendicitis. Diabetes accompanying a nondescending appendicitis suggests pancreatitis.

Varieties of Appendicitis. *Acute Catarrhal.*—The variety of appendicitis that has most frequently come under my observation and is most common, is the acute catarrhal form; the attack is sudden, with diffuse abdominal pain, rigidity of the abdominal muscles, nausea and vomiting, pain localized in twenty-four hours at the appendix, moderate temperature, fever ranging from 100° to 102°.

Etiology.—The cause may be from without or from within the appendix; if from without it is usually due to adhesions extending from some surrounding organ; again, it may be due to intestinal disturbances, foreign bodies, endoliths or gallstones, these conditions occurring without infection. The patient may be relieved in a few days and have no further symptoms, the blood count indicates nothing alarming, and there is practically no change. The *treatment* is to clean out the bowels with laxatives and enemas, giving no food for at least twenty-four hours. If the symptoms increase and the temperature becomes high and the pulse rapid, accompanied with a gradual increase in the number of leucocytes as well as an increase in the polymorphonuclears, the case is no longer one of catarrhal appendicitis, but indicates gangrenous or suppurative appendicitis in which immediate operation is always advisable.

Acute Suppurative.—This form of appendicitis comes on suddenly and may be the initial attack, but usually is preceded by repeated attacks of catarrhal appendicitis. There is diffuse abdominal pain starting in the region of the umbilicus and rapidly spreading over the entire abdomen, accompanied by

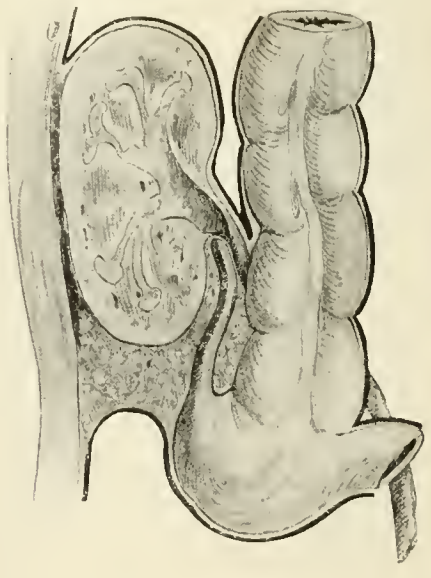

Fig. 17.—Case XI: The normal appendix, lying entirely outside the peritoneum.

nausea and vomiting, and rise of temperature, 103 to 105, occurs within twenty-four hours. The pain usually localizes in the region of the appendix with rigidity of the abdominal wall, more marked on the right side than on the left, pulse is increased and bounding (patient has an anxious expression or the facies of one suffering excruciating pain), the thighs are flexed up on the abdomen, the patient frequently lying on the right side.

Etiology.—Foreign bodies such as enteroliths, gallstones, pins, needles, intestinal parasites, hair, fish-bones, and grape-seeds, or any foreign body that may have entered the alimentary canal, may cause the condition. It may be due to infection from without, such as pyosalpinx, prostatitis, or any intestinal or pelvic inflammation.

Treatment.—This is always surgical, and operation should be performed just as soon as a positive diagnosis is made. Termination without operation may be by rupture into the cecum, or extraperitoneal, in the latter case forming a perinephritic abscess; pus may be absorbed and calcareous deposits formed, resolution may take place without calcification, but death is usually the final termination. A blood count shows a rapid increase in the number of leucocytes as well as in the polymorphonuclears

Gangrenous.—The symptoms are those of either acute catarrhal or suppurative appendicitis. The patient may continue to work for a day or two, but the pain gradually localizes, and not until there is

Fig. 18.—Case XII: Appendicial abscess two months after the swallowing of a pin; the pin was removed, but a fecal fistula persisted for thirty years; the tip of the appendix was adherent to the skin, the lumen forming the tract of the fistula.

an absorption and a localized peritonitis does the patient cease work or call a physician. When there is marked and rapid gangrene the temperature is normal or subnormal, tongue dry and coated, nausea and vomiting, constipation, the face pale, with an anxious expression. The cause of this form of the disease is usually due to adhesions following frequent attacks of catarrhal appendicitis, the adhesions gradually contracting until the appendix is bent upon itself and is strangulated, the blood supply cut off from a portion of it. This condition may also be due to an ovarian cyst, tumors from without, or foreign bodies from within.

Pathology.—Lack of blood supply, leucocytes may go as high as fifty or seventy thousand with a high percentage of polynuclears and a marked increase in the number of eosinophiles, although I recently operated on a case of marked gangrenous appendicitis with a leukopenia, the patient having only five thousand leucocytes.

Termination.—Nearly always fatal if not operated.

Tuberculous Case XIII.—The symptoms are usually not severe, and simulate chronic catarrhal appendicitis. The temperature is usually elevated at night. There is loss of flesh and later the formation of acitic fluid, which is often the result of tuberculous adnexa-uteri, or may be secondary to tuberculosis any place; in the male it may follow tubercular epididymitis, pulse usually rapid and weak, and there is little blood change.

Treatment.—This is surgical, removing the appendix and other diseased organs if possible, followed by use of tuberculin and other antituberculous remedies after recovery from the operation.

Termination.—Recovery, or may be followed by grangrene or acute diffuse tuberculous peritonitis.

Appendicitis Obliterans, or neuroma of the appendix, is usually found in people past the middle age of life, but usually follows repeated attacks of catarrhal appendicitis or a low grade suppurative appendicitis if terminated by absorption or calcification.

Symptoms.—Simulate those of chronic appendicitis or appendiceal colic; there may be nausea and vomiting; pain is usually localized in the region of the appendix not diffuse; pulse is unchanged, blood count negative; constipation is usually present, which is the most common symptom aside from pain. On examining the appendix it is found to be a mere cord or white line, the lumen obliterated. Under the microscope it is shown to be composed almost entirely of fibrous tissue. Contraction and squeezing of the nerves elicits pain similar to that produced by a neuroma.

Technique of Examination.—Correct diagnosis cannot be made without a careful, painstaking and systematic examination. The patient should be divested of all clothing and placed on the back, the abdomen should be exposed and the palms of the examiner's hands should be placed upon the abdomen, one on the right side and one on the left, and equal pressure made so as to elicit the rigidity of the abdominal wall and enable one to compare the rigidity of the right side with that of the left. Only in this way can the rigidity of the abdominal wall be elicited. In conjunction with this the shoulders and head should be slightly raised, the thighs slightly flexed, and the patient instructed to relax the muscles of the abdominal wall as much as possible, and breathe through the open mouth; at the same time the patient's attention should be attracted to the left side and if the right rectus is more tense than on the left the fingers on the left side will sink into the abdominal wall while those on the right side will meet firm resistance. Palpation in this manner should not be limited to the lower abdominal wall, but should be systematically performed over the entire abdomen, and should be discontinued as soon as pain is elicited. After the painful points have been carefully noted, then we should go back to the original point of palpable pain and make deep pressure over the particular point and continue this pressure until it is discovered whether the pain is transmitted from the region of the palpable pain to the region of the pain complained of by the patient; if the pain is transmitted from a point not complained of by the patient to a point distant, then one is quite safe in concluding that the pain is reflex. If, although the patient may not complain of any pain in the region of the base of the normal appendix, by deep, constant pressure over this point pain is elicited in the region of the kidney, gall-bladder, right or left pleural, or right or left inguinal or hypochon-

driac regions, we are justified in supposing that the patient has a reflex pain due to an irritation produced in the region of the cecum, and all precautions should be taken to prevent the disaster that often follows delay in making a diagnosis and operating acute suppurative or gangreuous appendicitis.

Summary.—1. Catarrhal appendicitis should be considered a surgical disease. A cessation of pain does not always mean an improvement. A differential blood count should be made every four hours. If there is a gradual increase in the number of leucocytes, accompanied with an increase of polynuclears, the case is no longer catarrhal but suppurative or gangrene, and operation should be advised regardless of pain, temperature and pulse. Females should be operated early in the first attack of appendicitis and under no circumstances should a case be allowed to become chronic, for in the vast majority of cases the right ovary and tube soon become diseased. Pregnancy frequently is accompanied by gangrene of the chronic catarrhal appendix and many cases of puerperal sepsis are placed at the door of the obstetrician which are only recurrent attacks of appendicitis following labor.

2. Acute suppurative appendicitis is always surgical and should be operated without delay.

3. Gangrenous appendicitis is always surgical and should be operated early before there is thrombosis of the mesenteric vessels. A subnormal temperature with slow, bounding pulse and gradually decreasing pain, is indicative of grave toxemia and the forerunner of dissolution.

4. Tuberculous appendicitis is seldom primary, but is always surgical, and may require extensive resection. If the pancreas is nodular there is probably secondary infection of the pancreas, and death usually follows from general tuberculous infection.

5. Appendicitis obliterans caused by repeated catarrhal attacks resulting in a fibrous obliteration of the appendix including the mesoappendix, causing a neuroma of the appendix and mesoappendix. The condition is always surgical.

6. Appendiceal abscesses are located in the region of the appendix and do not locate in regions distant from the appendix.

7. Appendicitis must be diagnosed from cystitis, pyosalpinx, pyelitis, pancreatitis, pyloric obstruction, duodenal ulcer, hepatic colic, subphrenic abscess, subhepatic abscess, pleurisy, and pneumonia before operative procedure is recommended. A correct diognosis can be made if the symptoms and findings are studied together with the urinalysis and differential blood count.

8. Patients may have appendicitis at any age. I have recently operated in a case of gangrenous appendicitis in a baby six weeks old. The patient was brought to me by Dr. C. King.

9. I am indebted to Dr. B. J. Orndoff for the laboratory reports.

Recovery from a Brain Tumor.—Camillus Bush has reported a case of glioma of the brain on which he did a decompression operation with marked improvement. Later the symptoms recurring, a second operation was done and a large cyst found. This was tapped several times and finally freely opened. The patient appears to have made a good recovery. Dr. Bush calls attention to three points: (1) the remarkable disappearance of the tumor through cystic degeneration; (2) the fact that operations on the brain itself can be carried on without anesthesia; and (3) the apparent location of the center for the steriognostic sense in the pre- and post-central convolutions.—*California State Journal of Medicine.*

NOTES ON THE SANITATION OF YELLOW FEVER AND MALARIA. FROM ISTHMIAN EXPERIENCE.*

By H. R. CARTER,

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I am asked to write of some "Recent Advances in Tropical Sanitation." There are only two tropical diseases, the prevention of which I can discuss at first hand: Yellow Fever and Malaria. Indeed, I am not even aware of any noteworthy advances in the methods of preventing these two which have been made recently; yet, as that term is comparative, it may be that in the first, at least, I can bring something to your attention worthy of consideration, and even in the second, for which I surely have nothing new, a statement of the conclusions to which we have come, and the methods we have used on the Isthmus, and the reasons for them, may be of interest.

YELLOW FEVER.

Since two hosts, one human and one insect, are necessary for the propagation of yellow fever, it is obvious that a perfect control of either is sufficient for the elimination of this disease from a community.

If every person developing yellow fever was immediately isolated from the stegomyia mosquito (*i. e.* no access was allowed to him while he was in an infective stage by stegomyia), yellow fever would inevitably cease. Similarly, if there was no access to men (I mean men susceptible to yellow fever), by any stegomyia in the infective stage, the same thing would occur. Theoretically, then, we can eliminate yellow fever by control of either the human or the insect end of the chain.

At which end of the chain shall we begin? Shall both be tried at the same time? They are not incompatible.

At first sight it seems most feasible to try to control the human host, because (1) we can tell, more or less, when he develops yellow fever; (2) when found we can isolate him, by wire screening or otherwise, from mosquitos; (3) the period of infectivity of the human host is very short, three or four days at most, during which time only he need be guarded.

On the other hand, stegomyia once infective remain so indefinitely, and, except as their environment creates a presumption that they have or have not had access to a man in the infective stage of yellow fever, we have no means of telling an infective stegomyia from any other, and the only practicable means of control of the insect host is by its extermination—more or less complete.

The destruction of the stegomyia mosquitos, which have had access to a man in the infective stage of yellow fever, as distinguished from the general destruction of stegomyia, requires such a knowledge, and hence control, of the human host, as to place this measure in the class of those determined by the control of the human rather than in that of those determined by the control of the insect host, and it is so considered in this paper.

It seems easier, then, and more natural to attempt to control the human host; and the first attempt to exterminate yellow fever after its method of propagation was known, which was so brilliantly carried out by Gorgas at Havana in 1901, mainly rested on this method. The attempt to lessen the

*Read at the Section of Hygiene, Pan-American Scientific Congress, Santiago de Chile, December, 1908.

number of stegomyia by destroying their breeding places was also made, and made vigorously, but the principal dependence was placed on the isolation of the infected men, and the destruction of the mosquitos already infected by him; the destruction of stegomyia in general being regarded as adjuvant to the main work.

The same methods were used by Liceaga for Vera Cruz; by White for New Orleans, and finally by Gorgas for Panama and Colon. Its general adoption, then, shows this (the first method thought of) to be the most natural one. Yet Gorgas now believes, and I think all who participated in the work here concur with him unreservedly, that his success in Havana and on the Isthmus was due to the war waged against the stegomyia directly by the destruction of their breeding places, undertaken as an adjuvant to the isolation of the sick, rather than to that isolation itself; to the control of the insect rather than of the human host (See "Method of Spread of Yellow Fever," by W. C. Gorgas, MEDICAL RECORD, June 27, 1908).

The reason that the method by control of the human host failed was because, under the conditions that existed, it was impossible to carry it out. *We could not control the human host* to the degree necessary for success. No one who has conducted a campaign against yellow fever in a place where it was endemic, where the inhabitants do not fear it, can imagine the difficulties of finding the cases of yellow fever early in the disease, or at all, even the cases which are plain. For the light cases let me say this: an analysis of the yellow fever statistics of Havana for the ten years preceding 1895, published by me in 1900, in the United States Public Health Reports, led me to state that but a small proportion of the cases of yellow fever in adults in Havana, about one-eighth, I think, had been diagnosed. Taking this into account, in addition to the cases in native children, which are practically never diagnosed (I quote Gorgas again), and I think the most optimistic will admit that in such places control of the human host to a sufficient degree to eliminate yellow fever is impossible—not difficult, but impossible. Our only hope, then, is to control the insect host, to destroy the stegomyia.

Let me say here that the conditions are by no means the same in a town in which yellow fever is not endemic, where its has only recently been introduced, and has not become generally epidemic. On account of the limitation of area in which infection exists (especially is this true of a small town) and the help one can count on from the citizens, we have much more control of the human host, and it can be made sufficient to eliminate the disease. This was, I believe, the decisive factor in the suppression of the New Orleans epidemic by White. Although a most vigorous war was waged against the breeding places of stegomyia, the most vigorous of which we have any record, the results were too quick, in my opinion, to be due to the gradual extermination of the stegomyia by failure of their breeding places. This was certainly the only method used in the suppression of a little epidemic in McHenry, Miss., in 1898. The method of the conveyance of yellow fever was not then known, and some unnecessary things were done, such as disinfection of clothing, but every case of yellow fever was isolated in tents, pitched in a pine forest, as soon as it developed (every person in town being seen twice a day), and the house and the adjacent houses fumigated at once. No attempt was made to destroy the breeding places of mosquitos. The epidemic, which was well under way when discovered, lasted about six weeks after work was begun. The same result was obtained by the same methods in the epidemic at Hampton, Va. (White and Van Ezdorf), but more quickly, in about two weeks, because the method was better carried out.

For yellow fever, then, in towns where it is not endemic, and not generally epidemic, an attempt to control the human host should, in general, be made. If the people of the town are intelligent and will cooperate it should always be made, more especially if the place be small, or the infection be limited to a small area. In any case it will limit the rapidity of spread of the disease, and greatly diminish the damage it will do until the more radical measure of extermination of the insect host has been accomplished by destroying its breeding places, a thing which should also always be pressed from the beginning. I have seen a number of places in which this method, without ridding the town of yellow fever, has so far lessened its rapidity of spread that it has been able to tide over six weeks or two months with a minimum amount of fever cases cropping up here and there until frost put an end to it.

On the other hand, were the problem to rid of yellow fever a town in the tropics in which it is endemic, as say Guayaquil, I would concentrate all my energy in ridding the town of stegomyia; I would not isolate those sick of yellow fever, save possibly as a protection to those in the immediate neighborhood. As a measure of general sanitation, helping to rid the town of yellow fever, its value would not pay for the trouble it causes, if indeed it had any value at all for this purpose.

The conditions of the two classes of places are different, and the means advisable for the riddance of yellow fever are also different. For the last, control of the insect host alone is to be aimed at; for the first, control of the human host should also be vigorously pressed.

Obviously, the elimination of yellow fever by the removal of the insect host places the town in a far more advantageous condition than if this result was accomplished by control of the human host alone, as in the former case it has become what is known as "noninfectible territory," and as long as it is kept in this condition no defence of quarantine, or otherwise, against the introduction of yellow fever is needed. In such a town yellow fever is no more communicable than sprained ankles, and the town is safe from it. Unquestionably this is the condition to which all sanitarians wish it to attain.

I will add here that the domiciliary sanitary measures involved in finding the sick, in isolating them, and in fumigating the houses to destroy the mosquitos which have had access to them even if it be successful, is many fold more difficult, costly and troublesome than the work against the breeding places of the stegomyia, and also in a town in which the disease is endemic it excites infinitely more opposition from the town's people. It is hard to estimate the boon it is to the working sanitarian to be able to abandon such methods.

The abandonment, then, of the attempt to control the human host, and the concentration of all effort on the destruction of the stegomyia mosquito, is a distinct advance in the methods of freeing a town, in which yellow fever is endemic, of that disease. It is hardly necessary to say that the sanitation for yellow fever of towns in which it is endemic should begin with the introduction of the water supply in

pipes, so as to do away with the necessity of storing water in cisterns, rain barrels, jars, etc.

It may be noted here that the disappearance of yellow fever in Panama followed close on the breaking of the connections of the gutters with the cisterns, so as to let the rain water from the roofs out on the street. We found that even when the roof gutters, on account of so frequently being flushed out by the rains, bred no stegomyias, yet the cisterns, perfectly screened as they were, did breed stegomyia in quantity from the eggs and larvæ washed down to them from these gutters. The mosquitos escaped into the house every time the trap door was opened in the house to draw water, and the only safe cisterns were those that were not only covered and screened, but that delivered their contents only through a pump. This was the last measure taken against the breeding of stegomyias prior to the disappearance of yellow fever. It is better, of course, to have no gutters, or gutters so short and steep as to hold no water.

MALARIAL FEVER.

I doubt if I have anything new to bring to your attention here. As malarial fever, like yellow fever, requires two hosts for its propagation, the same remarks as to its elimination from a community by the perfect control of either host apply to it as have already been made in the case of yellow fever. It is, however, a much more difficult problem.

It is much harder to get rid of anopheles than of stegomyia, the breeding places of the latter being practically confined to artificial containers and in the neighborhood of human habitation, are much more easily destroyed than those of anopheles, which breed in marshes and in any pool or stream in the grass or bush. Their breeding places then cover a much larger area, frequently the whole country, are far harder to find and harder to destroy when found than the breeding places of stegomyia; also this insect travels much farther from its breeding place than the stegomyia does, probably from three to four times as far. The insect host, then, is much harder to control.

It is also harder to control the human host. A man sick with yellow fever is infective to mosquitos only a few days, three or four; one with malarial fever may be infective, if not indefinitely, at least for a long time. Also the prevalence of the plasmodium in the cutaneous circulation of the natives of malarial countries (this is true also of foreigners who have lived in such countries for some time) without symptoms of malaria, renders attempts to suppress malaria by isolation of the human host impracticable, and I think not even to be considered, and, in spite of the opinion of so eminent a man as Koch, I doubt if any sanitarian would be willing to attack the problem in the American tropics exclusively from the end of the human host.

The effort then must be made mainly from the insect end of the chain, and we aim primarily to get rid of the anopheles by the destruction of their breeding places, but we will need also every adjuvant that we can use in our fight with this disease, and after all we will very likely, for any reasonable expenditure of time and money, be content with such a control of malaria that it does not cause sickness or mortality beyond what is allowable from an economic or humanitarian standpoint. This is possibly now the case on the Isthmus, and if we can reduce the malarial rate to, say, fifty per cent of its present amount, and this ought to be possible, we will be satisfied. No one would be satisfied with such a partial success with yellow fever.

Our methods here are: (1) To prevent the breeding of anopheles by destruction of their breeding places.

(2) To kill their larvæ in such breeding places as we fail to destroy.

(3) To prevent the access to the men we would protect of such anopholes as exist in spite of the above attempts to destroy them.

(4) So to arrange it that those anopheles, which, in spite of No. 3, do have access to the men we would protect, have not had an opportunity of becoming infected with malaria.

(5) So to immunize our men against malaria that even if bitten by infected anopheles they may not develop malaria.

Any one of the above methods perfectly carried out would be sufficient. It will be noticed that these methods are intended each one to supplement the failure, or at least the imperfect success of the preceding one, if (1) were absolutely carried out there would be no need of (2), (3), (4) or (5), and so for each one in its order. In practice here none of them can be entirely carried out, and there is need of all.

The first two aim to destroy the mosquito; the third to prevent contact between the two hosts; the fourth and fifth to render that contact harmless, (a) by preventing infection of the insect, or (b) by immunizing the human host against infection. These measures, I think, then, embrace every class of antimalarial work possible and allowable to us in this country.

The first three, which are the most important, are distinctly antimosquito measures, working from the insect end of the chain; the fifth is from the human end.

(1) In the destruction of breeding places; filling up low places, and tile draining hold the first places as permanent work. Drains lined with cement come next, and then rock-filled and open ditches.

A place suitable for filling and filled properly is permanently destroyed for a breeding place. This method is too costly for general use here.

Tile drains are not absolutely permanent, being liable to invasion by roots of brush, etc., but so far have given the best results of any method used on the Isthmus, counting both cost and efficiency. On account of its low cost of maintenance, as it is the best, it is probably, in the long run, the cheapest of the drainage methods, where applicable.

Cement lined ditches are expensive in their first cost, but the cost of maintenance is low, and in many places they are more economical, as well as more efficient, than open ditches.

Ditches filled by rocks, under and among which the water flows, have given good results, and are both cheap and reasonably permanent.

Open ditches are, of course, much the cheapest of all in first cost, but require constant attention, choking with grass and washing into holes, etc.

Open ditches and then tile are the mainstays of the sanitary department here for this work, but each of the five methods has its peculiar field of preferable use.

The introduction of fish into the pools and streams is also done in suitable places, and may be a permanent work, or fairly permanent work. The value of fish in open ditches is of less value here than in temperate countries, as both grass and algæ grow very rapidly here, and in their presence fish

are not to be depended on to keep a pool free from larvæ.

(2) To kill the larvæ in their breeding places, we use either coal oil or phinotas oil. The use of coal oil for this purpose is too well known to discuss; the latter is a poison to the larvæ, and acts on a different principle. In pools of large area, but shallow, where on account of the effect of wind and the growth in the water coal oil is inapplicable, and in some other conditions the phinotas oil is efficient where the coal oil is not. It has given good results also when a small stream has a number of small pools where also coal oil is unavailable. It is, however, of very variable composition, and one invoice differs from another in efficiency. I will mention here that the continuous use of both these agents discharged very slowly through a hole in a bucket suspended over the source of the water has, under certain conditions, given us most excellent results, saving tenfold in labor the extra use of material which this entails.

(3) Under the third head, "To prevent the access of the anopheles to the man we would protect," the methods in use are:

(a) Clearing off the bush, high grass, etc., around dwelling houses which would furnish a shelter to the insects. This must also cause the destruction of a number of mosquitos, as they cannot live in the hot sun. The cutting of the brush is a protection of value. There is no use in cutting grass unless it be long. The expense is too great for the benefit obtained.

(b) Screening the dwelling houses. This is of very great value, beyond all comparison greater than the removal of brush. In spite of the asservations of British writers the mosquito bar has not been, I think, of great value on the Isthmus. In the early days we all had them and used them most conscientiously, yet few of us escaped malaria. With the narrow beds in use, and the high cots, the bar gives imperfect protection, especially to a restless sleeper. How bad it might have been if we had not used them I cannot tell. Screened houses, however, are safe to careful and intelligent people. It is very much better to screen the galleries than only the doors and windows. The screen doors should open outwards, and the door should not be in a strong artificial light, but as much in the shadow as possible, so that mosquitos will be less liable to gather on it, and thus come in when it is opened. Regulations for screening the quarters, etc., were promulgated by the Chairman of the Isthmian Canal Commission in 1906, based on the report of a board of which the writer was chairman, and are in force for Commission buildings.

(4) To prevent the infection of the mosquitos which have access to the men we are protecting is simply to segregate the quarters of these men from those of the natives and colored laborers—a source of infection to the insects—a sufficient distance—which thing has been inculcated by the British writers for years. It is what is hardest to accomplish on the Isthmus of any of the measures we attempt, yet it is fairly important and considerable sickness has been occasioned by failure to observe this principle.

(5) When, in spite of the above mentioned measures, anopheles still have access to men, we attempt to immunize, or at least lower the susceptibility of, the men exposed.

This is by the use of moderate doses, grains three to grains six per day, of quinine. The effects of this method of preventing malaria have recently been attacked and the writer wishes that the limits of this paper allowed him to discuss the matter. He freely admits that we have been unable on the Isthmus to make such comparative observations, such as taking alternate men, living under the same conditions, one set receiving the phophylactic regularly and for some time, and the other not, as would, after a reasonable number of trials, amount to a demonstration; yet the rapid fall, the invariably rapid fall of the percentage of malaria in the camps where the prophylactic quinine is given regularly, has occurred so many times that the evidence from the Isthmus must be regarded as strongly in its favor. So many factors come in, however, that it would require a very large number of observations such as we have made here to be conclusive. I know of no physician, however, on the Isthmus who has tried it for any length of time on a large scale who does not regard it as a valuable adjuvant in preventing malaria and rendering it milder and more amenable to treatment when it occurs. There are a few people, very few, I think, who cannot take even the small doses required; quite a number who object to it and do not take it. Most people, however, can take it indefinitely without any perceptible effect on their general condition.

Quinine as a prophylactic is not taken regularly and generally by the employees of the Commission. When the malarial rate is low the men become careless, and the proportion of those who avail themselves of it is small; especially is this true of the laborers. When the malarial rate is high at any point, however, extra effort is made to administer it, and in the presence of much sickness, the men take it. The men who have been here some time take it readily; the white men, who have been through other malarial epidemics ask for it. Some of the best results in bad epidemics have been obtained by comparatively large doses of quinine, eight or ten grains per day, and then dropping off to four or five. This was when the camp was pretty generally infected, the men generally having malaria in larval form, and was intended as something more than prophylactic.

This is probably the place to draw attention to the cooperation between the Hospital Division and the anopheles work, which is of decided advantage to the latter, as it is also a "method" for the control of malaria. Every week a report is made of every camp, giving both the number of malarial cases sent to hospitals from such camp and the percentage this bears to the number of employees. From this the Chief Sanitary Inspector can see (1) the rise and fall of the malarial sick rate at any place, and (2) the comparative malarial rate at different places, and while many factors enter in determining this rate, yet the presence of anopheles is one of them, and this report gives him a clue where he should concentrate his efforts, where good and efficient work is being done, and is of great advantage in inciting the spirit of friendly competition among the subordinate inspectors directly in charge of the work.

Eyes of School Children.—After an extensive study of the eyes of school children in London, N. Bishop Harman concludes that "there is no evidence on which to base a pessimistic attitude towards the general tendencies of a healthy school life in so far as the condition of the eyes of the child population is concerned."—*Proceedings of the Royal Society of Medicine*

THE IMPORTANCE OF THE EARLY RECOGNITION OF BONE TUBERCULOSIS.*

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Rarely does the orthopedic surgeon have the opportunity of seeing the starting point of the diseases that are so often referred to him for treatment. Especially rarely is he called to see a patient suffering from bone or joint tuberculosis when the very first symptoms present themselves; this being the time of greatest importance, the time when treatment is most efficient, when the disease is most easily checked, and when much suffering and unsightly deformity can be prevented.

Is it not the family doctor, the general practitioner, who is first called to see the patient? Is it not he who sees the disease in its most incipient stage, and is it not he who should be most impressed by the great importance of its earliest recognition? It is with this view in mind that this paper has been prepared as an appeal to the general practitioner, that he may not overlook such seemingly trivial symptoms as night cries, so-called "growing pains," stomach ache, and many other apparently unassuming evidences of such an important disease; and that the presence of these symptoms may be conductive of more critical examinations and more exacting observations so as to exclude, among other affections, bone tuberculosis.

The extreme importance of this subject can be appreciated only by one who daily comes in contact with the miserable examples of a "too late" diagnosis and a neglected treatment. The shortened limb, the stiffened and distorted hip, and the hunched back all could have been prevented had the disease been recognized in its incipiency.

It is not my object or intention to place the blame upon the family doctor, or to accuse him of negligence, tardiness, or lack of diagnostic ability. The triviality of the symptoms is often such that the parents of the child deem it unnecessary to seek medical advice and treat the child with simple home remedies until, finding them of no avail, consult their doctor. It is at this time, the disease being now fairly well advanced, that the responsibility is thrust upon his shoulders, as it now befalls his lot to make the first diagnosis, the turning point regarding the future of the case.

Tuberculosis is now the subject of especial interest both to the medical profession and to the community at large. Great strides have been made and greater strides are being made by physicians the world over in stamping out of existence pulmonary tuberculosis. Medical journals and even newspapers are filled with articles relative to this subject, yet little mention is made of bone tuberculosis. It is an appalling fact, but nevertheless a true one, that the average layman has never heard of the disease. He sees and passes on the streets the poor cripple, the living monument of what might not have been, yet little does he think of the disease that causes the dreaded deformity.

In orthopedic circles, however, much work has been done along these lines, nevertheless bone tuberculosis is an exceedingly prevalent disease. For its eradication there is needed and desired the public interest as well as the earnest and willing cooperation of the general practitioner.

*Read at a meeting of the North Western Medical Society, Philadelphia.

It is indeed a very simple matter to diagnosticate hip-joint disease when there are present such symptoms as ankylosed hip, shortened and atrophied leg, an abscess or a discharging sinus. But of what value is it to the patient to have his or her condition recognized after the damage is done? It is true that even at this time, proper treatment being resorted to, the disease may be checked, but even so, the shortened and wasted leg will never regain its normal dimensions nor will the ankylosed or eroded joint functionate as before. For these reasons alone, the great importance of the earliest symptoms of this most insidious disease, bone tuberculosis, must become manifest to every medical man, and it should become his duty to acquaint himself with these symptoms, that he may more easily recognize the disease.

A few of the more important facts regarding the etiology of bone tuberculosis may be considered before taking up the subject of the early symptoms. Tuberculosis of bone and joint is preeminently a disease of childhood. It is not congenital and is uncommon under one year of age. It is most common between the ages of three and ten, but may occur at any age. Sex is not a prominent factor, boys being slightly more affected than girls. Any joint in the body may be affected. The combined statistics of Cheyne, Jaffe, Schmalfuss, Bilroth, and Menzel, covering 919 cases, indicate the relative frequency with which the various joints are affected as follows: Spine, 23.2 per cent.; knee, 16.5; hip, 14.6; tarsus, 14.4; elbow, 6.3; wrist, 6.0; skull, 5.5; sternum, clavicle, and ribs, 5.2; pelvis, 3.5; femur, tibia, and fibula, 3.5; shoulder, 1.5; scapula, ulna, and radius, 1.0; humerus, 0.8; patella, 0.1.

It has long been claimed that heredity was a factor in causing joint tuberculosis. Whether or not the bacillus of tuberculosis can be directly transmitted from parent to offspring is still an open question, but that the surroundings of certain families weaken the resistance and favor tuberculosis invasion seems to be a well grounded fact. It is almost impossible to attempt to show the proportion of children suffering from joint tuberculosis that inherit this tendency. In the class of patients from which statistics come, anything approaching accurate information in regard to family history can hardly be expected. There is a strong inclination to deny and conceal any history of tuberculosis in members of the family, and a tendency to establish a traumatic cause for the affection of the joint instead of having it supposed that the child inherited any constitutional predisposition. On the other hand, it must be remembered that in a community in which approximately ten per cent. of all deaths are from tuberculosis, it stands to reason that this disease must of necessity appear in the family history of a certain proportion of our cases. It only goes to show how inaccurate our statistics must be, but, be it as it may, the error is likely to lie always on one side, in underestimating and making the proportion of inheritance too small.

From one-sixth to one-half of all cases appearing in collected statistics would seem to have a traumatic origin. The most recent statistics based upon a knowledge of modern pathology, tend to remove the traumatic factor in the etiology. There is no doubt in the mind of the writer that the element of trauma in the older statistics is greatly exaggerated; the subject is entirely overestimated, is based upon erroneous pathological basis, and therefore tends to convey an erroneous impression in the

minds of those interested in the subject. In some cases no cause can be assigned but in a large majority of the cases the mother will relate some form of trauma following which her attention was first called to a slight deformity or to some of the symptoms later to be discussed. Whether or not the symptoms existed before the trauma, must remain in doubt in as much as the only history obtainable is that furnished by the mother. It has been shown experimentally that trauma to a joint of a tuberculous animal may cause tuberculous joint disease, but that it will not do so in a healthy animal. It would seem rational to assume, therefore, that slight trauma might aid in lightening up joint diseases in children who inherit a constitutional inability to resist the invasion of the bacillus. It is a matter of frequent observation that children whose family history is exceptionally good become affected with tuberculous joint disease. Nicholas Senn has pointed out that slight trauma such as bruises and sprains are at times etiological factors, whereas, more severe injuries are not nearly so apt to be followed by bone tuberculosis. This fact confirms Bier's theory, that stasis favors tuberculous invasion, while hyperemia is antagonistic to it. The exanthemata must be mentioned as a causative factor in a certain proportion of cases, measles and scarlet fever being the most common eruptive diseases to be followed by these sequelæ. "In short, it is probable that whatever continuously diminishes the power of resistance and repair in growing children, increases the soil for development of the tubercle bacilli and the consequent results."

There is no one symptom or one group of symptoms that can be said to be pathognomic of bone tuberculosis. The symptoms may vary greatly according to the intensity of the infection, the resisting power of the individual and the location of the part affected. One or more of the usual symptom complex may be absent and the symptoms present may simulate various other affections. A unique peculiarity of the symptoms of this disease is the tendency to intermit. The child may complain severely for several days, then have the symptoms gradually disappearing for a time, only to return again with the same degree or possibly a greater degree of severity. Again the child may have a slight limp in the morning, which by noon has disappeared, and again returns the following morning. The length of the intermittency varies greatly. It may be only for a few days or may extend over several months and is even said to be possible to brace an intermittence of years. These lengthy intermittencies can be best explained by the fact that at times the process has been arrested by "walling in," which at some future time has again become an active process and thus produces the return of symptoms.

For simplicity of classification, the symptoms may be divided into two groups: Constitutional symptoms, referrable to the effect of the disease on the general health of the child; local symptoms, those depending upon the certain part affected.

The constitutional symptoms: The mother of a little patient often first notices that the child is not as bright as usual; he may play about as before, but shows signs of fatigue in a short time, desires to rest, to sit still or lie down for short periods from time to time. His appetite gradually fails, he does not crave food like a healthy child. He does not sleep as well as usual, is very restless, and may have night cries during the early hours of sleep. If the weight is taken, it will be found that the child is gradually but constantly losing. The temperature is usually slightly elevated, possibly to the extent of one degree from the normal. In short, the child presents a picture of one who is indisposed. There is a departure from the normal standard of a healthy child, and from these symptoms alone, the physician should be put on his guard and a most careful examination resorted to. The uncertain type of the constitutional manifestations often tends to disarm suspicion and tends to delay in subjecting the patient to a critical analysis.

If any one symptom could be termed most important, most diagnostic, and possibly the earliest, muscular rigidity or spasm most deserves this distinction. Muscular rigidity is usually the first symptom to appear. It is always present to some degree, restricting the joint's normal arc of motion. It is due to a reflex irritability of the muscles controlling the joint which causes them to maintain a condition of tonic spasm of greater or lesser degree. It disappears under full anesthesia, yet it is entirely independent of volition. Increasing stiffness, appearing in the course of treatment, is a sign that either the treatment is inefficient, that there is an increase of the disease, or that rigidity from pathologic destruction of the joint has occurred. The importance of the recognition and accurate study of this symptom cannot be overestimated. It is not only the most important sign of the disease, the chief reliance in the matter of diagnosis, but it is the cause of malformation and deformities. It is responsible for the early limp and the shortening of the limb in hip disease, of the wearing away of the acetabulum and of the head of the femur, of the peculiar gait, the curves and the attitudes assumed in Pott's Disease, and it is also a causative factor in the production of much of the pain. It furnishes the most accurate index of the progress of the case, improving or becoming worse, according to the phase of the disease. The peculiarly diagnostic postures of the individual joints affected with joint tuberculosis are produced not by the disease but by the muscular rigidity that it causes.

Closely associated with muscular rigidity is pain. Unlike muscular spasm, pain is a symptom which is not constant and is a symptom not to be relied upon. As Lovett says, "Pain may be absent at any or all stages of the disease, and is not a diagnostic sign for or against the presence of the disease." When pain is present, it is most commonly referred from the site of the disease, and thus tends in a measure to mislead both parents and physician. In a minority of cases, the pain is referred to the joint itself, but it is most often referred to the peripheral ends of the nerves leading from the parts affected. Thus in hip disease, the pain is usually referred to the distal distribution of the obturator nerve, and is appreciated on the inner surface of the thigh and knee. Many cases of hip disease are treated for weeks with salicylates and liniments for rheumatism of the knee, yet all the classical symptoms of hip disease are present. With the child undressed, a diagnosis should have been made by inspection. A child presenting suspicious symptoms should always be stripped of all clothing before being examined. In tuberculous disease of the spine when pain is present, it is usually referred to the anterior chest, abdomen or limbs. Abdominal pain passes for "stomach ache," thoracic pain for pleurisy, and pains in the limbs for "growing pains"

and rheumatism. In tuberculosis of the shoulder joint the pain when present is referred to the middle of the arm. In sacroiliac disease, the pain follows the sciatic nerve and is often mistaken for sciatica. In knee, ankle, or elbow disease, the pain is often absent entirely, and when present is usually referred to the distal portions of the limb. It may be said here that persistent localized pain in the case of a child is a symptom demanding very great attention.

Analogous to these attacks of pain, are disturbances of the functions of other nerves, manifested in cough, peculiar grunting respiration, dyspnea with cyanosis, gastric disorders, obstinate and recurring vomiting, rectal and vesical disturbances. Patients suffering in this way have often been treated for bronchitis, pneumonia, gastritis, cystitis, and various other affections. Bradford cites a case in which a lateral systotomy was performed for a suspected stone in the bladder. At the operation, no vesical trouble could be discovered, but later at autopsy, disease of the lumbar vertebræ was found.

Tenderness or sensitiveness of the joint, as distinguished from pain, is pain that is provoked by motion or manipulation. Tenderness may be apparent at this early stage. It is more often recognized in those joints that are more exposed than others. Early tenderness is therefore more common in such joints as the knee, elbow, or ankle, and less common in the hip, spine, or shoulder. As long as the contracted muscles hold the joint so as not to permit motion or friction against the inflamed and sensitive areas, the patient may not complain of pain, but motion or manipulation outside of those limits will reveal tenderness.

Night cries, an early and important symptom of this disease, and often the very first symptom to be noticed by the mother, is merely a manifestation of the muscle soreness, that results from the constant tonic spasm to which the muscles have been subjected during the entire day. When the child goes to sleep the contracted muscles, which have been on guard all day, relax. Any sudden movement of the child excites reflex contractions of these muscles controlling the joint, and the sudden contraction gives rise to pain. Muscle soreness is only apparent when the affected muscle is in the state of irritation or motion. The child is rarely awakened by the pain, but usually moans or cries and remains sleeping. If awakened, it makes no complaint of pain and the cry is supposed to be caused by a "bad dream." Night cries are most common during the early hours of sleep when muscular relaxation is most complete. They may occur many times during the night, but do not occur if the child is awake.

Atrophy of the muscles in the neighborhood of the joint is another early symptom of importance. It begins sharply and very early. It was previously supposed to be reflex to the disease of the joint, but more recent investigations indicate that it is an atrophy not of disuse but rather of the type of excessive use; the muscles being in a state of constant tonic spasm during the day with less than the normal blood supply, thus less nutriment and also a defective inervation.

A difference in contour, a filling out of the normal depressions, and an apparent enlargement of the joint can also be noted at this early period. It is entirely independent of any distension of the joint with fluid, and is therefore most evident in those joints most exposed.

It is unnecessary here to discuss such symptoms as shortening of a limb, ankylosis, abscess, discharging sinuses or late deformities which make up clinical pictures easily recognized on sight. A diagnosis should have been made long before these are present.

Before leaving the subject, however, it would be well to mention a few of the more important laboratory methods of diagnosis.

Radiography is of very great value and should be used in all doubtful cases. The slightest bone erosion can be determined and interpreted by a skillful radiologist and even before erosion, the radiogram will indicate, by the diminished resistance to the passage of the *x*-ray, the greater vascularity of the epiphyses, which always is present at this early stage.

Time would hardly permit a discussion of all of the laboratory methods available, especially with reference to the various forms of sera, tuberculin tests, and the opsonic index. The subject, however, would not be complete without mention of the most recent investigations of Dr. Randle C. Rosenberger. Dr. Rosenberger by means of his own special technique has been able to demonstrate in the peripheral circulation the presence of the bacillus of tuberculosis in every case of phthisis, also in those cases in which the joints were the parts affected. Moreover, Dr. Rosenberger claims that the tubercle bacilli are present in the blood stream in the most incipient cases, even before physical signs have become manifest. This being the case, Dr. Rosenberger's revelations should be of enormous value to orthopedic surgery and undoubtedly will, in the future, be instrumental in establishing diagnosis that heretofore would not have been possible.

200 South Twelfth Street.

THE REPORT OF A PECULIAR CASE OF MENINGITIS IN WHICH TREATMENT BY ANTIMENINGOCOCCIC SERUM WAS ATTEMPTED.

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The use of the antimeningococcic serum in the treatment of epidemic cerebrospinal meningitis is of such recent date that exhaustive reports have not yet been made, but such satisfying results have already been obtained in reducing the mortality percentage that its general employment is now assured.

There have been four cycles of epidemic meningitis occurring in America and Europe during the nineteenth century. The first cycle began in Geneva, Switzerland, in 1805, gradually spreading through Europe and the United States, and ending about 1828. According to Hirsch in his Geographical and Historical Pathology, we are now in what might be called the fifth cycle, beginning with the localized outbreaks in various sections of Europe and the United States in the early '90s and continuing in sporadic form in all America's large cities. The epidemic has reached alarming proportions at times, the number of deaths from this disease alone in New York City ran for a period of weeks in 1904 at more than 100 each week.

The causative agent of this disease has been known since 1887, when Weichselbaum described a diplococcus occurring both within and without the leucocytes in the spinal fluid in this disease, and reported the findings in six cases. The mortality

.n cerebrospinal fever varies with the different epidemics. The usual death rate with the ordinary methods of treatment runs from 60 to 80 per cent. In 1906, Dr. Flexner reported the result of the employment of an antimeningococcic serum upon the course of a small number of cases of epidemic meningitis. This serum he prepared by inoculating the horse, first with gradually increasing doses of dead meningococci, then of living cocci, and finally of an autolysate. The effect of the serum in man is due, according to Flexner, partly to an antitoxic action, partly to the stimulus that the serum gives to increased phagocytic digestion, and partly to its direct injurious action upon the cocci. The results were so satisfactory that the employment of the serum on a wider scale seemed called for. Recently he has reported an analysis of 400 cases of epidemic meningitis in which the serum was used.

The cases upon which he bases his results, have been taken from widely separated parts of the United States, Canada, and Great Britain, sometimes from cases occuring in small epidemics, like that in Akron, Ohio, sometimes, in sporadic outbreaks of considerable extent, as in Belfast, Ireland, and Edinburgh, Scotland, and also in Boston, Baltimore, Cincinnati, and Philadelphia.

In each instance, in which the serum has been supplied, Dr. Flexner has required that a bacteriological diagnosis be made, and in doubtful instances the slides have been examined at the Rockefeller Institute and even cultures prepared from the exudate, so his conclusions on the result of the employment of the serum are authoritative.

In making the figures upon which his tabulation is based, account was taken of the ages of the patients, the period of the disease at which the serum was first injected, the effect upon the temperature, the objective and subjective symptoms, the number and viability of the diplococci in the spinal exudate, the duration of the fever and other symptoms. In one way only was any selection of cases made, namely, that all cases in which death occurred within twenty-four hours after the first dose of serum were excluded from the tabulation. The total number of cases subjected to analysis was 393. The total number of recoveries was 295, and the total number of deaths was 98, giving 75 per cent. recoveries and 25 per cent. deaths, practically reversing the mortality rate under other methods of treatment. According to the ages of the patients the table is as follows:

Age.	Number of cases.	Recovered.	Died.	Mortality, Percentage.
Under one year.....	22	11	11	50
One to two years.....	19	11	8	42
Two to five years.....	68	52	16	23.5
Five to ten years.....	79	70	9	11.4
Ten to twenty years...	105	80	25	23.8
Over twenty years....	87	64	23	26.4
Not given.....	13	7	6	46.1

The table, analyzing the time of injections, shows the undoubted beneficial results of early injection.

Period of injection of serum.	Number of cases.	Recovered.	Died.	Mortality, Percentage.
One to three days.....	123	107	16	16.5
Four to seven days....	126	96	30	23.8
Later than 7th day....	112	73	39	35

Flexner says, whether there is complete anatomical restitution of the meninges in these cases can be determined only by post-mortem examination, but that complete functional restoration can take place may be regarded as an established fact.

Under the influence of the serum injected, the spinal exudate rapidly looses its turbidity, there is a decrease, often very rapid, in the number of the leucocytes of the blood, the diplococci are reduced in number, disappear from the fluid part of the exudate, to become wholly intracellular, swelling and fragmentation is noticed, and they stain diffusely, and indistinctly, and lose viability in culture.

The clinical effects of the serum are a fall in temperature, a marked improvement in the patient's general condition, a cutting short the course of the disease. In regard to the permanent sequelæ, with very few exceptions recovery is complete. The complications of a serious character arising during and as the result of the meningeal inflammation, in the series reported are, deafness, seven times, blindness and deafness once. Most of these were noticed before the injections were begun. In Flexner's series nineteen relapses occurred, in which fourteen patients finally recovered and five died. Early recognition of the recurrence and prompt and vigorous resumption of the injections will arrest the progress of the disease. The duration of the active symptoms, after the employment of the serum, varies. In Flexner's analysis eleven days was the average; in many, however, active symptoms ceased sooner, and in some they disappeared in one or two days after the administration of the serum. Dunn of Boston and Ladd of Cleveland, who have been studying the effect of the serum, reach practically the same conclusion as does Flexner. Wassermann has been doing the same pioneer work in Europe as Flexner has in America.

The following is a case of sporadic cerebrospinal meningitis (probably epidemic) for which Dr. Flexner sent me his antimeningococcic serum:

Iona M., female, age 20 months. I saw the child the night of September 22, 1908. The mother told me at that time that the baby had been sick about a week with diarrhea and that a diagnosis of typhoid fever had been made. Her condition was as follows: Pulse 140, temperature 103.2°, respiration 54; extremely restless; no eruption on the body; the right lung consolidated, as also a portion of the left lower lobe posteriorly. There were from seven to ten movements a day; these were dark green and had a very foul odor. The urine was voided with the movements. The child was able to take some nourishment. A diagnosis of lobar pneumonia complicated with gastroenteritis was made. After October 6 all symptoms gradually subsided, the consolidation disappeared, but the pulse remained noticeably full, 120. The movements, reduced to three or four a day, were yellow, streaked with green and contained milk curds. The child appeared to be convalescing. The morning of the twelfth, the subcutaneous tissue of the lower eyelids, the abdomen, the inner aspect of the thighs, back of the hands, the ankles, and the dorsa of the feet, was edematous. Urine examination, specific gravity 1.016, light amber color, acid reaction, no albumin, and only a few epithelial cells. The enteritis returned and was as severe as ever. By October 17 the edema had disappeared, the diarrhea continued, not yielding to treatment, and the child gradually lost strength.

On October 19 the posterior muscles of the neck were noticed to be in a state of tonic spasm. Meningitis was evident, but whether it was postpneumonic or a sporadic form of cerebrospinal, was a question. On further detailed questioning of the parents and also the grandparents the following

fact was learned from the grandfather who was with the baby when it was taken sick. The child was seized with an attack of vomiting and went into a spasm. The diarrhea set in the next day. Previously the child had been in its usual health, though never vigorous.

On October 20 the child was not able to communicate its want with its usual intelligence. It developed internal strabismus of the left eye and nystagmus of both eyes, this latter symptom continued through the course of the disease. The tonic spasm of the neck muscles increased and the movements of the body had a tendency to remain fixed. A lumbar puncture was made, drawing off 15 c.c. of slightly turbid fluid. Examination showed few cells and no microorganisms. It was noticed that while the fluid was being withdrawn the child developed purposeless movements of the arms and legs and a contraction of the masseter muscles, producing a grating of the teeth, alternating with a protrusion of the tongue, about sixty times a minute. This condition lasted from two to three hours after the puncture. The child seemed a little better on the 21st, but worse again on the 22d, when lumbar puncture was performed again and only 10 c.c. of slightly turbid fluid could be recovered; a centrifugalized specimen revealed a gram-negative diplococcus which showed a tendency to form tetrads. I prepared slides and sent them to Dr. Simon Flexner. His comment on the slides is as follows: "The slides which you have sent contain a surprisingly large number of biscuit-shaped diplococci, sometimes arranged in tetrads, and while I cannot, of course, make a positive statement, I think it likely, in view of the fact that they are obtained from the cerebrospinal fluid, that they are the *Diplococcus intracellularis*. What is surprising is that they should be entirely extracellular."

In the meantime, the child rapidly lost ground, becoming emaciated, almost in a night. On the 26th, another puncture was made, but no fluid was obtained. On the night of the 27th, the serum having been received, another lumbar puncture was attempted, but no fluid could be withdrawn. A prolonged effort was made to introduce the serum into the canal but it was of no avail. A new site was chosen between the second and third lumbar vertebræ, instead of between the third and fourth, where all former punctures had been made, but still no fluid could be obtained nor could the serum be injected. Having in mind a case mentioned by Ladd, in which the patient recovered when the serum was injected subcutaneously, I therefore, as a last resort, injected 15 c.c. into the back subcutaneously, though Dr. Flexner does not indorse any method other than injection of the serum into the cerebrospinal canal. Six hours after the injection of the serum the child died. An autopsy of the head is obtained. As the calvarium is removed there is a sudden gush of fluid from the right occipital lobe of the brain, which comes out with such force that it enlarges an abrasion made by the saw, to a rent 6 cm. in length. The whole right hemisphere shrinks. On inserting the finger through the opening, the contour of the lateral ventricles is made out, showing this to be an internal hydrocephalus. Approximately 200 c.c. of fluid escapes. The meninges are congested. The base of the brain and the spinal cord as far down as can be seen are covered with a thick purulent exudate. The portion of the brain lying between the skull and the lateral ventricles, surrounding the seat of rupture, is thin, caused by the pressure of the fluid. On the floor of all the ventricles there is a thick purulent exudate like that found externally at the base of the brain. The fourth ventricle is entirely filled, cutting off all possible interchange of fluid between the spinal canal and the ventricles. Smears from the pus show intracellular and extracellular diplococci. Cultures are made on glycerin agar from the cerebrospinal fluid of the lumbar puncture and from the cerebrospinal fluid obtained at the autopsy; these are negative.

This case illustrates some of the fatal complications that may arise to render useless the employment of the serum, according to the usual method of administration. There may come a time in meningitis when no more fluid can be withdrawn from the spinal canal, nor can any fluid be injected into the canal, because of the dense exudate present. Another complication, which is liable to develop at any time, is obstructive hydrocephalus, and as the cerebral exudate increases in amount, fatal pressure ensues. For the relief of these conditions several operations have been suggested. Laminectomy has been performed to secure better drainage from the spinal canal, but this may fail because the canal may become closed by the exudate. Suboccipital drainage has been attempted, which, though better, has not proven entirely satisfactory, for the reason that the obstruction may form higher up. The most recent effort to overcome these difficulties has been to puncture the lateral ventricle and draw off the fluid, and, still more recently, to injecct antimeningococcus serum directly into the ventricles.

Cushing and Sladen have described, in *Experimental Medicine* for October, 1908, a series of cases in which this attempt was made. They found that in the infant the ventricles may be safely entered through the outer angle of the fontanelle, at a point about 2.5 cm. from the median line. In the adult, on the other hand, cranial penetration is necessary, and in most of their cases Kocher's point of election has been chosen. There is no especial difficulty in the procedure. A small patch is shaved, and a short, one-inch linear incision made 3.5 cm. from the mid-longitudinal line, about 5 cm. anterior to the sulcus centrallis. The bone is exposed and penetrated by a Doyen perforator, followed by a burr, which leaves a cup-shaped fossa and gives sufficient exposure of the dura to assure the operator that there is no large underlying cortical vessel. The hollow exploratory needle, which should have a blunt point with the openings on the side, is then gently inserted into the second frontal convolution, perpendicular to its surface and at a depth from 4 to 5 cm. This readily finds the ventricle.

Cushing and Sladen believe that the fatalities in many of the cases of cerebrospinal meningitis have occurred from cerebral pressure, rather than as a result of an overwhelming intoxication or terminal infection. Under serum treatment the formation of a fibrinoplastic exudate is less marked than in cases treated by other means, therefore lessening the chance of obstruction.

Flexner issues a word of warning that care should be taken not to inject more serum into the ventricles than is withdrawn, because pressure symptoms are much more serious here than in the spinal canal.

When other methods fail, then, as in the case reported, the operation of choice would be ventricular puncture with injection of the antimeningococcic serum.

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THE TRANSMISSIBILITY OF HUMAN CARCINOMA TO ANIMALS.

ONE of the arguments of those who deny the infective nature of cancer is that all attempts to inoculate the lower animals with the neoplasm have been negative in their results. This really proves nothing, however, any more than a failure to inoculate a dog with estivoautumnal fever would disprove the existence of the pathogenic protozoan. A successful experiment of the kind would, on the other hand, provided all sources of fallacy could be excluded, have considerable significance; and evidence of this nature is apparently not wanting. Gaylord, it is true, says that "it can be generally stated that human cancer is not transmissible to animals by direct inoculation," and also that "it must be conceded that cancer is not directly communicable by contact from human beings to animals, or from animals to human beings;" nevertheless he says that "in two instances animals which were inoculated with human cancer developed neoplasms under conditions which make it possible that the growths were due to the inoculation." Mayet and others have also reported a few cases of apparently successful inoculation of human carcinoma into mice and other animals, but most experiments of this nature have been failures, and even the seemingly positive results are not above suspicion.

In the *Lancet* of June 5, 1909, Mr. Ford Robertson suggests that the cause of failure in most of these inoculation experiments may have been that the methods employed were not suitable. The protozoan organisms, if such there be, may have to be introduced in large numbers, owing to their great vulnerability, or they may have to be introduced during a particular phase of their life cycle. He accordingly conducted a series of experiments with this idea in mind, introducing the cancerous material subcutaneously and per os, in large doses, and after various periods of incubation. His experiments were made on mice with fluid from the peritoneal cavity in a case of malignant peritonitis and with the pleural exudate from a patient suffering from malignant pleurisy secondary to mammary carcinoma. In the first series of experiments six mice received injections in the abdominal wall of one cubic centimeter each of the peritoneal fluid, incubated for about two months. The results were negative. In the second series five mice were fed with an equal amount of the same peritoneal fluid. The results of this experiment were also negative. The experiments with the pleural fluid were, however, more successful. In this series thirty mice of ages varying from three to twelve months were fed with 20 c.c. of this fluid which had been incubated at blood heat for seven weeks, and the following day they were fed with a like amount of the peritoneal exudate incubated for nine weeks. In the course of the subsequent five to fourteen months seven of these mice developed carcinomatous tumors, three of which appeared in the mammary gland, two in the lung, one in the testicle, and one in the uterus. In two other cases there were fatal lesions in the stomach and liver which were apparently, though not certainly, cancerous. Another mouse, one of thirteen born in the cages during the course of the experiment, developed a tumor of the mammary gland which had the histological character of an adenocarcinoma. None of the controls in any of the experiments developed any neoplasm, so Robertson concludes that the growth of the tumor in these seven animals was determined by some agent contained in the carcinomatous material on which they were fed. That this growth was determined by a living virus and not by a chemical substance was, the author thinks, shown by the result of several cultures on non-nutrient agar-gelatin made from the mammary tumor in one of these mice, in which were demonstrated certain morphologically characteristic forms identical with those previously observed in malignant tumors from the human subject and in one of the original Jensen mouse tumors.

Robertson is frankly a partisan of the parasitic theory of cancerous growth, and asserts as his belief, based on this and other observations, that "a group of protozoan organisms, to be classed among the mycetozoa and including very numerous pathogenic species, is associated with tumor growth, just as very numerous pathogenic species of schizomycetes are associated with inflammation. The main phases in a complicated life cycle have now been demonstrated in sections of tumors, in sections of agar cultures from tumors, and in films of the centrifuge deposit from fluid from cases of malignant pleurisy secondary to carcinoma of the breast. The phases recognized include forms with flagella, sporoblasts and their residua, nucleated forms, some of which have been observed in mitosis, and certain other remarkable bodies of characteristic appearance which almost certainly represent gametes."

It is not likely that the results of the few experiments detailed in the paper from which we have quoted will be accepted as conclusive by the opponents of the contagion theory, and even those who have no theories, but are still looking for light, will hardly have their doubts set at rest by them. Nevertheless, one positive result, in experiments of this nature, weighs against many negative ones, and as these results multiply, if the investigators are able to exclude the many factors which may be alleged as vitiating their experiments, the noncontagionists will find it harder to support their position. To the unprejudiced observer it seems as

though the supporters of the parasitic theory were slowly gaining ground, but they have a good deal of hard work yet to do before they can definitely establish their position. One can only wish that they may succeed, for it is this theory that holds out the greatest hope of the final triumph of therapy over this most formidable, because most mysterious, foe of mankind.

RATIONAL FEEDING IN THE VOMITING OF INFANTS.

The subject of the feeding of infants, especially that part of it which deals with the use of barley water, lime water, and sodium citrate, the so-called milk modifiers, is at present based largely on empiricism. Each physician has his own opinion as to the efficacy of one or other of these various substances, but he rarely is able to tell why he prefers any one especial modifier, and when he meets with a persistent case of vomiting he usually tries each one in turn until he obtains a mixture which seems suitable to the particular case. This is not only distinctly worrying to the physician but is decidedly harmful to the small patient, who has to wait until a proper diet is reached in this time-consuming, haphazard manner.

That an effort is being made to rectify this fault and to put this part of infant feeding on a more rational footing is shown by an article by T. Wood Clarke in the June number of *The American Journal of the Medical Sciences*. Clarke, working at the Babies' Hospital and the Rockefeller Institute in New York, reports a long series of experiments by which he endeavored not only to learn the exact chemical action of these modifiers in the healthy infant's stomach, but also sought to discover whether there was any abnormality in the gastric secretion in cases of marasmus and chronic vomiting. In some of his findings the author agrees with the accepted ideas, while in others he differs markedly. He finds that the motility of the stomach varies inversely to the concentration of the fool, and that, therefore, the more dilute the milk the more frequently the child may be fed. Lime water, instead of acting to reduce the acidity of the stomach, as is commonly believed, actually stimulates a further secretion of acid, enough at times to produce a relative hyperchlorhydria. Sodium citrate, on the other hand, neutralizes the hydrochloric acid without causing any further secretion. Barley water seems to have no constant effect on gastric secretion. A further finding is that the chronic vomiting may be divided into two classes, associated respectively with hypoacidity and hyperacidity. These give no outward symptoms to distinguish them from each other and can be differentiated only by a test feeding. The removal of a test feeding from an infant is a simple and harmless procedure; it could well be done in all cases of persistent vomiting in infancy, and might possibly give information which would aid in the rational treatment of these troublesome patients. The author describes the apparatus he has devised for removal of the stomach contents and discusses the best form of test feeding.

Whether this work, carried out in a laboratory, and as yet not utilized to any extent in the actual therapeutic handling of ill infants, will be of practical value is difficult to say. The use of the test feeding on the infant and the modifying of the food to meet the requirements of the abnormal gastric juice will not in all probability prove a panacea for infant indigestion. It is, however, an earnest and conscientious effort to attack the problem of infant feeding in a rational manner, to remove the use of the milk modifiers from the realm of guesswork, and to place it on a more scientific foundation.

THE MODE OF INFECTION OF EPIDEMIC CEREBROSPINAL MENINGITIS.

As the ever growing and ever more favorable reports continue to appear, not only from all parts of this country, but from Great Britain and France as well, demonstrating the value of the serum treatment of epidemic cerebrospinal meningitis, one is tempted to believe that this disease has at last been conquered. Nevertheless, in spite of justifiable enthusiasm, it must be remembered that an infectious disease, with a mortality of over twenty-five per cent., is a matter of serious import, even if the mortality has been reduced in a few years from eighty per cent., and complacent satisfaction over what has been done should not be allowed to interfere with further efforts to conquer the disease. The work of Flexner and Jobling has been of great value, and these investigators have accomplished what they attempted, the discovery of a curative serum. But with full appreciation of their success, no remedy, however specific it may be, can ever stamp out a contagious disease, especially one so acute and rapid in its course as epidemic cerebrospinal meningitis. Patients have infected others and often have died before the serum could be administered.

The only sure method of controlling any infectious disease is the development of an effective system of prophylaxis. In order to accomplish this, though a knowledge of the cause of the disease is an aid, it is not so necessary as a thorough acquaintance with its mode of transmision, a fact well illustrated in the case of yellow fever. In cerebrospinal meningitis the infecting organism described by Weichselbaum in 1887, and associated with the epidemic form of the disease by Jaeger in 1895, has been carefully studied and is an easily recognized germ. For years, however, its mode of transmission from man to man has been a mystery. That much has been done in recent years on this subject is shown by the voluminous report by Elser and Huntoon, in the June number of the *Journal of Medical Research*. In speaking of the contagiousness of the disease, they state their belief that it is carried by direct transmission only and cite the extreme vulnerability of the specific micrococcus as a reason for this opinion. The organism, while growing fairly well if properly cultivated, dies in a few hours if allowed to dry, a fact which makes transmission by dust unlikely. The theory of contagion by micrococcus "carriers" is strongly emphasized,

as in the recent New York epidemic, the specific organism was found in the nose and throat not only in the patients, but also in a large proportion of those who had come in contact with them, although they themselves remained quite well. These persons were probably not susceptible to the disease but were able to convey it to those who were. The contagion takes place through the respiratory tract, and thence the organisms find their way to the meninges through the blood. It is extremely difficult to remove the micrococci from the nose and throat of the "carriers," and in spite of rigid local treatment, the organisms remain for long periods. In the acutely ill they are found in the throat early in the disease, but usually disappear after from five to ten days.

Such are the facts elicited by this careful research regarding the mode of contagion of epidemic cerebrospinal meningitis, but the authors offer no suggestions as to prophylaxis. This was not their problem. It now remains for the sanitarians to apply these facts to hygienic and social conditions and to devise practical means for protection against the disease.

Atoxyl Amblyopia.

In recent years a new arsenic compound, arsenic-acid anilide or atoxyl, has been brought to the attention of the medical profession as a remedy for the sleeping sickness and for syphilis. As so often happens when a new drug is introduced, its advantages first attracted attention and it was only after a more extended trial that the untoward efforts became manifest. Among the injurious effects of this drug which have been recently observed is a peculiar form of blindness. In the *Berliner klinische Wochenschrift* for May 31, 1909, Paderstein reports two cases of atoxyl amblyopia and collects the cases in the literature. The symptom complex is fairly uniform. The condition begins usually after the drug has been taken for several weeks, and starts with some impairment of visual acuity, with a marked narrowing of the visual field, especially on the nasal side, going on to complete scotoma. According to the severity of the attack, which is in no way proportioned to the amount of the drug taken, a central scotoma develops. The ophthalmoscopic findings may at first be normal, or there may be a narrowing of the retinal arteries, and a blanching of the papilla, which in the worst cases may become a definite optic atrophy. The disease is always bilateral. There are various theories as to the cause of these changes, some thinking that the disease is primary in the optic nerve, others that it is due to a lesion of the retinal vessels, and still others that it begins in the retinal ganglion cells. Nonne, at autopsy, found degeneration of the optic nerve in its entire cross section, and of the central bundle of the chiasm, while the cuneus was normal. On the other hand Igersheimer in experimental work on cats, by injection of the drug into the eye in minute dose found beginning degeneration of the ganglion cells and nerves of the retina. Whatever may be the pathology of the condition, the important point is that this drug in certain cases may produce an affection of the eyes, which may be but a dimming of a part of the visual field, or may result in total blindness.

Scarlet-Red in the Treatment of Chronic Ulcers.

That much is to be desired in our treatment of chronic ulcers is only too apparent from their slow healing in many cases despite the most painstaking attention to the dressings and other details of their treatment. The sluggish indolent ulcers frequently drag along for years without improvement, complicated unfortunately by the fact that so many of the patients cannot afford to take the rest cure. In 1906 Fischer discovered that a solution of scarlet-red (an anilin dye which is the sodium salt of one of the derivatives of disulphonic acid) in olive oil injected subcutaneously caused an inflammatory reaction, with a proliferation of only the germinal layers of the skin, and two years later Kaehler, noting this peculiarity, turned it to account in the treatment of ulcers. In the *Johns Hopkins Hospital Bulletin* for June, 1909, John Staige Davis presents an optimistic report of sixty cases treated by him with scarlet-red. His cases were not selected, many of the ulcers being in bad condition when he began treatment. Many of the patients remained at their daily work. Davis prepares the U. S. P. ointments —boric, zinc, iodoform, etc.—with a simple vaseline base and with from two to twenty per cent. of scarlet-red thoroughly mixed in. He finds the eight per cent. mixture the best for the average case, though the strength must be determined by carefully watching the effect of the treatment. The granulations are first brought into proper condition by cleansing with boric acid, the excess being kept down with silver nitrate applications. If the ulcer is small the whole of it is covered with the scarlet-red, but if it is large only the edges are treated while the rest is left bare or a bland ointment is applied. The scarlet-red dressing should alternate every twenty-four or forty-eight hours with some bland ointment. In some of the cases in which there had been no improvement for months with the ordinary ointments the ulcers began to improve immediately on the application of scarlet-red and rapidly healed over. Large luetic ulcers, which had resisted local and constitutional treatment for from three months to five years, healed promptly under this treatment. Scarlet-red in mercurial ointment is especially useful in these cases. If too strong a mixture is applied there is danger of inflammation and eight of Davis' cases were not benefited on account of the severe irritation produced. He recommends the use of scarlet-red also to stimulate the growth of skin grafts.

News of the Week.

A Less Murderous Fourth.—The Independence Day celebration this year was much more quiet and freer from casualties than any Fourth of July for many years, and this in spite of the fact that it was observed on two days. The returns on Tuesday morning showed only sixty-one deaths, eleven less than last year, and 3,246 more or less serious injuries. The cases of tetanus resulting from these will, it is hoped, be fewer owing to the more general employment of tetanus antitoxin as a prophylactic.

Alleged Leper in New York.—Early, the man who was quarantined for nearly a year by the Health Commissioner of Washington because he was suspected of being a leper, has at last been freed and is now in this city. It is said at the New

York Skin and Cancer Hospital that he has no symptoms of leprosy. He was brought to New York in a baggage car.

Health of New York City.—Commissioner Darlington has issued a semi-annual report covering the mortality statistics for the first six months of 1909 as compared with 1904. The total death rate has dropped from 22.08 to 16.92. The mortality from typhoid fever from 1.09 to 0.74, malaria from 0.24 to 0.08, measles from 3.73 to 3.14, scarlet fever from 3.36 to 2.42, diphtheria from 6.64 to 4.74, grip from 2.18 to 1.18, pulmonary tuberculosis from 23.83 to 20.50, cerebrospinal meningitis from 4.19 to 0.72, lobar pneumonia from 28.97 to 14.24, nephritis from 17.20 to 13.03, and old age from 2.92 to 1.40. The mortality from heart disease has increased from 13.74 to 16.24, and of whooping cough from 0.53 to 0.78. That the improvement in the city's health has been steady and progressive is shown by the comparison of the total mortality rates for the first six months of the past six years: 1904, 22.08; 1905, 19.04; 1906, 18.88; 1907, 18.99; 1908, 17.59; 1909, 16.92.

Typhoid Epidemic Probably Due to Flies.—Over forty cases of typhoid fever have occurred in Washburn's brickyard in the town of Ulster, N. Y. The water has been pronounced pure by the State Bacteriologist at Albany after bacteriological analysis. The State board is of the opinion that the epidemic can be traced to flies or mosquitos. The well from which the water was taken is 80 feet deep in solid rock. The State Department has also recommended that the patients be isolated from flies or mosquitos while sick or convalescent, and this will be done with the forty-six patients remaining in the town. Nets have been provided in the houses in the vicinity to keep out flies and mosquitos which might transmit the disease germs to other people.

La Guayra Free of Plague.—The American Consul at Willemstad, on the Island of Curacoa, reported to the State Department last week that the city of La Guayra on the coast of Venezuela, which has been infected with plague for more than a year, is now free from this disease. A bounty has been offered by the Government of 4 cents for every rat and 1 cent for each mouse. During last year about 9,000 rats and 60,000 mice were killed.

Popular Education in Sanitary Affairs.—The States of Louisiana and Kansas are planning widespread education of the masses in matters of public health and hygiene. Dr. Harvey Dillon, President of the Louisiana State Board of Health, will visit personally each parish in the State and deliver speeches on public health questions. For the next two years Kansas will spend $10,000 a year for the education of its people in matters of sanitation and hygiene. The work will be in charge of Dr. S. C. Emley of the medical faculty of the University of Kansas, under the direction of the State Board of Health.

Milk Contest Extended.—To allow the high school and college students in the various States from which New York gets its milk supply a chance to compete for the prize which James Speyer and Archer M. Huntington have agreed to give through the Health Department for the best composition on the subject of sanitary milk production and delivery to market, Health Commissioner Darlington has decided to extend the time limit for the compositions to be sent in until October 15.

Junior Sea Breeze, the Rockefeller summer hospital for babies at Sixty-fourth street and the East River, managed by the New York Association for Improving the Condition of the Poor, was opened July 2. Four district nurses are visiting poor homes in the section about Junior Sea Breeze and will refer sick babies to the Rockefeller institution whenever necessary. A feature of the work which will begin soon will be the daily conference for mothers at which the nurses will instruct the mothers in the proper care of their babies.

The Floating Hospital of the St. John's Guild in New York has opened for the care of sick infants. On Tuesdays and Fridays the hospital boat sails from the North River, touching at West Fiftieth, West Thirty-fourth, and West Tenth streets. On Mondays and Thursdays from East Twenty-fourth, East Third, and Market streets. On Wednesdays and Saturdays it starts from Brooklyn, the landings being at North Second street, Hudson Avenue, and Hamilton Avenue. Tickets may be obtained at the Department of Health, the hospitals, day nurseries, and at many of the churches.

New Tuberculosis Hospital.—The Brooklyn Central Labor Union has obtained permission from the State Board of Health and the local Health Officer to erect a hospital for tuberculosis near Medford, Long Island. The hospital is to be built on a tract of 65 acres, will contain 100 rooms, and cost $50,000.

University of Tennessee Medical School.—The medical and dental departments of the University of Tennessee located at Nashville will hereafter be conducted from Knoxville and entirely under the direction of the president of the University of Tennessee, Dr. Brown Ayres, and the trustees of the institution. Decided changes are planned in regard to the future management of the institution. For a number of years, the departments have been conducted from Nashville, and the fact that it is a State institution and that it is an integral part of the great State university was not appreciated or made patent. The equipment at the department was owned by the members of the faculty. The members have donated all this property to the State institution and the faculty will be reorganized. Dr. R. O. Tucker was appointed Dean and Dr. B. D. Blake, for years a member of the faculty, was made Bursar and Professor of Materia Medica. The foregoing with Dr. William D. Haggard will investigate the situation at Nashville and will make recommendations as to the new faculty. It will then be named.

Research Laboratory for College of Physicians and Surgeons.—Plans have been filed by Columbia University for a laboratory for private physiological research to be erected on the roof of the north wing of the College of Physicians and Surgeons on West Sixtieth Street. It is to be floored with reinforced concrete and will contain a dozen rooms for the various branches of laboratory work with two corridors and two rooms for operating experiments.

Charitable Bequests.—By the will of the late William J. McAllister of Philadelphia, the sum of $3,000 is devised to the Presbyterian Hospital, while realty holdings to the valuation of $5,300 are to revert to the hospital on the death of a sister for a free bed to be named for the testator.

By the will of Harry Samuel Henry, his entire

estate, estimated to be worth $1,500,000, is to be divided eventually among five Philadelphia hospitals. The income from the estate is to go to the widow and two sisters for life. Upon the death of the three women the estate is to be divided equally among the University, Episcopal, Children's, Presbyterian and the Pennsylvania hospitals.

Gift to McGill.—Lord Strathcona, the Canadian High Commissioner in London, has given to McGill $500,000. Of this amount $450,000 is to be used in completing the new medical building and $50,000 in augmenting professors' salaries.

Memorial to Dr. McCosh.—The auxiliary yawl, *Andrew J. McCosh*, a memorial by Princeton men to the late Dr. Andrew J. McCosh of New York, has started on her long voyage to the Labrador Coast. She will make that voyage under a crew of Princeton graduates, mainly recruited from the class just graduated. Dr. McCosh was a great admirer of Dr. Wilfred T. Grenfell, whose medical work along the barren Labrador Coast has so often excited the admiration of young college men. So, when the question of a memorial to him came up, Princetonians, graduates and undergraduates, took the presentation of a yawl named for him, designed to further the work of Dr. Grenfell, as the most appropriate memorial that could be hit upon. Princeton men of all ages subscribed.

Honorary Degrees.—Harvard University on June 30 conferred the degree of Doctor of Medicine *honoris causa* on President-emeritus Charles William Eliot of Harvard University. In conferring upon Dr. Eliot the degree President Lowell said: "It has not been our custom to confer the degree of Doctor of Medicine, *honoris causa*, but an exception is fitting in the case of one who—in the opinion of professors of medicine—has accomplished more for the progress of medical education in this country than any other living man, Charles William Eliot. Not in its buildings alone, but also in the instruction and research within its walls, he found our medical school brick and left it marble." The degree of Master of Arts was also conferred upon Dr. Wilfred T. Grenfell of Labrador.

Yale University on June 30 conferred the degree of Master of Arts upon Dr. Joseph A. Blake of New York and Dr. John P. C. Foster of New Haven.

Appointments.—Dr. W. H. Snow of the Leland Stanford University has been appointed a member of the California State Board of Health.

Dr. Wilbur Tileston of the Harvard Medical School has been elected Assistant Professor of Medicine in the Yale Medical School.

Dr. E. B. Parsons of Palestine, Texas, has been appointed a member of the Texas State Board of Health, vice Dr. H. E. Whiteside, who has resigned on account of ill health.

Dr. Myles Standish of Dartmouth College has been appointed Williams Professor of Ophthalmology; Dr. Otto E. Folin Professor of Biological Chemistry, and Dr. Elmer Ernest Southard, Bullard Professor of Neuropathology in the Harvard Medical School.

Dr. Charles H. Knight has resigned the Clinical Professorship of Laryngology in the Cornell University Medical College and Dr. James E. Newcomb, formerly Clinical Instructor and Chief of Clinic, has been appointed to succeed him with the rank of Assistant Professor.

Dr. C. H. Wheeler has been appointed Health Officer of Portland, Oregon.

Dr. W. L. Richardson of Boston, former Dean of the Harvard Medical School, has been elected one of the Overseers of Harvard University.

The Medical Society of Northern Virginia.—At a meeting of this society on June 24 the following officers were elected: *President*, Dr. Stephen Harnsberger of Catlett, Fauquier County; *Secretary and Treasurer*, Dr. Charles A. White of Washington, D. C. The next meeting will be held at Washington, D. C., in November.

The Manitoba Medical Association met at Brandon, Man., on June 23 and elected the following officers: *President*, Dr. Harvey Smith of Winnipeg; *Vice-presidents*, Dr. Hicks of Griswold and Dr. J. Matheson of Brandon; *Honorary Secretary*, Dr. J. Halpenny of Winnipeg; *Honorary Treasurer*, Dr. Rorke of Winnipeg; *Executive Committee*, Dr. Wright of Oak Lake, Dr. Keele of Portage la Prairie, Dr. Ross of Selkirk, Dr. Speeckles of Pilot Mount, and Dr. Harrington of Dauphin.

The Medical Association of the Pacific Northwest will hold its first meeting at Seattle, Washington, July 20-23, 1909. The association comprises the British Columbia Medical Association and the Washington, Idaho, and Oregon State Medical Associations.

The Lake Keuka Medical and Surgical Association will hold its tenth annual meeting at Grove Spring, Lake Keuka, New York, on July 15 and 16, 1909. The *President* of the association is Dr. O. J. Hallenbeck of Canandaigua and the *Secretary and Treasurer* Dr. H. B. Nichols of Pulteney.

The American Institute of Homeopathy, meeting in Detroit June 22-24, elected the following officers: *President*, Dr. James W. Ward of San Francisco; *Treasurer*, Dr. T. Franklin Smith of New York; *Secretary*, Dr. Richey Horner of Cleveland; *Censor*, Dr. J. B. Garrison of New York.

The Iowa Union Medical Society, meeting at Iowa City on June 24, elected the following officers: *President*, Dr. A. Crawford of Mount Vernon; *Vice-President*, Dr. J. B. Kessler of Iowa City; *Secretary*,, Dr. C. E. Murray of Cedar Rapids; *Treasurer*, Dr. George P. Carpenter of Cedar Rapids.

Obituary Notes.—Dr. Samuel K. Harriman of Providence, R. I., died at the Rhode Island Hospital on June 20, aged 64 years. Dr. Harriman was a graduate of the Jefferson Medical College. He had practised medicine in Natick, Mass., and for the past twelve years in Providence. He was a member of the Massachusetts and Rhode Island State Medical Societies.

Dr. John W. Pray of Northwood, Mass., died at his home on June 20, aged 60 years. Dr. Pray was a graduate of Bowdoin College and the Harvard Medical School in the class of 1887. He had practised in Northwood since his graduation.

Dr. C. H. Davidson of Brigham, Utah, died on June 12 of gastric carcinoma. He had practised for many years in that city, but had retired from ill health a year ago.

Dr. Frank H. Wallace of Boston, Mass., died at his home on June 27, aged 50 years. Dr. Wallace was a graduate of Dartmouth College and of Dartmouth Medical School in 1886. He had practised in Boston for eighteen years and was a mem-

ber of the American Medical Association and the Massachusetts Medical Society.

Dr. Ambrose S. Everett of Denver died June 24, 1909, of heart failure at the age of 68. Dr. Everett served through the Civil War with the rank of captain, and at the close of the war studied medicine in St. Louis and went to Denver in 1879. He was the first president of the Loyal Legion of Colorado and was on the staff of a number of hospitals there. He was at one time county physician, and was extremely well known both politically and socially.

Dr. J. L. Henson of Clayton, Ga., died at his home on June 20, 1909, aged 55 years, of Bright's disease.

Dr. Charles M. Dodge died at his home in Manchester, N. H., on June 19, 1909, aged 62 years. He was a graduate of the New York University Medical College in the year 1877. After two years in Amherst, Mass., Dr. Dodge moved to Manchester, and in his thirty years' practice became one of the best known physicians in that city. He was a member of his County and State Medical Societies.

Dr. Albert Prentice Ryall of Shelbyville, Tenn., died on June 19, 1909, aged 69 years. He was graduated from the Medical Department of the University of Pennsylvania in 1866.

Dr. Thomas D. Greenley of Louisville, Ky., died on June 25, aged 92 years. He was the oldest practising physician in Kentucky, and had been in practise for 63 years. Dr. Greenley was a former president of the Kentucky State Medical Association and a member of many societies.

Dr. R. B. Lamb of Ysleta, Texas, died at Providence Hospital, El Paso, June 22, 1909, from typhoid pneumonia. He was 28 years of age and was a graduate of the University of North Carolina and the University of Maryland.

Dr. Gerald B. Garrigan of New York died suddenly of heart disease in Troy, N. Y., on the night of July 3. Dr. Garrigan was a graduate of the College of Physicians and Surgeons, New York, in 1902, was Adjunct Assistant Attending Physician to Bellevue Hospital, Surgeon to Bellevue Out-Patient Department, and Gynecologist to St. Vincent's Hospital Dispensary. He was a member of the American Medical Association, the State and County Societies, and the St. Vincent's Alumni Association.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RADIOACTIVITY AND CANCER—SIR T. BARLOW ON DAYLIGHT—TYPHOID—MISTAKES IN DIAGNOSIS—SLEEPING SICKNESS—LISTER'S WRITINGS—THE ANTARCTIC EXPEDITION—OBITUARY.

London, June 18, 1909.

The Croonian Lectures at the Royal College of Physicians this year are being given by Dr. S. Lazarus-Barlow. His subject is "Radioactivity and Carcinoma," and he treats it as an experimental inquiry, as becomes the director of the Cancer Research Laboratories at the Middlesex Hospital. In his opening lecture, on Tuesday, he said the leading idea throughout his researches had been that a number of examples were known in which workers with *x*-rays had suffered from cancer in the hand. It had long been held that physical agents might cause cancer in certain regions of the body, eg., clay pipes in the lips, and so on. Approximating these ideas led to the inquiry whether these supposed causes might be real causes on account of an underlying factor, namely, radioactivity. As to this, the first point to consider was, what are the criteria of radioactivity? They are two—photographic and electrical. The first give skiagraphs; the electrical are concerned with the effect on the gold-leaf electroscope. By interposing a screen between radioactive substances and the electroscope we could separate certain forms of radiation. Dr. Lazarus-Barlow then stated the results of some experiments on human tissues. He said if they put human liver, dried at 100° C. and powdered, on a photographic plate in the dark and after a certain time developed, they would find an effect had been produced. The position of the powder would be shown by a deposit of silver. That effect was not due to light and it was not a skiagraph. He would like to call it by a new word—skotograph. He said this skotographic power was present in malignant and in nonmalignant tissues, but did not exist throughout. He said it was not a common property of matter. In fact, substances could be divided into groups which did and which did not produce this effect. He showed plates showing the skotographic effects of tissues with and without carcinoma.

Sir Thomas Barlow has been giving evidence before the Select Committee on the Daylight Saving Bill. He is in favor of it on medical grounds, as he thinks it would afford working people the opportunity of more healthy life—more open air, more sunshine, etc.—especially in large towns. In these there was a continual shrinkage of available open air and sunshine, on account of the crowded dwellings, the long hours in workshops, factories, and offices, all of which were apt to be dusty and badly lighted, often by artificial light only. The most important means of neutralizing the ill-effects of exhausting indoor occupations were sunshine and open air. Town life tended to anemia and outdoor life not only improved the blood but increased the power of resistance of various organs to damaging influences. People on the border line of health and prone to consumption were helped to become efficient by any increase of fresh air and sunshine. By lessening the used artificial light in workshops and offices the bill would tend to safeguard the eyesight of work people. Then the bill commended itself to him from a medical aspect, as it would certainly give more opportunities for open air games and military drill and gymnastics, while older people might engage in gardening, etc. The general result would be in some definite degree to increase the opportunities of all for living a more open air life. Nobody, he thought, could doubt that the bill would be advantageous from the standpoint of civilization and culture, as well as contributing somewhat to the health of the community.

At the Medical Section of the Royal Society of Medicine, on the 25th ult., Prof. Hewlett reported the use of an antiendotoxic serum in typhoid. It was made by the injection of the horse with typhoid cell juice. It had an active neutralizing power against typhoid endotoxin and the typhoid bacillus. Tried in nine cases, it was thought several were benefited and in two the disease cut short. In some cases instillation gave a reaction similar to Calmette's.

Dr. Goodall read an account of 26 cases thus treated, in only 9 of which did it seem to do good. An ophthalmic reaction was given in a few cases only.

Dr. Bruce reported five cases treated in the Fulham Hospital with the antiendotoxic serum and his impression was that two were benefited by the injections.

Lieutenant-Colonel Semple has exploited to some extent the therapeutic application of bacterial vaccines in enteric fever and thinks it worth further consideration. The principle involved in this method is the same as that which underlies prophylactic inoculation—it consists in setting up the process of immunization Early treatment is necessary if good results are to be obtained; that is, it must be begun before marked tissue changes have taken place. Only a small dose should be used, so that the negative phase may not be induced. It is generally thought that autogenous vaccines give better results than stock vaccines, and Colonel Semple is inclined to this opinion from the results of two cases which he treated from vaccines prepared from their own microorganisms, as compared with seven others in which stock material was employed. So far Colonel Semple concludes that the method increases the bacteriotropic elements in the blood, and this would seem to be shown by the increased opsonic index reported. Colonel Semple has communicated the full details and the technique involved in a preliminary contribution to the Lancet. In proper doses he finds the method devoid of risk, and

says it need not interfere with other treatment that may be thought desirable. His nine cases cannot be said to give any indication of a power of cutting short typhoid. But marked improvement was observed to set in after the inoculations in six of the cases—most marked in the two treated with autogenous vaccines—and in the other three cases amelioration of the clinical symptoms was noticed.

Cases of mistaken diagnosis are always instructive, but are not frequently brought forward for discussion. C. W. Cathcart exhibited on the 26th ult., at the Edinburgh Medico-Chirurgical Society, one of supposed malignant disease in the abdomen in a man of 32. He had had severe pain following influenza, which subsided, but returned three months prior to his admission to hospital (December, 1908), when he was very ill, but had no gastric symptoms. The abdomen was explored and a large nodular mass discovered, firmly adherent posteriorly. It could not be removed and was believed to be a malignant growth in the abdominal wall. After recovering from the exploration, he was sent to the Hospital for Incurables and began to improve steadily and rapidly. The man is now regaining health. Unfortunately, no microscopic examination of a portion of the growth was made, the case appearing so obvious that it was not thought necessary to detach any for this purpose. Had the case been treated with drugs or fallen into the hands of a cancer quack, it would have given rise to obvious difficulties and erroneous statements.

The Sleeping Sickness Commission in Uganda seems to have advanced a step in our knowledge of the life history of the trypanosome. Sir David Bruce has written home that the experiment of Kleine has been confirmed as to the period during which the glossiria can pass it on to another animal. It appears that the parasite must remain in the fly for a fixed number of days—16, 19, 22. Such seem the times necessary for the trypanosome to attain the development of its obnoxious activity. If it be proved to undergo periods of dormancy and activity, that would bring it into some relation with the malaria parasite.

Lord Lister's "collected papers" have appeared in two volumes, in accordance with a decision arrived at on his 80th birthday by a committee of his admirers and friends, who secured his approval of the project. The interest attaching to them is to many of us chiefly personal, but to the mass of the profession at home and abroad it is historical, for these papers show the successive steps by which the great Listerian revolution has been accomplished. The contents of the work are arranged under four divisions—(a) papers relating to physiology; (b) to pathology and bacteriology; (c) general surgery and the antiseptic system; (d) general addresses and lectures. You will probably have seen the volumes before this reaches you and I doubt not you will agree with me that it is a worthy record of a remarkable life.

The reception of Lieutenant Shackleton after his Antarctic exploration has been intensely enthusiastic and the papers are full of various details. The medical officer of the party, Dr. Marshall, reports that in the intense cold, ten to twenty degrees below zero, dysentery was the commonest disease among them, though differing from that of hot climates and happily not leaving ill effects. The worst effect of the cold was when they ran short of provisions.

Lieutenant Adams lost an eye from accident on the ship. At the critical moment Dr. Marshall found the surgical instruments were stowed away in the hold. Is it not strange how often, when unlimited forethought has been given to an undertaking, some trifling oversight seems bound to occur? Certainly one might have expected instruments for emergencies would have been easily accessible.

Fred N. Hume, medical superintendent of the Northwestern Hospital, has died suddenly at the age of 58. He had held several other appointments and had extended experience at home and abroad, was attached to the Ambulance of the National Aid Society in the Servo-Turkish and Servo-Russian wars, was director of the English Hospital, Belgrade, 1885-1886, and received the orders Takova, Medjidieh, and St. Sava, besides medals.

The death has also occurred of Dr. Rob Ives Metcalfe, consulting physician to the Beccles Hospital, where he practised many years. He graduated M.D. Edin. 1858, having taken the English College of Surgeons' membership the previous year.

LETTER FROM ATHENS.

(From An Occasional Correspondent.)

THE GREEK CONGRESS ON TUBERCULOSIS—MALARIA AND TUBERCULOSIS—A MONUMENTAL WORK ON MALARIA.

ATHENS, June 1, 1909

I ARRIVED in Athens just before the opening of the Greek Congress on Tuberculosis, which was held in this city the middle of May. The opening session was addressed by the Crown Prince, under whose patronage the Congress was held, and the Queen and Crown Princess Sophia were among those in attendance.

One of the most interesting papers read before the Congress was entitled "Malaria and Tuberculosis." The author, Dr. Cardamatis, showed that malaria could not be considered as predisposing the organism to tuberculosis, and he enumerated the following reasons: (1) Because tuberculosis until recently was a disease of the great centers of population; (2) because we find in comparing the mortality statistics of tuberculosis with those of malaria—of different cities of Greece—that the number of deaths from tuberculosis is small and the number of deaths from malaria is large; (3) if malaria did predispose the organism to tuberculosis there would have been a parallel in the statistics of the two in the malaria centers this long time; (4) because the workers in the mines, or in the open air, or in the factories, while afflicted with malaria, are rarely attacked by tuberculosis, and (5) because while in Greek country districts especially afflicted with malaria the death rate from tuberculosis amounts to 31 in 10,000 inhabitants; in European country districts afflicted with malaria the death rate from tuberculosis till ten years ago was from 31 to 41 in 10,000 inhabitants.

There is no country on the face of the earth—Italy and Africa not excepted—which suffers more from malaria, the yellow plague, as Cardamatis calls it in a recent publication, than Greece. In a voluminous work on paludal fevers Dr. Cardamatis has given the result of twenty years' assiduous labor by himself and the Antimalaria Committee—labor based on the great discoveries of Laveran and Ross of the specific cause of malaria and its transmission through the anopheles mosquito. Here is presented with thoroughness and completeness the entire field of our knowledge of the history, etiology, and prophylaxis of malaria, giving the universally accepted facts brought to light by the studies of the natural history of the mosquito, the microscopical observations in the laboratory, and the practical labors in combat with the disease. Of special importance is the exhaustive account of the work done by Greek physicians. Here we find the study of thousands of clinical cases and of 9,440 microscopical observations divided in groups. One of these is devoted to the study of malaria in children, one to the study of hemoglobinuria. There is a chapter devoted to the study of malaria among the birds in Greece, giving not only all that has been known thus far on this subject, but also 1,000 original bacteriological and histological observations on birds of Greece of different kinds.

The author has presented a copy of his book to the New York Academy of Medicine.

The works on Hygiene and Physiology of Sabba and this book by Cardamatis represent well the state of scientific medicine in Greece.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 24, 1909.

Dangers to the Child in Operative Deliveries.—S. A. Houghton found that of 1,008 deliveries at the Boston Lying-in Hospital in 1907 and a part of 1908 58 were low forceps cases, 44 high forceps, and 37 versions. The same number of cases fifteen years ago gave 78, 7, and 13 respectively. He says that a long first stage due to uterine inertia and not to obstruction injures the child in the slightest. Every method should be employed to get the head into the pelvic brim before we use compression and traction on it. In the institution named with the decrease in low forceps cases and the increase in high forceps and versions there has been an increase of nearly 100 per cent. in the still-born babies and in the deaths in the hospital. The paper is a plea for a more careful recognition of the rights of the child at the time of delivery and a greater judgment in the selection of mothers for whose relief the forceps may be used on the child.

Symptom-Complex of a Series of Exanthematous Diseases. Or Is There a New Contagious Exanthem?—J. W. Watson concludes in this issue an elaborate article with the following statements: (1) Years ago smallpox

and chickenpox parted company. Measles, German measles, and scarlet fever have long since been separated into distinct entities. Recently German measles and Duke's (or fourth) disease have gained a certain amount of individuality. This being the evolution of the exanthems, might not the existence of two diseases (scarlet fever and possibly "The Fifth Disease"), under the name of scarlatina be an unrecognized condition? (2) Seventy-five cases presented and called by many as rubella, and by a few as scarlet fever, even though it is more suggestive of the latter than the former. It has an incubation period of seventeen to twenty-one days, which was easily determined from its existence in isolated places in the country and the source of contagion being absolutely known. (3) Not contagious at all until peeling takes place. Compare this with scarlet fever, which has come upon a physician within a half hour while he is making the examination. (4) The desquamate is sometimes very profuse, but its germ is short lived. (5) Patients are much more comfortably sick than they are with scarlet fever. Sickness does not usually last longer than three days when complications are absent. (6) It has complications and sequelæ. Patient should be kept quiet for two weeks to prevent them. (7) No chance of mixed infection in any of the cases. Some of the severest cases sprang from an initial mild case. (8) Opinions of health officials (State, town, and nearby towns) vary as to the disease. It was generally regarded as very mild. Result: lax quarantine and spread of the disease. (9) Several cases had already had scarlet fever, measles, and German measles, but were not immune to this disease. (10) The bacteriology is a study yet incomplete, but it shows that the germs present have little vitality. (11) It has no long-continued bad after-effects like scarlet fever. (12) In the eighty cases discussed there were no fatalities from the disease. (13) Several physicians and members of health boards have had cases that strongly resemble this disease. There is a marked difference, they say, between it and scarlet fever, and they feel that physicians err in calling it by the latter name. (14) The disease should be rigidly quarantined until desquamation ceases. It is not necessary to quarantine other members of the family, as the disease does not appear to be transmissible through the agency of a third person, nor is it necessary to quarantine as long as in scarlet fever.

New York Medical Journal, June 26, 1909.

The Clinical History of Some Cases of So-Called Cardiac Epilepsy.—R. C. Newton gives the histories of five cases, four of which were under his personal observation, and comments on the attitude taken by various authors of the present time in reference to this class of patients. In Case 1 the patient, a man of 45 years, suffered from spasms of angina pectoris and the autopsy showed cardiac dilatation and hypertrophy with myocarditis, valvular changes, atheroma, and calcareous deposits. He had also had night terrors and epileptic seizures, but it is not so easy to explain these in the absence of post-mortem examination of the brain. In Cases 2 and 3 the angina succeeded the epileptic attacks. In Case 4 seizures seemed referable to indiscretions in eating, and thus far there have been no anginoid attacks. Case 5 presented the Stokes-Adams syndrome. Newton comments on the fact that only one of his cases had a notably slow pulse. He says that numbers of slow cases have been reported in people in excellent health and free from any untoward symptom. So it seems, he continues, that another medical superstition is likely to be demolished and that when bradycardia is coincident with epilepsy the conjunction may be purely accidental. Many authorities maintain the same attitude with reference to the incidence of cardiac diseases and epilepsy, but the author does not take this ground, and considers that cases such as he has reported prove that the cardiac condition is the cause of the epileptic attacks.

Baldness.—J. O. Cobb attaches much importance to the modern hat as a cause of baldness. Pressure upon the scalp should be removed in every way possible. Some one ought to invent a hat which will prevent baldness, though the idea will probably not become popular because there is more money in hair tonics, and hair restorers, and fake electric massage apparatus than in some new kind of a hat which will prevent the disease. Hundreds of remedies are on the market which are advertised as sure hair restoratives, but not one of them will bring back one hair once the hair follicle is atrophied and functionless; nor will any of these remedies prevent the falling of hair unless the habits of the sufferers are changed. At best these remedies are merely skin irritants, which promote a slightly increased flow of blood to the scalp. Dandruff cures are mostly fakes, pure and simple. The only good in the world accomplished by these medicaments is the scalp massage indulged in while applying them. The time to cure baldness is before it begins. Every man should devote a short time before he goes to bed, and after he gets up in the morning to scalp massage, which he can apply himself. During the brisk friction he should grasp his hair in handfuls and draw the scalp back and forth many times, to make it slide over the skull. That will prevent binding and thinning of the scalp and preserve the cushion of fat on the top of the head. It will also pull out the loose hairs, which shed naturally, and which are quickly replaced by a more vigorous growth. A woman in combing her hair cannot help pulling her scalp back and forth, and this very necessity, which she cannot prevent, is the salvation of her most beautiful and most precious adornment. The hair should be worn as thick as nature will allow it, and long enough for the cut ends to extend below the hatband zone. But all these personal attentions will be futile unless one uses the greatest precaution in wearing the hat. Every few minutes, when outside, the hat should be lifted from the head and gently replaced. The hat has a tendency to settle down on the head very snugly, and the indentation from the pressure of the hatband is quite noticeable on the forehead. Hats like the stiff straw, which are easily blown from the head, should never be worn at all, for, in spite of one's self such a hat will be jammed down on the head actually tight enough to seriously impede the circulation.

Indications for Operation in Acute Mastoiditis.—E. Danziger says that in this disease we have three conditions present: First, there is a retention of secretion either serous or purulent; second, there may be a real osteitis, and third, an infectious thrombophlebitis of the smaller veins of the mastoid process. The main clinical symptoms are fever, pain, local conditions, and bacterial flora. If we have to do with a case in which the fever has a tendency to go to 105° and beyond with chills and sweats we have a thrombophlebitis to deal with. The case is a surgical one from the beginning. Mere fever of itself is no necessary indication for operation. As to pain, if after paracentesis the condition improves and later the pain becomes more severe at night and boring and is present without pressure we have to suspect that the mucoperiosteum has been partially destroyed and that the nutrition of the bone is becoming interfered with and that necrosis is taking place. In this connection, the amount and character of the discharge are also of importance. If the amount of pus at such time, instead of becoming less, increases in quantity and drains through a good sized opening in the drum, if it becomes more yellowish, and assumes the character of bone pus, we may safely assume that there is a disease of the bone proper, which indicates surgical interference. It is different in very young children, where the mastoid process is practically a solid bone with one large cell—namely, the antrum, and, as explained before, the pus may travel directly underneath the cortical periosteum without destruction of bone. Sometimes simple drainage through the drum will relieve this condition. An important indication for operation is the sinking down of the upper posterior wall of the external meatus, which indicates an edema due to an osteitis of the mastoid process. Bacteriological examination of the pus, while not giving a direct indication, will put us on our guard, as with detection of the pneumococcus or the staphylococcus we are justified in taking a more conservative stand, while in the presence of the streptococcus, especially the *Streptococcus mucosus capsulatus*, we should interfere surgically as soon as the slightest doubt arises.

No Free Hydrochloric Acid in the Stomach.—R. B. Faulkner refers to the conflicting statements in the textbooks on this subject, which is a bone of contention between chemists on the one side and medical writers on the other. The chemists maintain that free hydrochloric acid is never found in nature, except as an occasional volcanic product, while medical writers assert that it is always present in the human stomach. The chemists say that to determine its presence in the human stomach is extremely difficult, if not impossible, and if possible at all, it can be accomplished only by chemical analysis and by an expert analyst. He comments on the unreliability of the customary tests for HCl, and he finally quotes Hay as saying that free HCl is never present in the human stomach, unless introduced from without; that it would seriously damage it if present; and that it is impossible for it to be found in the stomach, for the reason that its liberation from a salt of any kind requires the presence of a concentrated acid, and any concentrated acid in the stomach would quickly destroy the organ. Concentrated acids are not secreted by the stomach. Free mineral acid is not a

product of the stomach of man or animal. Its absence is not a sign of cancer. The researches of Rogers, Smith, Hay, Dalton, Claude Bernard, Robin, and Verdeil, all original investigators, entirely agree. The data presented by them are in strict accord with the facts and principles of analytical chemistry.

Journal of the American Medical Association, June 26, 1909.

Ophthalmology and General Practice.—A. A. Hubbell speaks of the insufficient attention given to ophthalmology in medical schools and the too limited qualifications of the general practitioner in this line. Too many physicans are inclined to dismiss eye cases, and the result is the encroachment of the still more unqualified commercial "optometrist." There is some complaint also to be made of the professed ophthalmologist who too often begins his work as a specialist with a too superficial knowledge of the subject and without experience in general medicine. The tendency to separate ophthalmology from general practice too exclusively is also a harmful factor, as is also the lack of any legal qualifications beyond that of the general practitioner for any specialty. As to the remedy, Hubbell says that we can first strive to disabuse the public, the profession at large, and the medical school authorities that ophthalmology is so suited to exclusive study and so separate from other departments of medicine that it should be set off by itself and made only a voluntary subject for study and practice. It is not difficult to comprehend, and the diseases of the eye are the last that should be excluded from the physician's practice, as they are to be found everywhere, and with an ordinary knowledge of the subject the general practitioner can do very much good and render to his patients the assistance they are entitled to expect. Accompanying a change in public and professional sentiment in this way there should be a corresponding change in medical teaching which will enable the general practitioner to acquire a sufficient amount of ophthalmic knowledge to meet his future needs as a family physician. The subject should not be a voluntary one in his medical course and it should be sufficiently taught to qualify the graduate to treat all ordinary and infectious diseases of the eye, to distinguish between mild and severe ones, to treat injuries of the eye which are superficial and uncomplicated, and to examine for refraction errors and correct at least the simple forms. He would add also a supplementary examination by the State board covering these points, the successful passing of which would be one of the conditions for license to practise. This would be a check to any neglect on the part of medical schools. It is unfortunate that no qualifications for practice have heretofore been required of the ophthalmologist other than those of the general practitioner. The absence of these and the presence of a dominant spirit of commercialism have, on the other hand, caused in many cases too much haste in beginning this special practice after finishing undergraduate work, with perhaps a few weeks in postgraduate studies. Ophthalmologists are increasing in number and the unqualified ones are also increasing in number. In order that protection may be secured against unqualified ophthalmologists he suggests that the course and subjects of study shall be regulated by law, and that special boards of examiners should be appointed to determine his fitness for practice and authorize a license in this specialty. But the qualifications that it should demand are extended and thorough postgraduate study of every new subject bearing on ophthalmology, personal experimental study in the laboratory, and personal clinical work in a hospital or in his preceptor's private office. He offers these propositions to the section and, if accepted, recommends the appointment of two committees, one to determine the amount of qualifications to be demanded of the general practitioner, and the other to determine and secure the necessary changes and the qualifications of the ophthalmological specialist.

Whooping Cough.—C. R. Grandy remarks on the slight importance attributed by the laity to whooping cough and its partial justification by the attitude of the profession toward that disease. He quotes the statistics, showing that it is really a very serious matter in children under five years of age, being indeed more fatal than scarlet fever. It does not help the matter to attribute deaths to bronchial pneumonia or other purely secondary complications. As Forchheimer says, "In few diseases can so much be done by prophylaxis; in few is so little done." There are difficulties, however. In older children it does not seem a very serious disease. They do not feel very ill and want to be outdoors, and the air and exercise are good for them. Moreover, the disease is infectious from its very onset, and, while the children themselves are kept from school, their brothers and sisters are allowed to continue their studies through the possibly most infectious catarrhal stage and are almost sure to infect schoolmates with infant brothers and sisters at home. Grandy thinks that the first step in prevention will be to teach the public, by a campaign of education, the true seriousness of the disease. The first actual step with the individual case should be prompt notification to the health department. The house should be placarded and the family instructed how to prevent the spread of the disease. If the children are allowed to go in the parks they should wear a conspicuous badge labeled whooping cough and the privilege of going in the public parks be withdrawn if they insist on associating with other children. A better place would be a public hospital outside of town, where such children should be sent. Any pupil in the school who has been exposed should be immediately sent home by the teacher, who should also notify the health officers, and placard and quarantine should not be withdrawn until six weeks from the onset have elapsed and the whooping and expectoration have ceased. Disinfection should follow. Prompt diagnosis will still be a difficulty, but as soon as whooping cough has appeared in a town physicians should be warned that a dry cough without chest signs, little or no fever, and a lymphocytosis is sufficient for a diagnosis, and such an early diagnosis may be enough to stop a considerable epidemic.

A Pragmatic View of Christian Science.—E. C. Wilm objects to the conclusion that the therapeutic success of Christian Science—so-called (for Eddyism, as he thinks, would be a more appropriate name)—has nothing to do with any religious system whatever. He explains that the process of suggestion by which these therapeutic results are accomplished may in certain persons with special theologic and mystic tendencies that have not been corrected by education, produce a state of mind that is most effective and possibly the only method by which the desired health and happiness can be secured. Of course what may be one man's meat may be another's poison, and the faith or credulity, if one wish to call it so, may lead to neglect of necessary life-saving measures. Christian Science is illogical; scientifically it is wrong from beginning to end, but it is one of those views, and they are many, which pragmatically considered frequently appear to serve practical purposes and be apparently right and worthy of philosophical consideration.

Sleep and Digestion.—G. M. Niles discusses sleep and its relation to digestion. As to the actual influence of sleep on digestion, however, there is some conflict of opinion, and he endeavors to cover the subject in a manner helpful to those interested in practical dietetics. It is a well-known physiological fact that the elimination of carbon dioxide and absorption of oxygen are diminished during sleep, mainly because the muscles are less active. Tigerstedt places the ratio of metabolism between the sleeping and waking states as 100 to 145, but asserts it to be dependent on cessation of voluntary movements; "for it may reach just as low a level in the waking conditions, if the muscles be completely relaxed and every voluntary motion suppressed." While other secretions are diminished during sleep, this does not apply to those of the digestive apparatus. When the brain is alert, the reflexes on guard, and the voluntary muscles at work, each department of the human economy is calling for its quota of innervation and blood; these different departments are exacting their tribute from the constructive forces, and turning over to the excretory organs the products of combustion and waste. During this period the digestive department can draw only a "working interest," not being permitted to put away any appreciable surplus, until the day's activities are ended. Sleep stills the voluntary movements, decreases the carbon dioxide output, and makes the least demand on the involuntary vital mechanism. It is then that Nature, our industrious handmaiden, begins her constructive housekeeping. "She does it in an orderly cooperative way, following a regular method of work in repairing waste, actively forming new tissue, and giving just the proper amount of care and nourishment required of all parts, both mental and physical, in regular sequence." Niles does not advocate heavy meals at night, or articles of food

calculated to tax digestion, but states that a certain amount of food in the stomach, the digestion of which, in drawing from the brain a portion of its blood, keeps busy the nerve centers concerned, indirectly quiets other nerve centers which otherwise might exert a wakeful influence. Many sufferers from insomnia well know the happy effect produced by taking hot milk or cocoa, or a light repast just before retiring. The following are some general suggestions as to dietetic recommendations in relation to sleep: The young infant cannot get too much sleep, and this is best attained by filling his stomach at stated intervals. Vigorous, growing children and those engaged in manual labor thrive on a full breakfast and dinner, these two meals containing most of the daily quota of protein. The supper may be plentiful in quantity, but should consist of such articles as bread, milk, cereals, eggs, fruit, etc., which do not unduly stimulate the nerve centers by their metabolic products. Soups, rich extractives, and solid proteins also cause the bladder to be filled with urine rich in waste products and very acid, this being a factor worth considering. Those who labor with their brains, or skilled artisans whose crafts demand mental tension and but little muscular effort, will find their efficiency best subserved by a light breakfast, a slightly more plentiful lunch, and at the close of the day's work a generous meal, provided that after it three to five waking hours are allowed, so that the psychic reflexes may have an opportunity to contribute their share to the processes of digestion. For the leisure class or those who keep late hours and often burn the candle at both ends, it is advisable to take a light repast in bed at 10 A.M. to 12 noon, a hearty dinner at 5 to 8 P.M., and a moderate supper, with not too stimulating or alcohol-containing beverages at 11 or 12 P.M.

The Lancet, June 19, 1909.

Removal of Superfluous Hairs by Improved Methods.—A. H. Pirie says that much misunderstanding exists as to the proper use of the electric current in removal of hairs. The hair-root is not burned by the electricity as a nevus is burned by a cautery point, but acids and alkalis are formed at the respective poles, and it is these which do the actual work of cauterization and destruction of the hair-root. A corrodible needle should never be attached to the positive pole, otherwise pigmentation may be produced. Care should be taken to avoid the scarring of the skin. This may be accomplished by having the needle insulated to within one-sixteenth of an inch from the point. This in turn may be done by holding the needle red-hot in a piece of shellac except for the one-sixteenth near the point. When the needle thus insulated is thrust into the hair-root the acid attacks only the root, and there is consequently no scarring. Better results follow the employment of fine wire, which will find its way down along the side of the hair into the skin, and in case of hairs whose roots take a curved course the wire follows the curve instead of making a false passage, as the finest needle will do. To sum up, the essentials of good results are: (1) connection of the wire with the negative pole, (2) use of fine, stiff wire as a needle (the wire supplied with the finest hypodermic needle is a suitable one), and (3) the insulation of the wire so that only one-sixteenth of an inch of the end is uncovered. The advantages are absence of scarring and a lower percentage of regrowth of hairs.

Treatment of Chronic Suppuration of the Maxillary Antrum; An Operation and New Instruments.—J. Donelan presents illustrations and descriptions of instruments designed to enter the antrum from the nasal side. These instruments are similar in principle, though not in exact shape, to those designed for the same purpose by Abraham of New York and consist of a chisel and a curved gouge. Donelan says he has never removed the anterior half or third of the inferior turbinate, as advised by many authors. This part of the turbinate bears only rarely any relation to the maxillary antrum and then only a very small and useless one for surgical purposes. The antrum in the vast majority of a large number of skulls examined by him, when present at all, is in relation to the second or even the third molar tooth and its greatest width will be constantly found in this situation. On the other hand, the anterior third of the inferior turbinal, which is that portion attached to the inferior turbinal crest, corresponds to the solid origin of the nasal process of the superior maxilla and the dependent fleshy portion in all but the negro races is almost constantly in a line with the nasal border of the superior maxilla. Moreover, when this portion of the turbinal corresponds to any portion of the antral cavity, it does so only when the latter is extremely shallow and if a curved trochar is pushed there is very great danger of wounding the anterior wall or even the cheek.

The Operation of Cardiolysis, Illustrated by a Case.—This subject is discussed by F. J. Poynton and W. Trotter, who note that in 1902 Brauer pointed out that in certain cases of adherent pericardium, where the heart is embarrassed by fixation to the surrounding parts, a considerable amount of the heart's overloading could be gotten rid of by rendering the precordial portion of the chest wall more flexible than normal by removing its bony and cartilaginous framework. No extensive separation of adhesions was urged, and in fact such a procedure would be distinctly dangerous. It is generally agreed that only those cases are suitable for the operation in which the heart has shown some capacity for recovery by rest in bed. The most suitable cases seem to be those in which the heart is just inadequate for active life. No profound general anesthesia is required and from published cases it may be believed that this part of the question is free from difficulty. Chloroform has been employed in the cases thus far reported. If the operation is required at a time when the heart is not at its best, local anesthesia would doubtless suffice. Technical details are simple. A horseshoe-shaped flap should be marked out, having its base above the third rib and its apex at the seventh. The inner edge should be over the sternum and the outer in the region of the nipple. The flap is turned up with the pectoralis and all the structures external to the ribs. The fourth and fifth ribs are those most commonly excised, but the extent of the rib resection will depend, of course, on what is found. A length of at least three or four inches of combined rib and cartilage must be removed. The third, sixth, and even the seventh rib must be dealt with if it appears called for, and even the edge of the sternum has been excised. One successful case is reported.

Pancreatic Glycosuria Ten Years After Typhoid Fever.—A case of this nature is reported by P. J. Cammidge, whose patient was a man of 51 years. He was evidently a typhoid carrier, for his feces, examined at the end of ten years after his fever attack, showed bacilli practically corresponding in culture reactions to those of the *Bacillus typhosus*. The author says that pancreatitis is an uncommon sequel of typhoid, but in this case he believes that the glycosuria was set up as a result of pancreatic changes caused by the constant infection of that viscus from the gall-bladder and pancreatic duct. In this particular case ten grains of urotropin and the same amount of sodium salicylate were given thrice daily in two ounces of water for three weeks, when the urine and feces were to be examined again. The author adds that the second indication for treatment would be to discover the patient's tolerance and powers of digestion for the various forms of sugar, starch, fat, and protein, so that a diet could be arranged which, while it threw a minimum amount of work upon the pancreas and combated the glycosuria, would yet supply a sufficient amount of nourishment to keep the patient in good condition. This plan should be controlled by systematic examination of the urine and feces. The ultimate result of the treatment is not given.

Poisoning by Bismuth Subnitrate Injected into a Knee-Joint.—The patient of A. Don, a man of 37 years, with a history of venereal disease and joint affection, but no injury. Right knee was swollen for some months, but several examinations of fluid removed revealed no organism. Calmette's test gave a slightly positive reaction. As the serous discharge was rather profuse the author injected over two ounces of a one to three bismuth in vaseline and applied a rather tight bandage. In thirty-six hours a characteristic bismuth stomatitis appeared. There were no digestive symptoms except anorexia. The joint was evacuated and the ulcers healed up in a week, with the aid of a feeble acid mouth wash and free swabbing with a solution of potassium chlorate. The joint also rapidly improved and to all appearances was quite well in three weeks. The author thinks this experience worthy of record, in view of the frequency of the introduction of bismuth into cavities for diagnostic purposes by radiography.

Clean Midwifery in General Practice.—A. H. Gregson says that it is possible to practice clean midwifery under the most unpromising circumstances He is an ardent advocate of the use of rubber gloves. These

are boiled in a soda solution and kept in lysol or mercury solution. The doctor's hands are washed with soap and water, all the folds of the patient's genitals and adjacent parts are thoroughly cleansed with bichloride and the vagina is swabbed as thoroughly as possible with cotton well wet with the same solution and never dipped into it a second time. Then his hands are sterilized in the ordinary way and the gloves put on without filling them with water, a pad of cotton being used to work them on and the examination made without any lubricant except a one per cent. lysol, contamination from the anus being avoided by covering it with a pad. If instruments are required, boiling water is poured into a tin sterlizer carried by the doctor, the gloves put in and a two per cent. lysol solution added. The whole is then boiled for five minutes with a spirit lamp, half the solution poured into a jug as a reserve and cool added to the tin. If version or rotation of the child is required the lysol is apt to make the gloves too slippery and bichloride solution is added instead. The candid surgeon adds that after it was reported that a certain person must have had syphilis or else he would have not used gloves, he put up a sign that "an extra charge of 2s. 6d. would be made for the use of rubber gloves."

Red Degeneration of Uterine Fibroids Complicating Pregnancy.—J. Bland-Sutton discusses the influence which pregnancy exerts on fibroids. When the walls of the uterus are occupied with fibroids and pregnancy ensues, the fibroids are often influenced by the altered conditions. They often become red or flesh-colored and this has been supposed to be due to an increase in muscular fiber. Another important change is the onset of pain and tenderness. In early stages the reddish change comes in streaks, but as pregnancy advances the whole fibroid mass becomes so affected and the whole fibroid may even soften and become diffluent. In these degenerating fibroids no organisms are usually found, but the tissue is necrotic and refuses to stain. The characteristic redness is found to be due to the diffusion of blood pigment through the necrosed tissues, so that the hardest fibroid may become of the consistency of soft soap. From a large subserous fibroid *Staphylococcus pyogenes aureus* has been isolated, but no organisms have been found in the interstitial variety. It is now believed that when a uterus becomes pregnant the fibroids do not enlarge in consonance with the physiological increase of the normal muscular tissue of the uterus. Some fibroids do enlarge beyond doubt, but this results from interference in circulation in these tumors, producing edema and color change due to hemolysis of blood, not to rapid increase in muscular tissue, as has generally been supposed. The sudden pain and tenderness produced by the red change may suggest rupture of a pregnant tube. If the patient is kept in bed the pain and tenderness due to the red change will generally subside. Occasionally surgical intervention is necessary. During the last nine years twenty cases have come under the author's personal care. Of these the symptoms came on in the first month once, in the second four times, in the third four times, in the fourth six times, in the fifth, sixth, and seventh once each, and in the puerperium twice. Of the patients three were spinsters, three multiparas, and fifteen primiparas. Ages varied from 28 to 45. Of the operations done, three were enucleations and seventeen hysterectomies, two of the latter being total, as the fibroids were in the cervix. The author has seen the red change occur in all thirty-two times. He says that he has no opinion as to its cause. The presence of microorganisms in the degenerated tissue is in all probability exceptional. The thrombus and infarction theories which have been advanced require more proof than has thus far been brought forward. The condition is prone to occur during pregnancy. Fibroids so changed are a serious menace to the pregnant state.

Berliner klinische Wochenschrift, May 31, 1909.

The Diagnosis and Therapy of Bladder and Kidney Tuberculosis.—Casper discusses broadly the subject of tuberculosis of the kidneys and bladder, and summarizes his opinions as follows: Tuberculosis of the urinary tract nearly always begins in the kidneys. Primary bladder tuberculosis is very rare. Urogenital tuberculosis, by which he means disease of the vas deferens, prostate, seminal vesicle and ducts, occurs in about 5 per cent. of all cases of tuberculosis of the genitourinary system. Tuberculosis of the kidneys is at its onset unilateral and usually remains so for years. Diagnosis of tuberculosis of the urinary tract is made by finding the bacilli either by the microscope or by inoculation of animals. It is most important to make an early diagnosis. For this reason each indefinite case of suppuration or hemorrhage from the urinary tract should be examined for tuberculosis. The determination that there is tuberculosis of the urinary tract is all that is necessary at first. The diagnosis of the location and extent of the lesion can be left by the practitioner to the specialist. Every operable case of kidney tuberculosis should be operated on.

The Influence of Hydriatic Procedures on the Size of the Heart.—Selig studied the size of the hearts of a large number of patients before and after various kinds of baths. Groedel's orthodiagraph was used. The results were as follows: Hot fresh water baths caused a decrease in the cardiac area and an increase in the pulse rate, while cold baths caused the heart to increase in size and the pulse to be slower. Both hot and cold baths caused a reduction of blood pressure. Hand baths, of which only two were given, caused the opposite effect on the heart. The cold bath reduced and the hot bath increased the size. Local applications of hot and cold water to the cardiac region gave variable and uncertain results in the heart size, but the cold caused a decrease in the pulse rate and a rise of blood pressure. Carbonized baths were also used. These were also quite variable as to the effect on the size of the heart, though they caused a slight increase in blood pressure and a lowering of pulse rate.

Deutsche medizinische Wochenschrift, May 27, 1909.

The Differential Diagnosis of the Acute Exanthemata.—Heubner in an extensive article considers the diagnosis of the exanthemata, especially in the pre-exanthematous stage. In measles the most valuable indication is the Koplik spots. These appear sometimes on the first day of the prodromal fever, and are distinctly evident by the second day. They last from four to six days. Scarlet fever is often mistaken for diphtheria. The points of differentiation are that the mucous membrane around the angina is redder than in diphtheria, the lymph glands more swollen, the pulse higher, and the odor of the breath sweetish, while in diphtheria it is foul. Variola is suggested by the severe headache and back ache. The prodromal rash may be mistaken for measles or scarlet fever. The lack of Koplik spots and the freedom of the face from rash point to the correct diagnosis. In adults the first rash of measles may be papular and suggest smallpox. "Stomach rashes" in infants may resemble measles, but lack the prodromal and the Koplik spots renders the diagnosis possible. Drug rashes, resembling measles, can be told by the greater itching and occasional urticarial patches. German measles is characterized by absence of prodromals, the slighter rash, more ephemeral temperature, and short duration. Duke's "fourth disease" is discussed at some length. It is probably a clinical entity between measles and scarlet fever. It occasionally resembles one, at other times the other, and in epidemics attacks children who have previously had both. There is no adenitis as in the others. Infectious erythema resembles German measles in its general symptoms, but shows an intensely red butterfly eruption over the nose and cheeks. On the body the rash may appear in circles with clear centers. It itches but little. Serum sickness may take many forms and cause difficulty in diagnosis. Erythema scarlatiniforme desquamativum recidivans is difficult to tell from scarlet fever.

Transient Hemiplegia with Migraine.—O. Renner reports three cases in which the typical symptoms of migraine—dizziness, aphasia, and dancing spots before the eyes—were accompanied by severe right-sided headache and left-sided hemiplegia. The duration of the attacks was brief, and in a few hours the cases showed complete recovery. The attacks recurred at frequent intervals. The author considers that these cases speak for the vasomotor theory of migraine and that the symptoms were caused by a vasoconstrictor cramp of the cerebral vessels.

The Influence of Radium on Uric Acid Salts.—F. Gudzent has found that uric acid forms two primary salts which are isomers. The *a*-salt is more soluble than the *b*-salt but very unstable. The *a*-salt is converted into the *b*-salt immediately in a watery solution. The *b*-salt is stable. Uric acid circulates in the blood only in the form of *a*-salt, especially the monosodium urate. In the blood, on account of the strong sodium in concentration, in accordance with known physicochemical laws, its solubility is much decreased. As such a decrease in solubility is relatively greater the less soluble the substance, the difference between the two isomers is increased in the blood. The author has shown that this less soluble, stable, monosodium urate plays an important part in gout. The author has attempted to transform the stable *b*-salt to the unstable *a*-salt. This he has done by the use of radium

Book Reviews.

Operations upon the Uterus, Perineum, and Round Ligaments. By W. J. Stewart McKay, M.B., M.Ch., B.Sc., Senior Surgeon Lewisham Hospital for Women and Children, Sydney; Member of the Royal Society of Medicine, London. New York: William Wood & Co., 1909.

This is one of the latest and most extended instances of specialization within a specialty. The work deals almost exclusively with the injuries to the genital organs resulting from childbirth, and its object, as stated in the introduction, is to point out how the obstetrician should deal with the immediate lesions or how those should be treated later on if neglected or unsuccessfully repaired. The writer very sensibly insists on the possession of a more accurate knowledge of the mechanics and pathology of these lesions, especially as regards the perineum. For the latter is not, as so often stated, merely a keystone and the supporting structure of the vagina and uterus.

A brief note on each of the several groups of chapters will give the most satisfactory idea of the scope of the book. In the introductory chapter on anatomy, which is exceedingly good, it is clearly shown that the function of the various planes of the pelvic outlet is not only to support the urogenital organs, but also to resist intraabdominal pressure. The pelvic diaphragm, augmented above and below by a stout layer of fascia, bears the brunt of this pressure, and when torn during parturition the lessened resistance to abdominal pressure produces a procidentia of greater or less degree. The reparative plastic surgery of the vagina and cervix is carefully described in the following chapters, the author considering only the well-known and tried operations, thus avoiding the confusion which would attend the inclusion of all the numerous plastic procedures which have been devised. The methods of suspending or fixing the uterus itself are next considered, and the indications for the various well-known operations are clearly presented. The author extends to the Alexander operation much favorable comment. He regards it as the operation of choice in cases where there is an uncomplicated retroversion or retroflexion, and prefers it even where adhesions are present, as the latter can be broken up through the internal ring. It is quite unlikely that this view will find favor among the majority of our American operators at the present day. Considerable space is given to the subject of curettage and its complications, and the concluding chapter is devoted to the operative treatment of dysmenorrhea, for which the writer advocates a cervix-splitting operation.

A word of praise must be said in conclusion for the illustrations, which are exceedingly well done, and clearly demonstrate the various steps in the operations described in the text.

Clinical Diagrams. 25 Sets. Designed for the Graphic Representation of Clinical Phenomena, with the Notes of Cases. By James C. Wilson, M.D., Physician to the Hospital of the Jefferson Medical College. Philadelphia: J. B. Lippincott Co., 1909.

These diagrams consist of printed outlines of the body viewed in different positions. The six diagrams consist of an anterior, a posterior, a right, and a left lateral view of the male body, and an anterior and a posterior view of the female body. All six are printed on one page and can be easily removed one by one along the perforated lines. A chart of accepted symbols for indicating physical phenomena upon the diagrams accompanies the set. It should prove useful in recording the observations made at the bedside, and, while saving much time, should also lead to greater accuracy of the records.

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. Twenty-seventh year. New York: E. B. Treat & Co., 1909.

The book is divided into three parts. Part I deals with the advances made in materia medica and therapeutics in 1908. It opens with a short general review, followed by a dictionary of remedies. Space is given to the consideration of serum therapeutics, opotherapy, Béraneck's tuberculin, opsonins and vaccines, radiotherapeutics, electrotherapeutics, and x-ray therapeutics.

Part II begins with a review of medical and surgical progress in 1908. This section has to do with new treatment. The subject matter is arranged in alphabetical order. Considerable space is given to appendicitis, brain surgery, and the surgery of the gall-bladder, pancreas, and prostate. Professor Lucas-Championnière's treatment of fractures without immobilization is fully described. Among the specialties touched upon are diseases of the skin, pediatrics, gynecology and obstetrics, orthopedics, and the diseases of the ear, eye, and nose. In the section devoted to the nasal accessory sinuses are twenty-three plates, illustrating certain clinical aspects of nasal accessory sinus suppuration. In Part II, under the head of sanitary science, are discussed pure milk supply, food preservatives, sewage disposal, the tuberculosis problem, typhoid fever carriers, and the medical inspection of school children. The various sections have been written by specially selected authors, who are authorities on their subjects.

Text Book of Embryology. By Frederick Randolph Bailey, A.M., M.D., Adjunct Professor of Histology and Embryology, College of Physicians and Surgeons (Medical Department of Columbia University), and Adam Marion Miller, A.M., Instructor in Histology and Embryology, College of Physicians and Surgeons (Medical Department of Columbia University). With five hundred and fifteen illustrations. New York: William Wood & Co., 1909.

There is probably no study so essential and important as a foundation for that of medicine as embryology, and yet it is only in comparatively recent years that attempts have been made in our medical schools to include any portion of it in their curricula. This cannot be ascribed to any lack of knowledge of the facts, for these have been rapidly developed since the initial discoveries made by Schleiden, Schwann, Kölliker, Reichert, and others about 1840, regarding the cell as the basis of animal structure. For obvious reasons it is not possible to study human embryology from human material, examples of the early stages being wanting, but we can gain very satisfactory results with material derived from the lower orders of animals. The deductions drawn from these sources have rarely been found to be erroneous.

The text book here noted is an outgrowth of the course in embryology as given by the authors in the medical department of Columbia University. It was intended primarily to present to the student of medicine the most important facts of development, at the same time emphasizing those features which bear directly upon other branches of medicine. The scope of the work was extended, however, as it took form, in order to make it of greater value to the general student. Practical suggestions are added at the end of each chapter which include brief descriptions of embryological technique as aids to the study of the structures described. In addition there is also an appendix, in which the strictly technical aspects of the subject as regards the procuring, handling, and preparing of embryological material are stated in greater detail.

The book is divided into two parts, the first of which deals with "general development," the second with "organogenesis." The chapters in the first portion deal with the cell and its proliferation, the sexual elements, maturation, fertilization, segmentation, germ layers, fetal membranes, and the development of the external form of the body. The development of the germ layers has been very elaborately treated from the comparative standpoint, because this has been found the most satisfactory method of teaching the subject. Gastrulation is shown in all the lower classes of vertebrates, which is the limit of our knowledge, as no human ovum has been observed in which this phenomenon could be demonstrated. The earliest human embryos which have been studied in sections, those of Peters and Spee, show the three germ layers and the flat embryonic disc, but the preliminary stages have thus far not been demonstrated. From analogy it is possible, however, to construct these hypothetical stages in diagrams, as carried out by the writers.

In the second portion of the book, devoted to "organogenesis," the most extended reference is to the nervous system, the chapter being written by Oliver Strong, a recognized authority on the subject. It is not feasible to go into detail on this point, but the chapter in question constitutes one of the most lucid and interesting expositions of this exceedingly important topic which has come to our notice. The student and practitioner will find in this chapter much valuable information which will serve to clear up some of the many uncertainties connected with the study of neurology.

It is to be hoped that the appearance of this work will lead to greater attention being paid in this country to the importance of the study of embryology in our medical schools. It will serve not only as a text book for the beginner, but may be regarded as a guide for those who may be interested enough to desire a more advanced knowledge of the subject. In typography and illustration the book is excellent, and the few minor errors and omissions will probably be corrected in the future editions which are certain to be demanded.

König's Lehrbuch der Chirurgie für Aerzte und Studierende. IV Band. Allgemeine Chirurgie von Dr. Otto Hildebrand, Geh. Med. Rat. Ord. Professor der Chirurgie, Direktor der Chirurgischen Universitatsklinik und Poliklinik der Kgl. Charité in Berlin. Dritte neu bearbeitete Auflage. Mit 438 Abbildungen. Berlin: Verlag von August Hirschwald, 1909.

The volume on general surgery in the well-known work of König appears now in its third edition, having been revised by Professor Hildebrand. The book has been probably the most popular surgical treatise in Germany, among both students and practitioners, and recently English speaking physicians have begun to recognize its merits. Its chief claim to eminence as a text book is founded upon its completeness and upon the fact that it represents more the results of practical experience in surgery gained in a lifetime of teaching and practising surgery, than a compilation of surgical facts gathered from various sources. The limits of a review do not permit a discussion of the details of the book, but special attention may be called to the divisions dealing with the diseases of the joints and that dealing with tumors. The former contains the well-known teachings of König in regard to the frequency of primary synovial tuberculosis of joints, teachings which are backed up by a large statistical material. The section on tumors is a judicious statement of our knowledge, and our ignorance, in this division of medicine, and is especially valuable for the philosophical breadth of view with which the vexed matter of neoplasms, their causation and their classification, is treated. The personal equation in the book is evidenced by the slight respect with which such new matters as Bier's hyperemic treatment is considered. The volume, however, wins much in individuality by representing the views of one author. We heartily recommend the book to American surgeons, and especially to American students of medicine; for parallel reading while studying surgery, König's book is probably unsurpassed by any other volume on the subject in the German language.

Epoch-making Contribution to Medicine, Surgery, and the Allied Sciences. Being reprints of those communications which first conveyed epoch-making observations to the scientific world, together with biographical sketches of the observers. Collected by C. N. B. Camac, A.B., M.D. With Portraits. Philadelphia and London: W. B. Saunders Co., 1909.

The epoch-making contributions presented in this volume are seven in number. The first is Lister's article, "On the Antiseptic Principle of the Practice of Surgery," which was read before the British Medical Association in Dublin, on August 9, 1867, and which is here reprinted from the *British Medical Journal*. The next is William Harvey's "An Anatomical Disquisition on the Motion of the Heart and Blood in Animals," in Willis's translation. This is followed by Auenbrugger's article on "Percussion of the Chest," translated by Forbes. Following this is Laënnec's "Treatise on the Diseases of the Chest and on Mediate Auscultation," also in Forbes's translation. Then comes Edward Jenner's "Inquiry Into the Causes and Effects of the Variolæ Vaccinæ." Morton's "Remarks on the Proper Mode of Administering Sulphuric Ether by Inhalation," and "On the Physiological Effects of Sulphuric Ether and Its Superiority to Chloroform," together with Simpson's "Account of a New Anæsthetic Agent as a Substitute for Sulphuric Ether" form the next instalment, and the volume closes with Holmes's essay on "The Contagiousness of Puerperal Fever." All of these papers are classic, and should be read by physicians—and this is now an easy matter, thanks to this volume. The portraits add to the interest of the papers, but the biographical sketches are in some cases too brief to be of much value; that of Harvey, for example, occupies only one page.

Sanitation and Sanitary Engineering. By Wm. Paul Gerhard, C.E., Consulting Engineer for Hydraulic and Sanitary Works, Member of American Public Health Association, Corresponding Member of American Institute of Architects, Member Am. Soc. Mechanical Engineers, etc. Second Revised and Enlarged Edition of Sanitary Engineering. New York: Published by the Author, 1909.

This book of 175 pages is divided into five chapters, one of which relates to the sanitation of municipalities, one to emergency sanitation in time of epidemic, calamity, or war; one deals with the advances of sanitary science from the historical standpoint; one is devoted to sanitation as practised in Greater New York, and one discusses sanitation—or rather its lack—in Russia. The subject matter of the book is handled in such an elementary way that neither sanitary engineers nor physicians acting as health officers will probably find much, if anything, between its covers which is new to them. As a source of elementary information for such of the laity as are interested in civic betterment, it may have a certain usefulness, though at times it is misleading.

The author appears to be quite carried away by his enthusiasm for his professional specialty, and, after dividing engineering as a whole into fifteen divisions, he very justly says: "It would be quite impossible for one man to acquire a thorough knowledge and practice in all these branches." In his outline of a suitable course of instruction for the education of sanitary engineers he very properly does not include any subject of a medical nature, yet on page 72 we find him saying: "The duties of the sanitary engineer in time of war will embrace something like the following, viz., * * * 4. The first aid to the wounded on the battlefield and at the dressing stations. 5. The care of the wounded. * * * 6. Care of the sick in tent and barrack hospitals."

Having already appropriated everything of a public health nature as a function proper to sanitary engineers only, in the above quotations he finally proposes, in addition, to eliminate all medical men from service with troops in war, substituting therefor the scarcely adequate untrained medical and surgical service of his brother engineers. This is a rather exaggerated example of the state of mind into which some of his brethren have fallen, who are constantly endeavoring to encroach on the provinces of the medical side of public health work without possessing any more qualifications and training therefor than any other intelligent layman. The general attitude of the author seems to be toward the belittlement of medical men and their functions in relation to health work, and it is well to call his attention to the fact that practically all advances in sanitary science have been made by physicians; and that when sanitary engineers have aided in such advance it has merely been in working out the details of application based upon the scientific discoveries and practical suggestions of their medical confrères. Since he assumes the possession of full qualifications for the sanitary as well as medical administration of military camps, it is somewhat surprising, to say the least, to find the pronouncement, on page 76, "a small field hospital should be erected, either of log huts or tents," when every one knows that field hospitals are essentially mobile organizations, and that the sick should be transferred for treatment to hospitals outside the camp or along the line of communications. He apparently favors the use of excavated latrines in standing camps, which the mere doctors with the army have long since regarded as absolutely inadmissible from the sanitary standpoint.

Finally, the last chapter relating to sanitation in Russia is published as a horrible example. The conditions recounted are in no respect worse, and in many ways better, than those which existed in Cuba, Porto Rico, Panama, and the Philippines, which have been dealt with by army medical men, practically without assistance from sanitary engineers, in a way which has elicited universal admiration and commendation. In preparing a next edition it is hoped that the author will live more up to the good old adage, "Let the cobbler stick to his last"; sanitary engineers will find quite enough to occupy them in the solution of their legitimate problems relating to water supply, drainage, disposal of waste, and building superintendence.

Diseases of the Pharynx and Larynx. By E. J. Moure, M.D., Surgeon in Charge of the Nose, Ear, and Throat Department of the Faculty of Medicine, Bordeaux. Translated and adapted by J. Malcolm Farquharson, M.B., Lecturer on Diseases of the Ear, Nose, and Throat in the School of Medicine, Royal Colleges, Edinburgh, etc. With 210 illustrations. New York: Rebman Co., 1909.

In a condensed form and in flowing English the translator has made more accessible to the profession the well-known text book of Moure which appeared originally in 1904. The cordial reception which the French publication received has rendered the Englishman's task a grateful one. Moure's contributions to literature in the special domain indicated in the title have concerned themselves chiefly with erythematous angina, polymorphous, erythema, pemphigus and acute lacunar, ulcerative tonsillitis, which he has differentiated from acute ulcerative membranous tonsillitis. His classification of tonsillar abscesses is based upon the origin of these suppurations, and especially upon the history of their duration. The whole book is an expression of the results of twenty-five years of special work, and as such merits from every point of view a careful investigation.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixtieth Annual Meeting, Held at Atlantic City, N. J., June 8, 9, 10 and 11, 1909.

(*Concluded from page 39.*)

(Special Report to the MEDICAL RECORD.)

SECTION ON OBSTETRICS AND THE DISEASES OF WOMEN.

Thursday, June 10—Third Day.

Election of Officers.—*Chairman,* Dr. J. G. Clark of Philadelphia; *Vice-Chairman,* Dr C. C. Frederic of Buffalo; *Secretary,* Dr. F. L. Lewis of Georgia; *Delegate,* Dr. H. G. Wetherill of Denver; *Alternate Delegate,* Dr. I. S. Stone of Washington, D. C.

A Petition to the House of Delegates was offered by Dr. J. Betton Massey of Philadelphia requested the formation of a section on physical therapy, including radiotherapy, electrotherapy, the application of heat, light, massage, water, and other agents.

Cancer of the Uterus Too Far Advanced for Radical Operation.—Dr. HERMANN J. BOLDT of New York City entered a plea for the education of women so that they should help the physician in the early diagnosis of cancer of the uterus. He gave a description of the electrothermocautery treatment of the cervic cancers in the late cases. He said that the women should be taught that no one symptom was characteristic of cancer, and that she must apply to the physician and request examination at the first manifestation of pelvic symptoms at variance with her normal conditions, as shown in any variation from normal menstruation, leucorrhea, and so on. In Germany the teaching by Dürhsen and Winter through the lay press has greatly decreased the percentage of inoperable cases applying for treatment. He would have the American Medical Association appoint a committee to consider this plan of education. That was the only way to lessen the mortality of uterine cancer. The extensive operations had already reached their limit. In the palliative treatment of the inoperable cases some had been reported cured after the application of heat, some after exploratory laparotomy with no operation on the cancer. These were to be considered as spontaneous cancer cures if the clinical diagnosis could be accepted on the authority of good surgeons. Even palliative operation was not always justifiable if it was going to leave the woman worse off than she was before the operation. He considered the palliative use of curette and cautery the most efficacious method of treatment in the extensive cases. He used a large spoon curette to excavate the soft material, and then controlled the bleeding by the dome cautery. The work was done through a double speculum with water flowing between the layers of the speculum to keep it perfectly cool. During the cauterization the uterine tissue was also at times cooled off by packing ice shavings on the parts through the speculum. Later, after the eschar was thrown off, he applied tincture of iodine twice a day until the cavity was contracted. The cauterization was repeated for bleeding or softening of the tissues. He considered the action of zinc too penetrating for common use. Fulguration claimed good results, but still needed the proof of time.

Palliative Treatment of Cancer of the Uterus.—Dr. WALTER B. CHASE of Brooklyn argued in favor of the thermocautery, which he believed the most efficacious treatment. The heat penetrated beyond the actual cautery. He used wet asbestos paper to protect the normal parts from the heat. The cervix was caught by a spreading tenaculum pulled down and a wire loop cautery applied around the cervix, which was then amputated. The dome cautery was then applied to the canal and used to destroy the interior of the uterus. In some cases where cachexia had already developed it cleared up. Douches of permanganate were given for discharge, and granulation tissue controlled by phenol or silver nitrate. Such postoperative local treatment saved a great deal of the pain, as did cocaine locally. Dr. Byrne claimed that 19 per cent. of these cases were alive five years after operation, and this was all the more surprising because he operated on every case that came. Roentgen rays and radium were both effective in the conditions, and radium seemed preferable. He cited five cases treated by cauterization. In one case a pregnancy had begun and gone to term after this amputation of the cervix. Cauterization of the cervix with the dome cautery had been done during the pregnancy. The patient lived a year after the child was born.

Dr. G. BETTON MASSEY of Philadelphia expected soon to hear the last of cutting into cancer tissue with any sharp instrument. The normal vaginal tissue was also injured by heat, and it was difficult to keep the tip of the cautery hot while it was in contact with the tissues. The odor of the separating slough also was very offensive, so that he preferred the electrochemical cautery. He used sharp zinc needles one-eighth of an inch wide, insulated to within an inch of their tip with wax, and then the tip dipped in mercury and then in sulphuric acid. The patient was put in the knee chest position without anesthesia, and then the needles inserted into the periphery of the mass and connected with the negative pole of the battery, while the positive pole was attached to a pad on the patient's back. The treatment was repeated at frequent short intervals if necessary.

Dr. CARSTENS of Detroit used zinc chloride as a caustic and repeated as often as necessary. The principle trouble in these cases came when they broke down and ulcerated and sepsis was superimposed. He thought that the importance of examination ought to be taught by the State Board of Health by a leaflet of information for women.

Dr. FREDERIC of Buffalo said that he would like to see an effort made to save the inoperable cases of cancer. Where the disease had extended beyond the cervix and no operation was useful, the curette and cautery did improve the condition; not a single treatment, but repeated treatments every two months. He had two patients whom he considered cured, and yet they had been thought incurable.

Dr. MCGLINN of Philadelphia said that the most essential point in the treatment of cancer was the early diagnosis. One woman in eight over thirty-five years of age died of cancer in England, and about as many in this country. Cancer was getting to be more extensive than tuberculosis, and was responsible for one-third of the surgical deaths. The women should be educated to come early for treatment, but the physicians also should be educated and taught to appreciate the urgency of early operation in all suspicious cases.

Dr. I. S. STONE of Washington told of a lake where a vast number of the trout were affected with cancer of the thyroid gland. This seemed to point to a parasitic origin, and gave the hope of a serum treatment in the future.

Dr. KELLY of Baltimore said that there were three possible ways of cure. One was to discover the cause and eradicate it, which was not yet feasible; another was to do more radical operations, and that seemed impossible; and the third was to make an early diagnosis, and that was possible through education by the public press. He thought that every woman who had borne a child should be examined once a year, whether well or not, and in that way we might make a diagnosis before symptoms appeared.

Dr. NOVAK of Baltimore said that there were three periods in the cancer history of each case—the first when the woman recognized the symptoms and prepared to tell the physician; this was usually the longest period; second, the time after the woman consulted the physician before he

took her to a surgeon; this often was too long a period, though the general practitioner was learning to act more promptly; the third stage between the surgeon and the operation was usually short. To educate the laity the State of Maryland had undertaken to issue weekly health bulletins in the newspapers, unsigned, but under the auspices of the State Society. The State also had a certain number of health talks. There had, however, been considerable difficulty in getting the newspapers to publish articles on the symptoms of cancer of the uterus, although they did not object in the least to printing advertisements of cures for female weakness. Therefore it had been necessary to turn to pamphlets gotten up by the medical men to educate the newspapers.

Dr. Wetherill of Denver called attention to the use of the instrument called by the pyrographers a blender, which emitted a jet of hot benzine vapor through the platinum point of the Paquelin cautery; this vapor penetrated further than the cautery, and he had found it very useful.

Dr. Bernard Cohen of Buffalo said that the New York State cancer laboratory had shown cancer to be infectious in the occurrence of a distinct cancer belt through the country, and by the cage infection of mice. He thought that the step taken by their health authorities in recording all the houses in which cancer patients died was a step in the line of prevention of cancer and grouping it with the infectious diseases.

Dr. Boldt, in closing, said that the whole point of his paper would be lost if no committee were appointed to consider the campaign of education aiming at the early diagnosis of cancer.

Dr. Dorsett moved, and the motion was carried, that the chair appoint a committee to recommend Dr. Boldt's suggestion to the House of Delegates.

Some Minor Gynecological Matters That Are Often Overlooked.—Dr. I. S. Stone of Washington, D. C., considered the minor cases that were so frequently neglected in the haste to apply surgical treatment to every form of genital disease. Their appreciation required a careful examination and consideration of many general conditions, instead of the common practise of treating every discharge as a gonorrhea, or at least an infection, merely because the parts are red and swollen. Many of these cases represent a neuritis, or hyperasthesia, part of a neurasthenia, in which local applications are useless and an operation can only do harm. Frequently an urethral caruncle is due to an associated neuritis.

Tetanus Developing Twelve Days After Shortening of the Round Ligaments.—Dr. Reuben Peterson of Ann Arbor presented a report of a case occurring in his service in a girl of nineteen years. He did a curettage and round ligament operation, the abdomen not being opened. He used iodine catgut, which was removed from the apparently clean wounds on the tenth day. Two days later there appeared rigidity of the jaws, which was not considered serious until eight days later, when the back and neck also became rigid. The esophagus and face were normal. Antitetanic serum was given. A small blister was found on one end of the wound. Culture from it showed only staphylococcus. The only change in technique from that in use for years had been the introduction a week before of iodine catgut. This had been tested before, and was tested later, and never found infected. In 150 cases collected by the author some showed the catgut to have been the cause of the infection. In six cases silk only had been used. He drew attention to the marked resistsance of the tetanus spores to sterilization measures, surviving boiling for an hour. The treatment by serum was good for the condition in the blood, but had no effect after the poison had involved the nerves. The mortality of the series was over 80 per cent.

Dr. Dorsett of St. Louis said that the size of the gut as well as the material had to be considered. In some cases occurring in his experience he had shown the infection to be from kangaroo tendon, which is larger than catgut.

Dr. Waldo of New York said that he had had four cases in which he had used large size catgut for ligature of the adnexa. Two other cases operated on at the same time had been free from the infection. He had given chloroform to control the convulsions and serum, but three of the patients had died. He considered the serum useless after the symptoms appeared.

Dr. Hutchins of Ann Arbor said that the surgeons were too apt to blame the catgut for these infections. The catgut might be the cause of the infection in some cases, but was not in all. He did not think that Dr. Peterson's catgut had been efficiently tested, as no anerobic cultures had been made. Salads and green garden foods were very liable to contain tetanus spores, which, through the feces, were very apt to contaminate hemorrhoidal and perineal operations.

Dr. Frederick of Buffalo reported a case of myomectomy that developed tetanus on the sixteenth day. He had operated on three other patients on the same day with the same technique, and had no other infections. In this case the woman had had an attack of acute indigestion five days before. She was very fond of salads and raw fruits. Dr. Frederick in this case suspected the intestine as the source of infection rather than the operation.

The Stem Pessary in Dysmenorrhea, Amenorrhea, and Sterility.—Dr. J. H. Carstens of Detroit entered a plea for the use of the stem pessary in appropriate cases. In the case of infantile uteri he thought that the uterus could often be developed by the insertion of the stem pessary or any foreign body. In premature atrophy from disuse the wearing of the stem for a year or two was a benefit. He had also found it helpful in dysmenorrhea, intermenstrual pain, some displacements, and sterility due to internal os stenosis. Its use was contraindicated whenever any septic or inflammatory conditions were present in the pelvis. He dilated the cervix under anesthesia, introduced a pessary slightly shorter than the uterine cavity, swabbed out the cavity with phenol, and introduced the pessary. He gave carbolized douches for two days and then let the patient get up. He left the pessary in position for months at a time.

Dr. Howard Kelly of Baltimore said that he never used intrauterine applications or pessaries.

Dr. Jack of Illinois said that he had found the stem pessary very useful. It had brought mental wrecks up to a standard of active life by saving nerve irritation.

Dr. Benjamin of Minneapolis used the other forms of pessary with good results. He thought that keeping the cervix open might lead to pregnancy, but that the stem pessary should not be used indiscriminately.

Resolution Against Abortion.—A resolution protesting against abortion for social convenience was introduced by Dr. Kelly and referred to the House of Delegates.

Conditions Simulating Early Tubal Pregnancy.—Dr. H. S. Crossen of St. Louis recounted a number of conditions that gave either a painful mass in the region of the tube or shock and collapse from some abdominal condition as the main features. Special stress was laid on the atypical cases of salpingitis which simulated the rupture of a tubal pregnancy. The author thought that gonorrheal pyosalpinx after the acute symptoms were past might lie dormant for years and be tolerated like a foreign body. Then such a tube might give rise to acute exacerbations of symptoms simulating tubal pregnancy in the increased size of abdomen and breasts missed menstruation, and then the onset of the acute pelvic symptoms associated with a mass in the adnexa. The cause of the skipping of the menstrual period was not known, but such a lapse might be the cause of the exacerbation of the symptoms in the old tubal condition. Again, acute gonorrhea might extend rapidly

through vagina and uterus and involve the tubes without giving symptoms in the other organs, and then give rise to the suspicion of tubal pregnancy. The writer also noted the similarity between tubal pregnancy and early miscarriage associated with a mild salpingitis, a uterine pregnancy, an unsuspected pelvic tumor, ovarian or tubal hemorrhage from other causes, gastritis, perforating appendicitis, with collapse sufficient to simulate internal hemorrhage, fulminating pelvic edema, and other conditions.

Extrauterine Pregnancy, with Especial Reference to the Proper Operative Period After Tubal Rupture.—Dr. L. G. Bowers of Dayton considered the diagnosis, causes, and primary location of the ovum and the course in the unoperated case leading to hemorrhage, death of the fetus, absorption, mummification, etc. As to the time of operation, the author thought that immediate operation after rupture was not as safe as delay until the period of reaction. He said that active hemorrhage was rarely found at the time of operation, and the early operation gave additional shock. He considered early diagnosis important and early operation the choice if the tube was not yet ruptured or no shock after the rupture. In the shock condition it was preferable to wait for a while, not over forty-eight hours.

SECTION ON SURGERY AND ANATOMY.

Thursday, June 10—Third Day.

Relation of Ether to Immunity.—Dr. E. A. Graham of Chicago read this paper. He demonstrated by charts that while the phagocytic power of both human and rabbit blood was reduced by ether, the administration of fats appeared very definitely to counteract this depression.

Etiology and Pathology of Joint Infections.—Dr. John B. Murphy of Chicago read this paper. He considered that arthroplasty had served a very useful purpose and although perhaps not yet completed, had at least rendered useful a few hitherto useless joints. He described in detail his experiments with the joints of dogs and stated that the final results of this work demonstrated positively the importance of the integrity of the synovial membrane. It effectually prevented either infection or severe reaction from irritants injected into the joint, but if itself injured, its protecting influence failed and the joints would be destroyed. If ten days were allowed to elapse between the time of injury of the synovial membrane and the introduction of the germ, its protecting power would seem to have been reestablished. Two per cent. formalin in glycerin was recommended as an injection medium after aspiration and removal of exudate. This tended to produce an artificial immunity. Ankylosis would in the future not be striven for as it had been in the past, but rather the restoration of proper joint motion. The inflammatory products, it should be remembered, must never be left in the joint. It was the pressure followed by local anemia which did the damage. Further pressure was undoubtedly produced by a muscular contraction, and as this rubbed the edges of the articular surfaces together, it was to be avoided by proper extension.

Arthritis Deformans.—Dr. E. H. Nichols of Boston read this paper. Until the present time great confusion had arisen owing to the fact that differentiation and classification of these joints had not been made according to natural pathological sequence and serially, but rather arbitrarily and in a disconnected manner. If the subject was studied broadly, it would be noticed that there were two types of joints, first the proliferative, which began in the synovial membrane; and the second, the degenerative, which took its origin in the cartilage proper. These two types did not represent separate diseases; there were not two types of arthritis deformans. The degenerative usually began at right angles to the joint. There was a localized softening, while in the opposite bone, there occurred immediately a corresponding outgrowth. Eburnation took place and Heberden's nodes resulted. They were not periostal outgrowths. True ankylosis did not occur in this type, the loss of motion being due to deformity. This type of joint gave papillomata—the so-called fungus—rice bodies, and joint mice. In brief these two types corresponded to more than twenty diseases. In the synovial form, there was overgrowth with bony ankylosis. In the degenerative or cartilaginous form, there was ankylosis only by deformity and production of loose foreign bodies in the joint. Clinically, very few joints should be permanently opened. In those very hot and very painful joints where the suffering was intense, he had frequently obtained good results by opening, irrigating with very hot salt solution, and closing at once accurately. On account of the so-called faulty metabolism being undoubtedly at the root of the process, intestinal hygiene was very important in the general treatment.

Dr. Bevan of Chicago, in opening the discussion, said that he had great hopes for the future of arthroplasty and described the technique which he had employed successfully and which differed somewhat from Murphy's. He regarded Dr. Nichols' paper of exceeding importance and a very promising contribution as a basis for future surgical intervention in arthritis deformans.

Dr. Moore of Minneapolis said that the last word on joints had not yet been written; that the orthopedic surgeon was still doing too much of the old fashioned let-alone work.

Dr. Nichols, in closing, said that the time of election to open a joint was upon the tenth or twelfth day from the receipt of the injury. At that time the maximum protection had developed, owing in part, no doubt, to granulation in tissue formation.

The Conservative Treatment of Sarcoma of the Long Bones.—Dr. W. B. Coley of New York read this paper, in which he said that myoloid or giant cell sarcoma in long bones had been shown to be but little less fatal than the periosteal form. He urged the importance of the *x*-ray for diagnosis and the judicious use of toxins combined with surgical procedure.

Dr. Joseph Bloodgood of Baltimore, in opening the discussion, said that it did sometimes look as though the toxins did some good, although it should not be forgotten that each and every form of sarcoma reported as having been cured by the toxins had also been cured without them. He disagreed with Coley in holding that the giant cell sarcoma was a relatively benign structure. He believed that exploratory incision was necessary for diagnosis; that amputation was not indicated save when the growth was so large that the limb would be of no functional value.

Dr. Arthur Bevan of Chicago had used the toxins in about forty cases, but while large masses of tumors had unquestionably disappeared, he had as yet unfortunately never seen a cure. He believed, however, that the toxins were indicated in inoperable cases.

The Transperitoneal Operation for the Removal of Bladder Neoplasms.—Dr. E. S. Judd of Rochester, Minn., read this paper. He said that specimens of tumor could always be obtained by a cystoscopic method. Heretofore the results following operation in quite a large class of bladder tumors had been very discouraging. Furthermore, it was now thoroughly accepted that all papillomata would eventually become malignant. Fortunately, however, the extension to the glands was always late. Inasmuch as the majority of these tumors were in the region of the trigone, which became necessary to develop a technique which should lay bare the entire field of operation, and prevent further working in the dark. Except in complicated cases, he no longer drained. He reported

fifteen cases with one death; nine of these were malignant papillomata. In size the tumors varied from a marble to a growth occupying most of the cavity of the bladder.

A Radical Operation for Certain Forms of Hydrocele.—Dr. Willard Bartlett of St. Louis read this paper. He said there was nothing very difficult about the removal of the hydrocele sac, if the excision was commenced at the spermatic cord where the tissue was mostly areolar, and one did not in this way remove the entire thickness of the tunica vaginalis. It was essentially similar to the removal of the sac in hernia and was in the same sense radical. It formed a part of the guaranty against recurrence.

Dilatation Treatment of Urethral Stricture.—Dr. V. C. Pedersen of New York read this paper. He said it was axiomatic that cutting operations were necessary only when drainage was required. Anuria was one of the greatest dangers. He was in the habit of filling the bladder with a warm antiseptic solution after instrumentation. This served the double purpose of quieting irritability and caring for any possible infection. He exhibited a set of new irrigating sounds through which this irrigation might be accomplished, thus avoiding double instrumentation. Flexible instruments were in no way equal to the rigid, because among other things they early developed microscopic cracks, which rendered them difficult of sterilization.

Dr. L. Davis of Boston said that he had operated in three cases of bladder neoplasms very satisfactorily through the transperitoneal route. He gave the indications for and against, and stated that splitting the posterior walls of the bladder was not accompanied by any danger and did give most excellent technical opportunities. He advised, however, post operative drainage and also stated that it was important to locate the exact position of the growth by microscopic examination, because after bladder section the tumors were apt to flatten out.

Dr. Watts of Virginia advised the splitting of the scrotum and the excision of extensive strictures. The result in a number of cases had been excellent; there was no difficulty in reuniting the cut ends even after the removal of several centimeters and he believed operation had not been employed frequently enough.

Some Therapeutic Possibilities of Cholecystostomy.—Dr. L. L. McArthur of Chicago described a most ingenious operation which he said bore certain relation to the use of the appendix for irrigation purposes. He simply placed an irrigating tube in the fundus of the gall-bladder in such manner that when it was withdrawn the serous surfaces would coapt and unite. Recognizing that the duodenum was unquestionably the center of many so-called cholemic disturbances associated with jaundice and kindred symptoms, he had decided to irrigate the duodenum through the bileducts. In this way he had instilled often as much as 5,000 cubic centimeters and was certain that he had in this way reduced the time of recovery to one-half, and had cleared up jaundice in a much shorter time than by any other therapeutic agent. He had usually allowed the water to drop in, but on certain occasions had found it expedient to allow it to run so fast that it had swept into the stomach and so on out through the mouth. It was an excellent method of stimulating renal action in all diseases of the upper quadrant of the abdomen and seemed to him safer than duodenostomy, which had been suggested.

Dr. A. F. Jonas of Omaha, Nebraska, said that it was generally conceded that drainage was the most important factor affecting the post operative or of the general therapy of the disease of the upper right side of the abdomen, and he considered Dr. McArthur's technique a most valuable contribution.

Dr. J. W. D. Maury of New York said that it was timely and significant to notice that the experimental studies which had been progressing along the same line as the clinical and operative work and which had approached the problem from an entirely different standpoint, had come together so conclusively and so unanimously. From the results of his experimental studies on intestinal obstruction and from the embryological unity of the parts, there seemed no doubt that the main source of the disturbing elements was to be found in the duodenum. He had been in the habit of irrigating the duodenum in animals through a duodenostomy, but Dr. McArthur's operation seemed safer and altogether better; the important point was to thoroughly flush the duodenum.

Principles Underlying the Surgery of the Spleen.—Dr. W. J. Mayo of Rochester, Minn., read this paper. Up to the present time, splenic surgery had necessarily been destructive. The only known nervous supply was through the sympathetic system; this showed a very ancient origin of the organ, for it probably antedated the central nervous system. The internal secretion, while undoubtedly present was not important, for the removal of the organ was not followed by destruction or secretory changes. Physiologically it was concerned with blood formation, with the destruction of degenerated red blood corpuscles; with the filtration of microorganisms and with aiding the liver in the metabolism of certain food. At operations where he had had an opportunity to study the actual size and position of the spleen, he had been struck with the great difficulty of learning anything important as to its physical properties by ordinary examination, until after it had passed below the free border of the ribs. The two operations which suggested themselves from a study of clinical function were naturally partial splenectomy and ligation of the blood supply. It was known that the spleen was greatly increased in primary anemia. He described the operation of removal and stated that one interesting observation was the presence of long bone pain which persisted for several months after splenectomy.

Dr. A. J. Ochsner of Chicago, in opening the discussion, said that the field of splenic surgery had been very circumscribed, because the pathology of the organ was but little known. He concluded that if there were no splenic leukemia, that is, if the white count were beneath 50,000, and if proper attention were given to details, splenectomy was a very safe operation. If the white count was higher than 50,000, one might look for a fatal hemorrhage.

Treatment of the Appendix Stump.—Dr. Van Buren Knott of Sioux City, Iowa, said that speed was of such great importance and this operation had to be done so often by inexperienced men far from hospital accommodations, that it was important a method should be generally accepted which was quick, safe, and easy. He reported 800 cases in which the stump had simply been tied off with a silk ligature and cauterized. He had had the opportunity to examine the site of the appendix some months after quite a number of operations and had uniformly found no adhesions and almost invariably no vestige of the stump.

Consideration of the Mortality in Appendicitis.—Dr Le Grand Guerry of Columbus, S. C., reported 545 appendix operations with a mortality of two. Of these 240 were chronic cases in which no deaths occurred. Both deaths had occurred in the first hundred of the series. He considered that this remarkable showing was due entirely to the fact that he had been able to apply intelligently the epoch-making treatment of Ochsner. He made it a rule always to operate before the 36th hour and only in the rarest instances after that time, always starting the starvation treatment and waiting for the walling-off process to be finished. He concluded that the Ochsner treatment was a life-saving procedure and believed it to be the most important addition made to surgical therapy in the last ten years.

The Cause of Death in Acute Intestinal Obstruction and Kindred Conditions.—Dr. J. W. Draper

Maury of New York read this paper. He said that while the clinical surgeons had said a great deal about the treatment of pancreatitis, of stomach conditions, and of liver and duct lesions, they had refrained from saying anything definite about the etiology of these conditions. The treatment of all had been summed up in one word, drainage Unfortunately his experimental work was not finished, but enough had been done to convince him that death in intestinal obstruction took place, except where the lesion was situated in the lower jejunum or the ileum, from a disturbance which was purely physiological in type. There was nothing of the nature of an infection about it and the nervous system as such undoubtedly played no part in it any more than it did in the death which followed the removal of the parathyroids or of the hypophysis cerebri In fact the similarity between the death from high intestinal obstruction and that following removal of certain ductless glands was so striking clinically that Dr. Welch had been led to believe the duodenum might have an internal secretion. It was very significant that there seemed so close a clinical relationship between diseases of the pancreas, liver, and upper intestine as had been shown by Dr. McArthur. This perhaps was to be explained on the ground of their common embryological origin from the primitive foregut. This origin really made them in the adult a morphological unit and it was therefore not surprising that they should yield to the same sort of treatment, viz., irrigation of the duodenum.

Friday, June 11—Fourth Day.

Epithelioma of the Lip.—Dr. J. C. Stewart of Minneapolis read this paper. It consisted in argument for the removal of the submaxillary and cervical lymph glands, together with the lymphatics draining the growth. It became evident that instead of the V being point downward, it should be base downward. His operation consisted in (1) a skin section from angle to angle and turning down of the skin flap; (2) a turning out of all lymphatic and other glands and their removal; (3) broad removal of the growth; (4) repair. It was necessary at times to enlarge the mouth. This operation had given almost total freedom from recurrence, and there was no question in the author's mind that it would save fully 20 per cent. of the cases which now went to destruction. because of the general use of the ordinary V incision.

Method of Procedure of Mammary Neoplasms of Doubtful Nature.—Dr. W. L. Rodman of Philadelphia said that while frozen section work might not always be accurate, still it had a very definite and growing value in the hands of competent men. There was no question as to the very real danger of removing a specimen for microscopical examination and then closing the wound for several days. It left a free field for contamination through the lymphatics or blood-vessels. Removal of a piece, however, for frozen section work, which could be done in ten minutes, the wound being immediately cauterized, seemed to him to offer no such danger. It had enabled him to save the breasts of a great many women who would otherwise have been unnecessarily mutilated. The differential diagnosis between involution mastitis and carcinoma in women at the menopause was in his opinion clinically impossible.

Radical Operation in Mammary Cancer.—Dr. J. N. Jackson of Kansas City, Mo., said that since publishing an account of this method, he had made some minor changes, but he wished to impress upon his hearers that the real importance of the technique lay not nearly so much in tte providing as it almost invariably did of a sufficient flap to cover any denudation, but in the providing for the tight closure and consequent abolition of the axillary space. If the shoulder joint were tightly surrounded by the normal axillary tissues, it prevented the possibility of subsequent scar formation and limitation of usefulness of the joint

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held May 18, 1909.

Dr. F. P. Solley in the Chair.

An Interesting Specimen of a Heart.—Dr. C. N. B. Camac presented this specimen, which was of special interest because of the heart lesion and the condition of the liver. The patient had been under observation for seven months. He first came to the Cornell dispensary with considerable cardiac embarrassment. He had a pulsating liver, which was observed by a number of men; at no time that he was under observation was he without this expansile pulsating liver. Over the heart was heard a loud systolic murmur, which could be differentiated into two parts, one coming from the mitral orifice, the other from the tricuspid. An adherent pericardium was suspected. During the seven months the patient was bled nine times; after each bleeding his mental condition would clear up, his breathing would become better, and he would be comfortable for three or four weeks, when he again would have this cardiac distress. A question arose, did he have cirrhosis of the liver? The autopsy revealed a widening of the mitral orifice, probably the original lesion; there was a slight puckering of the margins. The tricuspid opening was of enormous size. Practically the whole circulation was carried on by the right heart. The liver, although it had received the back pressure for a period of seven months, showed no fibrosis at all. The microscopical sections showed a very slight degree of fibrosis. The particular interest in this case was the fact that the right heart practically had maintained life for a long period of time. Cirrhosis of the liver did not develop, in spite of the great back pressure. There was no adherent pericardium.

A Clinical Gasometer for Examination of Gastric Contents and Feces.—Dr. Bassler exhibited an apparatus which he used for the chemical and bacteriological examination of gastric contents and feces. The main part of the apparatus was a fermentation tube, graduated in percentages, into which was placed an Ewald test meal, or a watery suspension of feces, or the nutritive media of bouillon or a 2 per cent. dextrose in bouillon inoculated with feces. The tube was then placed in an incubator and kept there for twenty-four hours at 37° C., when the examinations were made. In the tests the total gas content was noted, the quantity of carbon dioxide present was learned by the introduction of one or two cubic centimeters of a saturated solution of sodium hydrate, after which the remaining gases were driven through an open cock and further tested in twin bottles. In the first of these was a very weak solution of neutral litmus (a control being used to note the color change), or water with small pieces of phenophthalein and methylorange papers; in the second was a solution of lead water to note the presence of sulphurated hydrogen, hydrogen and marsh gas being burned at the drawn tube outlet. For the bacteriological test in nutritive medias (in addition to the gas results), the anaërobic bacteria might be found in the closed upright, and the aërobic in the open bulb. The fluid contents of the tube, both in the chemical and bacteriological tests, were subsequently examined in the usual laboratory ways for indol, uroresin, butyric acid, reaction, and the solid food contents. The instrument was simple, easy to handle, inexpensive, and a practical one for clinical purposes bringing within easy means of observation the important fermentative, putrefactive, and bacteriological

conditions of the stomach and intestine. By its use the true fermentative conditions of the stomach and bowels could be distinguished from the purely neurotic, a diagnoses of those gastric ulcers that did not give clinical symptoms was occasionally possible; the stagnant conditions of the stomach could often be separated into the simple atonic and the secondary atonic (pyloric stenosis) into those due to malignant disease or the benign conditions; the results from the Schmidt diets were more accurately noted, and the fermentative and putrefactive conditions of the intestine, and the class and kinds of bacteria most prevalent were easy to diagnose.

Demonstration of a Sphygmomanometer.—Dr J. Rudish presented this instrument (to be published later).

A Clinical Study of Crystalline Strophanthin.—Dr Harold C. Bailey said that since the introduction of this agent by Fraser, strophanthus had held a reputation as a heart stimulant second only to digitalis, but the variable clinical results obtained had been the cause of much discussion. Until recently it had been used by the mouth almost exclusively in therapeutics, but when employed by intravenous injection the results had been more nearly in accord with its pharmacological action. Experiments still in progress seemed to show that the absorption of this drug from the gastrointestinal tract was very uncertain. After an extensive study of its toxic action on animals in the laboratory of pharmacology of Cornell University it was investigated clinically in Bellevue Hospital, and the results of these investigations formed the subject of the paper. The crystalline strophanthin was dissolved in four thousand times its weight of normal saline, which was then sterilized by boiling and placed in serum tubes which were sealed in the flame. In the first series of twenty cases, with three exceptions, daily doses of from three-tenths to five-tenths of a milligram were given by deep muscular injection and the medication in many instances extended over a period of several days. All cases of this group showed signs of loss of compensation and were patients to whom digitalis would ordinarily have been given. It was found that a daily dose of one-half milligram of crystalline strophanthin caused some general improvement in the pulse, a lessening of the dyspnea, and at times some increase in the amount of urine. Sphygmographic tracings were not taken in these cases and the results in most instances were not at all striking. They did not feel convinced that the results obtained were not due, in part at least, to rest in bed, freedom from work and worry, and to the hospital régime. Owing to the entirely unsatisfactory results obtained in the first series of experiments, it was decided to increase the dose somewhat when necessary in the second series. There were twenty-seven cases in the second series, and they were classified as follows: Four cases of mitral disease, eight cases of mitral and tricuspid disease, four cases of aortic regurgitation, five of interstitial myocarditis with valvular lesions, three with interstitial myocarditis without valvular lesions, three with valvular disease accompanied by marked nephritis. With six exceptions these patients had an extreme degree of cardiac insufficiency with marked dilatation. The medication was controlled by a study of the tracings made by a Jacquet sphygmocardiograph and with numerous blood pressure readings from a Stanton apparatus. Dr. Bailey reported several cases in detail and illustrated by means of lantern slides the pulse and other tracings. In conclusion he stated most emphatically that he did not advise the daily dose to exceed one-half a milligram of the crystalline strophanthin, as a rule, and under no circumstances should this dose be repeated in twenty-four hours except after careful study of the effects on the circulation. Crystalline strophanthin might be given intramuscularly or intravenously. It should be dissolved in normal saline solution in the proportion of 1 to 4,000 for intramuscular injections and 1 to 6,000–8,000 for intravenous. Crystalline strophanthin was a valuable cardiac stimulant when compensation was broken in chronic interstitial myocarditis, or in any form of chronic valvular disease. Crystalline strophanthin should be used in this way only in emergencies. It was not suited for continuous use, and when continued stimulation was desired digitalis should be employed.

Dr. W. Gilman Thompson believed that crystalline strophanthin was a resurrection remedy for desperate cases, those cases that were brought into the hospital *in extremis*. The effect of a single dose in these cases was simply remarkable; the patients felt better, and there was a great relief of their dyspnea and distress. He reported the case of a woman who was brought to Bellevue Hospital *in extremis*, with great dyspnea, dilated heart, etc., and with a tremendous anasarca; she had passed no urine for several days. A dose of strophanthin was given intramuscularly and in twenty-four hours she passed 153 ounces of urine. Another patient came into the hospital in a very desperate condition caused by myocarditis. Pulmonary edema was present, and the patient soon became comatose. The breathing became so stertorous that it seemed wrong to allow her to lie there and disturb the other patients. They thought it would be a good plan to remove her to another room to die. A dose of strophanthin, however, was administered, and the next day she was not only alive but convalescing and conversational; she lived two or three weeks after. Dr. Thompson said that this was a remedy that did not harm the patients if used with caution and was a valuable addition to the armamentarium.

Dr. Nathaniel Bowditch Potter said that he used strophanthin intravenously on one patient and was so scared at the results that he gave it up. The patient had a chill and nearly died. He thought that some of the preparations of digitalis used intravenously like digalin would give as good results as Dr. Bailey had had with strophanthin.

College of Physicians of Philadelphia.

At a stated meeting held May 5 Dr Solomon Solis-Cohen and Mr. Charles H. Lawall presented a communication entitled "Report of a Case of Pentosuria, with Demonstration of the Chemical Reaction and Pertosazone Crystals." The patient was an attorney actively engaged in the pursuit of his profession, but allowing himself sufficient recreation in outdoor exercise. Examination of the urine revealed at times a reduction of Fehling's solution and a precipitation of bismuth, but further tests showed that the reducing substance was pentose and not glucose. The patient exhibited no symptoms referable to any derangement of metabolism. Drs. Joseph McFarland and P. G. Weston presented a communication entitled "The Agglutination of Human and Rabbit Blood Corpuscles by Crotalus Venom." They found that there was no actual parallelism between the hemolytic and agglutinative properties of the venom, and that certain differences existed between the reactions of rabbit blood and human blood in these respects. Dr. John B. Deaver read a paper entitled "The Rational Basis for the Surgical Treatment of Indigestion." He cited several cases to show that aggravated symptoms of indigestion may be associated with disease of the appendix even in the absence of local symptoms referable to this viscus. In the same way disease of the

gall-bladder and of the pancreas, as well as adhesions about the pylorus, may give rise to symptoms of indigestion of obscure and indefinite origin. Gastric ulcer and duodenal ulcer may be present without the occurrence of hematemesis or the appearance of blood in the stools; and carcinoma of the stomach may be far advanced before its recognition with certainty becomes possible. For these reasons exploratory operation is often justifiable in cases in which symptoms of indigestion, particularly in the absence of adequate etiological factors, do not yield with reasonable readiness and promptitude to suitable medical and physical therapeutic measures. Dr. DAVID RIESMAN read a paper entitled "The Treatment of Typhoid Fever by the Murphy Method of Saline Instillation." He pointed out the usefulness of water in the management of cases of typhoid fever. It was believed that the good effects were due in part to attenuation of toxins in the circulating blood and the flushing of the kidneys as a result of the increased diuresis. Dr. Riesman had treated a number of cases of typhoid fever by means of the method of instilling saline solution into the bowel as recommended by Dr. John E. Murphy in the treatment of peritonitis. One dram of sodium chloride and one dram of calcium lactate are added to each pint of water. The solution is conveyed from a proper recepticle through a rubber tube fitted with a vaginal douche with multiple openings. The receptacle is held at a height of from 8 to 12 inches above the level of the body and the fluid is permitted to trickle into the bowel at the rate of about a pint an hour. The fluid is kept warm by surrounding the receptacle by hot water. The patient may maintain the recumbent posture and the instillation may be kept up continuously except during sleep. There is no discomfort by day, although there is some annoyance at night and sleep is disturbed. The results in the small number of cases in which the treatment has been carried out has been satisfactory and encouraging. Many gallons of water may be introduced into the system in this way.

Tracheobronchial Adenopathies in Their Relations to Chronic Pulmonary Tuberculosis in Children.—Charles Leroux, as a result of the treatment of many cases of tracheobronchial tuberculosis, states that there are two modes of origin of this condition: it may begin in the glands and extend to the lungs, or vice versa. Age is an important factor in determining its origin. Unilateral adenopathies are found in children from two to five years of age. Tuberculosis of the apex is found in children between six and ten years of age. Bilateral gland enlargement also occurs at the same ages. Cure of these glandular enlargements before the lungs have been affected is quite easy if the child is sent to live at the seashore for a considerable time. A short sojourn only produces a cessation of the process for a short period, and it recurs again. Radioscopy is very useful in making the diagnosis between tuberculosis of the glands and that of the apex. The germs enter by way of the lungs and upper respiratory tract in general. Rarely they enter from the intestines or descend from the rhinopharyngeal region.—*Archives de Médecine des Infants.*

Pancreatic Cyst in an Infant.—Telling and Dobson report a case from the Women's and Children's Hospital in Leeds of an infant, eleven months of age, brought in for a swelling of the abdomen of two months' standing. The child was in fair condition, the abdomen a little full. The stools were normal. The girth was 18¼ inches. The swelling was mainly central. There was resonance in the flanks and dulness at the umbilicus. The weight was 19¼ pounds. Two weeks later the abdomen measured 21¾ inches. One month after admission, on examination under anesthesia, a globular, firmly fixed tumor which did not move with respiration was made out. Two weeks later at operation it was found that the tumor was a cyst arising from the head of the pancreas. The cyst was drained and 1½ pints of fluid escaped. This was milky, slightly bloody, alkaline. Sp. gr. 10.25. Contained much albumin, but no sugar. No fermentation was obtained. No organism was found, but the fluid contained pus, blood, and homogeneous *débris.* The patient made an uninterrupted recovery.—*British Journal of Children's Diseases.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending July 3, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	459	163
Diphtheria	242	24
Measles	883	31
Scarlet Fever	148	10
Smallpox	—	—
Varicella	89	—
Typhoid Fever	40	8
Whooping Cough	54	8
Cerebrospinal Meningitis	6	7
Malarial Fever	..	..
Totals	1,921	251

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending July 2, 1909:

			CASES.	DEATHS.
SMALLPOX—UNITED STATES.				
California, Hobart Mills	Apr.	1–30	1	Imported
Sacramento	June	5–12	1	..
San Francisco	June	5–12	1	..
Trukee	Mar.	23	3	Imported
Georgia, Macon	June	13–20	4	..
Illinois, Chicago	June	12–19	1	..
Danville	June	13–20	2	..
Peoria	May	1–31	44	..
Indiana, Fort Wayne	June	5–19	21	..
South Bend	June	12–19	2	..
Kansas, Kansas City	June	12–19	3	..
Kentucky, Covington	June	12–19	1	..
Newport	June	13–20	1	..
Paducah	June	12–19	1	..
Louisiana, New Orleans	June	12–19	3	2 imp'ted
Minnesota, Minneapolis	May	1–31	20	..
Missouri, Kansas City	June	12–19	1	..
Montana, Butte	June	10–17	4	..
Nebraska, Lincoln	May	1–31	14	..
North Carolina, in 17 Counties	Apr.	1–30	87	..
Ohio, Cincinnati	June	11–18	3	..
Oregon, Portland	Apr.	1–30	6	..
Texas, San Antonio	June	12–19	5	..
San Saba County	Apr.	9–May 26.	11	..
Utah, State	May	1–31	135	..
Washington, Spokane	June	5–12	2	..
Tacoma	May	16–23	2	..
"	June	6–13	2	..
Wisconsin, La Crosse	June	12–19	1	..
SMALLPOX—FOREIGN.				
Africa, Tripoli	Apr.	24–May 22.	27	10
Brazil, Bahia	May	7–14	2	..
Rio de Janeiro	May	16–23	18	1
Ceylon, Colombo	May	15–22	1	..
China, Canton	May	1–8	5	..
Hongkong	May	15	6	5
Egypt, Cairo	May	13–20	5	4
France, Paris	Apr.	3–10	2	..
Germany, Königsberg	May	22–29	7	..
"	May	13–22	1	..
India, Bombay	May	18–25	..	12
Calcutta	May	8–15	..	58
Madras	May	15–21	..	2
Rangoon	May	8–15	..	3
Italy, general	May	30–June 6.	21	..
Naples	May	30–June 6.	7	..
Java, Batavia	May	1–8	3	..
Manchuria, Dalny	May	15–22	2	1
Mexico, Mexico City	May	8–15	..	30
Monterey	June	6–13	..	2
Veracruz	May	30–June 13.	2	1
Portugal, Lisbon	May	22–June 5.	5	..
Russia, Moscow	May	15–29	51	17
Riga	May	29–June 5.	6	..
St. Petersburg	May	15–22	8	8
Servia, Belgrade	May	22–29	2	..
Spain, Barcelona	May	31–June 7.	..	3
Valencia	May	22–29	10	1
Switzerland, Geneva	May	15–29	9	..
Turkey in Europe, Constantinople	May	23–30	..	1
Turkey in Asia, Smyrna	May	6–13	..	2
YELLOW FEVER.				
Brazil, Bahia	May	7–21	11	6
Para	May	22–29	3	3
Mexico, Merida	June	4–11	2	..
CHOLERA.				
India, Bombay	May	18–25	..	8
Calcutta	May	8–15	..	61
Rangoon	May	8–15	..	1
Russia, St. Petersburg	June	2–10	58	24
"	June	23	75	..
Straits Settlements, Singapore	May	1–8	..	6
PLAGUE.				
Brazil, Rio de Janeiro	May	16–23	1	..
Chile, Antofagasta	May	15	6	In Lazar'to
Iquique	May	16	16	In 14 days
China, Canton	May	1–8	40	30
Hongkong	May	1–15	8	6
India	May	8–15	5,239	4,578
Bombay	May	18–25	..	136

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Original Articles.

THE ENZYME TREATMENT FOR CANCER —FINAL REPORT.

By WILLIAM SEAMAN BAINBRIDGE, Sc.D., M.D.,

NEW YORK.

SURGEON, NEW YORK SKIN AND CANCER HOSPITAL; HONORARY PRESIDENT, FIRST INTERNATIONAL CONGRESS ON CANCER; SECRETARY, COMMITTEE ON SCIENTIFIC RESEARCH, NEW YORK SKIN AND CANCER HOSPITAL.

In a previous communication—"Trypsin in Cancer, a Preliminary Statement," published concurrently in the *British Medical Journal* and the *New York Medical Journal*, March 2, 1907—I expressed the determination of giving to the "enzyme treatment," as outlined by Dr. John Beard of Edinburgh, a thorough, scientific test, in a sufficiently large number of cases and over a long enough period of time, to warrant some claim to finality when conclusions were drawn. It was pointed out that many months must needs elapse before such a test could be reported in full. Now, after an interim of more than two years since the "preliminary statement" was made, and full three years since I began to employ the enzyme method, it would seem that a final report may be offered which will meet the requirements of what may be called a "fair test."

No explanation need be offered to those who have read the leading medical journals, American and European, during the last four years and more for having given to this method of treating cancer the fair trial which its originator so earnestly desired.

Dr. Beard succeeded in arousing the interest of a goodly number of the members of the profession, both in Europe and America, as is shown by the fact that more than one hundred articles have been written upon the subject, and that five hundred physicians, out of more than three thousand to whom letters of inquiry were sent by me as Secretary to the Committee on Scientific Research of the New York Skin and Cancer Hospital, have employed the method. Whatever might be one's opinion concerning the theories upon which the so-called "trypsin treatment" was based, there seemed quite enough of possible value in the method to warrant its trial. Furthermore, through the overzealous influence of certain medical writers for the lay press and a few premature enthusiasts within the ranks of the profession itself, the method was heralded far and wide, and patients soon began to make the demand that it be tried in their case. Hoping that it might prove, if not the boon which it had been pronounced, at least a helpful adjuvant, and believing that it would do no material harm, we proceeded with the test, report of which is now offered.

It is but just to all concerned—to Dr. Beard, who proposed the method; to Mr. B. T. Fairchild, who so skillfully prepared and so generously supplied the materials; to the physicians and surgeons who cooperated with us; to the laboratory workers; to the bedside attendants, and to the patients themselves—to say a word concerning the difficulties involved in giving to a non-surgical method for the treatment of cancer a thorough and final test.

The New York Skin and Cancer Hospital furnished ample clinical material from which to draw a large proportion of the cases in which the method was tried. To employ it only in advanced, irremovable, and inoperable cases was simple enough, but such cases do not give a sufficient basis for a complete trial. The surgeon, who must look upon the matter not as a "pure scientist," but as a clinician and a humanitarian, cannot bring himself voluntarily to subject a patient with cancer in an early stage, when it is amenable to complete removal by surgical intervention (certain local superficial growths in the judgment of some being excepted), to experimentation with *any* non-surgical method, no matter upon what scientific basis it may be exploited. Consequently such a method may be tried in early cases only where, despite the surgeon's earnest advice, operation is positively refused by the patient. As will be seen, a number of cases of this class are on our list.

An enormous amount of time and patience and much money were necessary in following out the details of the treatment. Inasmuch as it of necessity extended over weeks and in some instances months, it was not feasible in all cases to care for the patients in the hospital, the individuals themselves not infrequently objecting to being so long away from home. Under these circumstances, when the patient could not afford the expense, it was necessary for us to furnish medical attention and employ trained nurses to administer the treatment and carry out the régime in the home after the patient's discharge from the hospital. To follow up the records in all cases from week to week and from month to month in such a manner as to render possible an accurate report of each, meant, in many instances, tracing the patient from tenement to tenement, sometimes from city to city. Innumerable obstacles were encountered at every turn. We endeavored, however, to meet these as they arose, to follow the régime outlined as closely as was feasible according to the exigencies of the individual case, and to keep as accurate data as possible in each instance. We believe we have been reasonably successful, despite the many difficulties, yet with all our care we were unable to follow some of the patients to the end, or to the present time.

In this connection I wish to extend sincere thanks for their hearty cooperation in the work to the following: Dr. Martha Wollstein, Pathologist to the New York Skin and Cancer Hospital; Dr. James Ewing, Professor of Pathology, Cornell University Medical Department; Dr. F. B. Mallory, Professor of Pathology, Harvard University Medical School; Dr. S. Elizabeth Finch, Assistant Pathologist to the

New York Skin and Cancer Hospital; Dr. F. M. Jeffries, Pathologist to the New York Polyclinic Medical School and Hospital; Dr. F. D. Jessup, of the Department of Pathology, College of Physicians and Surgeons; Dr. E. E. Smith, Pathologist to Fordham Hospital, and others, for their valuable assistance in the laboratory phases of the work; Dr. J. Douglas Malcolm, of the staff of the New York Skin and Cancer Hospital, for his assistance in administering the treatments and following up the cases after their discharge from the hospital; Dr. Loy McAfee Ingram, Statistical Secretary to the Committee on Scientific Research of the New York Skin and Cancer Hospital, for accurate collation of scientific data, and the various graduate nurses who have so carefully executed the details of the regimen in the homes of many of the patients. Especially do we wish to express our appreciation of the generosity of those who have been kind enough to contribute funds toward covering in part the necessary expense entailed in the successful conduct of the work.

The Method.—It is not necessary for the purpose of this report to review the interesting, if not generally accepted, embryological theory of the cause and development of cancer upon which Dr. Beard founded his method of treatment. The "irresponsible trophoblast" does not concern us here. Those not familiar with the theory can easily become so by reference to Dr. Beard's printed works.

Suffice it for our purpose to say, that at all times during the trial of the enzyme treatment I have been in close touch with Dr. Beard, and have followed the essentials of his method in all respects save one. When I first began to test the treatment Dr. Beard advocated its use in all cases after operation for the removal of cancer, whether primary or secondary, and in all inoperable cases. In this I readily concurred. When, however, at a later date, he modified his views, and opposed the removal of any "living cancer," declining to accept as a scientific test any case in which there had been previous operation, of course I demurred. This demand was met, however, as we have already seen, in cases where operative intervention was positively refused. We feel, therefore, that while the method has not been tried exclusively in such cases, we have been able to test it in a sufficient number to meet this requirement with justice to Dr. Beard's modified views.

In addition to the use of the enzymes, many details of management were urged by Beard. His various suggestions were incorporated by me in the directions for the "full regimen," and were employed in our test, with modifications to suit the needs of the individual case. In the reports and the table of cases which follow,* unless otherwise specified, this regimen was executed in every instance, a copy of the directions being given to each one who administered the treatment.

DIRECTIONS.

1. *Physical Examination,* accurate and complete, made upon commencement of the treatment.

2. *Records* of each case, accurately and fully taken *daily,* with *weekly* records of the condition of the urine, blood, and, if possible, blood pressure, and weight. Both subjective and objective symptoms to be carefully noted.

*The table of one hundred cases and the detailed reports of the findings in nine cases of the thirty-six in which blood examinations were made, will appear in a subsequent issue of the MEDICAL RECORD.

3. *Diet,* wholesome and nourishing, with very little salt and no acids. Large quantities of water to be taken by the patient.

4. *Exercise* moderate.

5. *Hygienic surroundings* as good as possible, with abundant fresh air.

6. *Oral Treatment:* (1) *Holadin,* 1 capsule t.i.d., one hour before meals. (2) *"Pepule" oxgall compound,* 1 or 2 pills at night, according to requirements (to give tone to the bowels).

7. *Local Treatment: Lotio Pancreatis.*—To the quantity required for a single application, add an equal volume of freshly distilled water (unless ordered to be employed undiluted) and apply freely. Use twice daily, flushing the surface carefully with boiled water previous to renewal of solvent.

8. *Hypodermatic Treatment:* (1) *Injectio Trypsini* (Special XX). Begin with ten minims daily, increasing five minims each day until some marked reaction takes place, or until two ampoules (20 minims each) are being taken each day.

(2) *Injectio Amylopsini.* When the trypsin injections have been increased to 40 minims daily injections of amylopsin are then begun on alternate days with trypsin, never on the same day. Commence with ten minims, increasing five minims each day until the maximum dose is reached, viz., 40 minims of trypsin one day and 40 minims of amylopsin the next.

Before making the injections apply ethyl chlorid to the surface to be injected (preferably over the buttocks), or inject 1/10 grain eucaine, then inject the trypsin or amylopsin into the deeper subcutaneous tissues, not into the muscles.

Note 1. The greatest care, cleanliness, and nicety in every detail must obtain.

Note 2. The doses must be regulated with careful regard to the reactions observed.

Note 3. The contents of the ampoule must be used *only when freshly opened.*

Note 4. The ferments are destroyed by antiseptics; care must be taken therefore not to render them inert by contact with such substances.

Note 5. If there is any local irritation from the injection, despite the greatest care, dilute with equal parts of distilled sterilized water before injecting, or with equal parts of sterilized normal salt solution.

Note 6. The general condition of the patient must be given careful attention. As little narcotic medication should be given as possible, tonics and predigested foods, if indicated. Elimination by bowels, kidneys and skin is of the utmost importance.

Note 7. The treatment, after well started, is said to have a definite control over pain. Over-drugging should be avoided in order that this claim may be carefully studied in relation to the cases.

Note 8. Injections of amylopsin should not be given while the patient's stomach is empty, as the tendency to nausea is increased under such circumstances.

Note 9. If irritation results from the introduction of the entire injection in one locality, this may be overcome in the following manner: Introduce the needle tip into the tissues, inject a portion of the material, withdraw slightly, introduce in another direction and inject another portion, and so on until the entire amount is inserted into the subcutaneous tissues in "puddles" at some distance from each other, but with one common point of puncture. By taking this precaution the tissues will not be overdistended, and the tendency to irritation will be

lessened. The needle should be inserted obliquely so that the material will not escape in part through the puncture point.

Abscess formation, so-called, was noted in some cases, and has been reported by a number who have employed the method. Real abscesses are due to (1) faulty technique; (2) localization of infection in cases where there is a general condition of sepsis from absorption of broken-down material; (3) from a complicating infection such as tonsilitis or la grippe. The so-called "trypsin abscess," on the other hand, has been shown by examination of the material to be not a true abscess, but unabsorbed trypsin solution with some broken-down tissue cells. After prolonged treatment the tissues in some cases fail to absorb the material which, in time, breaks down, is discharged, and a sinus is left for a while.

The Materials.—We are indebted to Mr. B. T. Fairchild for the materials employed. They consist of the following: (1) Holadin capsule, a pancreas gland extract containing all the pancreas enzymes—trypsin, amylopsin and lipase—and the milk-curdling ferment. This is given to aid digestion. (2) "Pepule" oxgall compound, which contains inspissated oxgall, extractum pancreatis, and extract of nux vomica. This gives tone to the bowel and aids in elimination. (3) Lotio pancreatis, a glycerin extract prepared directly from the fresh gland and carrying in solution the entire soluble gland constituents. This solvent of broken-down tissue is applied topically to the ulcerating surfaces. (4) Injectio trypsini, a glycerin extract of trypsin, which, according to Beard, was supposed to "kill" the cancer cells. (5) Injectio amylopsini, a glycerin extract of amylopsin, which was thought to "digest" the dead cancer cells.

The first pancreas injections were made of a proteolytic power equal to 2 per cent. of trypsin, and adopted in consequence of a strength or "percentage" of trypsin, at first extemporaneously prepared and used by Beard and others. The medium, 60 per cent. glycerin, had already been found to meet the requirements, containing the enzymes of the fresh pancreas extract in an active and sterile condition. This, however, necessitated preliminary dilution in making the injection ready for use. Gradually clinical experience warranted an increase in tryptic power, until finally this desideratum could be achieved only by a more aqueous medium, and consequent reduction to 20 per cent. glycerin. This lower content of glycerin afforded the advantage of increase of trypsin content and increase of dosage, as found in the ampoule.

The various injections of trypsin furnished for our use were identified for convenience of record as follows: "Regular," 60 per cent. glycerin, equal to 2 per cent. trypsin (dry); "Fortified," 60 per cent. glycerin, double the strength of the "regular;" "Special," 20 per cent. glycerin, double the strength of the "regular;" "Special XX," 20 per cent. glycerin, four times the strength of the "regular" (this was used in most of our cases); "Special Quadruple X," 20 per cent. glycerin, six times the strength of the "regular" (prepared especially for this test, and said at the time to be the strongest it was possible to make).

Injections of amylopsin of corresponding strengths were furnished us. The 20 per cent. glycerin amylopsin injection presents parallel advantages with the 20 per cent. trypsin injection, in increased potency, and in available volume of dosage without dilution. Thus, twenty minims of the 20 per cent. glycerin "Special" carries an enzyme potency corresponding to a sixty minim injection composed of twenty minims of 60 per cent. glycerin solution from an ampoule, with forty minims of diluent—sterilized water.

Having noted the strengths of the injections, it will be seen from the cases detailed later, how much stronger were the injections used in many of our tests than were those employed in the cases reported by a number of writers during the earlier months of the history of this method. The idea entertained by many at first, to the effect that only moderate doses of weak solutions of trypsin could be tolerated, was proved entirely erroneous in our experience. In many cases we were able to give daily two or three ampoules (twenty minims each) and in several instances 100 minims for days at the time of the "Quadruple X" solution with no untoward effects. From this it will be seen how absurd were some of the earlier claims of "cures," as well as of the strange symptoms and "terrific" results from the small doses employed.

A careful study of the blood and urine in a certain number of cases was made, under my direction and with valuable suggestions from Dr. Martha Wollstein. For the painstaking execution of this work, and the careful recording of the findings, credit is due to Dr. S. Elizabeth Finch.

Blood Examinations.—Blood examinations were made regularly over a period of ten months in a number of hospital and dispensary cases to observe what effect, if any, was produced by the enzyme treatment on any anemia present, or on the white cells of the blood. Leucocyte and differential blood counts were made once a week in the different cases, and hemoglobin tests and red blood cell counts were made as was deemed necessary. Upon placing a case on the treatment, in so far as possible, two, preferably three, blood counts were made on two or three successive days preceding the first injection; one count within twelve hours of the first injection, and then one every twenty-four or forty-eight hours for the first few days.

Blood examinations were made in thirty-seven cases, but in only nineteen did the observations extend over a period of more than four weeks, the treatment being discontinued for one cause or another, or the patient passing out from under observation.

Of the thirty-seven cases in which blood examinations were made, nine were epitheliomata and the rest carcinomata. There were no cases of sarcoma. In four cases of the thirty-seven no operation had been performed, and the cases were still in the operable stage. In one of the four, however, complications contraindicated operation. Of the remaining thirty-three, six had not been operated upon, but were inoperable when the enzyme treatment was begun. The other cases (twenty-seven) were inoperable ones, in many of which exploratory or palliative operations had been performed. Ten cases (Nos. 33, 79, 86, 87, 89, 90, 91, 93, 95 and 98) were followed throughout the entire course of their treatment by the enzyme method.

In ten cases of the thirty-seven there was an anemia of the chlorotic type. In eight of these it developed only in the last stages of the disease. The other cases showed a mild varying grade of secondary anemia. Nucleated reds, of the type of normoblasts, were rather rare. The hemoglobin in the more severe cases varied between 45 and 75 per cent.; the number of reds from 2,168,000 to 5,580,-

000 per cubic millimeter. In no test was the hemoglobin ever higher than 85 per cent. (Fleischl hemoglobinometer).

In five cases there was an improvement in the hemoglobin during the first few weeks of enzyme treatment. In Case No. 32 there was an increase from 80 to 85 per cent., and a gain of 100,000 red blood corpuscles. The hemoglobin subsequently dropped to 70 per cent., the red cells remaining about the same. In Case No. 50 there was likewise an improvement of about 5 per cent. hemoglobin during the first two months of treatment. In Case No. 44 there was a gain of 12 per cent. hemoglobin and of nearly 700,000 red cells per cubic centimeter during four weeks of treatment. In this case the treatment was begun very soon after an operation and the gain can therefore be ascribed in but small part, if at all, to the treatment. In Case No. 79 there was an improvement of about 4 per cent., which was subsequently lost. This gain was also post-operative. In Case No. 98 there was an increase of about 5 per cent., hemoglobin and an increase of 200,000 reds per cubic centimeter during the first four weeks the patient was in the hospital.

Leucocyte and differential counts were made in four enzyme cases and one control case (Nos. 79, 91, 92, 95 and 98) three times, at the same hour on three different days, before beginning the injections. In ten enzyme cases (Nos. 22, 33, 35, 36, 44, 49, 80, 86, 87, 89, 90 and 93) and two control cases (Nos. 35 and 90) leucocyte and differential counts were made once before the beginning of the treatment. In the remaining ten cases the blood examinations were begun after the patients had had the treatment for from one to thirty weeks. In a few cases which were carefully observed during the first week or two weeks of injections there was a gradual and moderate increase in the total number of leucocytes; however, in only two cases could there be said to be no other causative factor than the trypsin injections. In five cases of cancer of the breast there was no total leucocyte count over 12,500 per cubic millimeter which could not be ascribed to causes other than the cancer. In five cases of epithelioma there was no total leucocyte count over 9,500 per cubic millimeter not accountable for by necrosis, ulceration, or other complication. The counts on the cases in which there was marked ulceration and sloughing varied between 23,500 and 34,000 per cubic millimeter.

Blood smears were made in the mornings between one and one-and-a-half hours before the noon meal and at a corresponding hour in the individual cases. Cases from the Dispensary came at corresponding hours between two and three P. M. The Wright stain was used as a rule, in some instances Ehrlich's triple stain. In making the differential counts 500 cells were counted, in some instances 1,000 cells, and in three instances only 300 or 400 cells. Over 300 differential counts were made.

The following classification was followed: polymorphonuclear neutrophiles, large mononuclears and transitionals, small mononuclears (size under polymorphonuclear), eosinophiles, mast cells, and myelocytes. Under the head of small mononuclears were included the non-granular mononuclear cell with central nucleus and small amount of protoplasm, and the mononuclear cells with small eccentric nucleus and non-granular protoplasm, present in larger amount than in the above. The size of these cells so counted was under that of the polymorphonuclear cells. For purposes of charting the per cents. of large mononuclears and transitionals were averaged together.

Summary of Blood Examinations.—A relative lymphocytosis was found at some time in the course of thirteen cases out of twenty here described. In two other cases observed over a period of three months, in which counts were not quite so frequently made and not here given, there was also a relative lymphocytosis found, making the number of cases fifteen out of twenty-two. The relative lymphocytosis was present sometimes before the beginning of the trypsin treatment, while injections were being given, and after treatment was discontinued. It was found at times in the control cases. When the course of the disease was apparently held in check the lymphocytes were relatively normal, below, or very slightly increased. In those cases in which the disease was steadily progressing the small mononuclears reached the highest relative per cent., dependent in a measure, however, on the presence or absence of complications. In the presence of any complication causing high increase in the polymorphonuclear neutrophiles the small mononuclears were, as a rule, relatively low. Out of the fifteen cases above mentioned (four epitheliomata and eleven carcinomata), nine cancers were in such locality that extension by the lymphatics and glands would naturally follow. Four were pelvic and abdominal cases of cancer, in which any progressive glandular involvement was not demonstrable. One was a case of epithelioma of the lower jaw, in which the relative per cent. was quite high, but glandular involvement was not certain. In the other seven cases of the twenty-two, in all except one there was a complication present, causing a relative and absolute increase in the polymorphonuclear cells. This one case was observed only over a period of four weeks following operation.

It is desired to emphasize the presence of a relative lymphocytosis (increase of small mononuclears) found present in the course of the above cases (irrespective of treatment) in association with progressive growth of the cancer or metastatic formation, and, frequently, found present before increased growth or enlarged or new metastases were clinically demonstrable. With the exception of four cases out of the twenty that were observed over a period of from 6 weeks to 7 months, the eosinophile cells showed a steady increase in numbers while the patients were upon the trypsin injections. Upon discontinuing the injections the eosinophile cells dropped in numbers, reaching the normal average, or much below it, in about two weeks' time. This fall in numbers per cubic millimeter occurred in every instance, although the internal treatment was continued regularly. If, because of refusal on the part of the patient or because of the general condition of the patient, two or three treatments were skipped, it was apparent in the temporary decrease in the total number of eosinophiles. In no case, however, was the relative per cent. greater than twelve, although the trypsin injections were in many of the cases pushed to the limit for the individual in question. There was no eosinophilia in any of the control cases except where there was involvement of bone.

The exact etiology of this eosinophilia is speculative. One cause which is suggested is the absorption or attempted absorption of the trypsin from the subcutaneous tissues. The eosinophilia does not entirely disappear when the patient is put on amylopsin injections after discontinuing the trypsin. This is so

judged as the count falls still lower after discontinuing all injections. There were no nodules as the result of amylopsin injections. Incidentally it may be remarked that injections of amylopsin into trypsin nodules did not in any degree hasten their absorption. In cases on the internal treatment alone there was no eosinophilia observed, although it is claimed (von Leyden and Bergell) that trypsin passes into the general circulation from internal administration and may be absorbed in large amounts. In four of the cases in which there was rectal or other intestinal involvement eosinophiles were present before treatment in from three to five per cent., representing 300 to 700 per cubic millimeter. In three cases with bone involvement (not on trypsin) eosinophiles were present in from four to six per cent., representing 460 to 1,080 eosinophiles per cubic millimeter.

Urine.—In an attempt to ascertain if there was any irritating action exerted by the trypsin on the kidneys in the cases in which it was given by mouth, hypodermatically, or by other methods, ordinary urine tests were made in connection with twenty-three cases treated with trypsin. In eight cases uranalyses were made before treatment was instituted, then every day for the first week or ten days of treatment, and thereafter as was deemed advisable. In five out of this eight neither casts nor albumin were present at any time in the urine. In two out of the eight cases there was an occasional trace of albumin, hyaline and sometimes few granular casts in the urine before the injections were begun. This condition varied while the patients were on the treatment. In one instance there was a slight exacerbation in the kidney lesion following constant and rather large doses of the trypsin. In the remaining case out of the eight, the treatment was given for a week and then discontinued for a second operation, the removal of a recurrent nodule. Following this operation the patient had a slight cold, and when the uranalyses were resumed in connection with the trypsin injections, there was a small amount of albumin, finely granular and few hyaline casts present in the urine. The patient left the hospital soon after this, and while the treatment was continued for some time no uranalyses were made outside of the hospital. In this instance casts and albumin were not present before treatment or before the second operation.

In the urine of a few cases out of the other fifteen, of the twenty-three, granular, hyaline, and few pus casts, and occasionally albumin, were observed in the very last stages of the disease. With one exception they were not present at other times. In this case, an old man over ninety, with epithelioma of the ear, there were constantly present the evidences of nephritis. The treatment had been given in large doses from the beginning, and the patient had had an acute exacerbation of the nephritis. Upon resuming the trypsin injections a second time, small increasing doses were used; it was this time taken for eight weeks, when symptoms of a beginning exacerbation of the nephritis became evident.

It was desired to study the execretion of the chlorides, phosphates, and sulhpates in connection with the trypsin treatment, but owing to the difficulty of securing a sufficient number of uncomplicated cancer cases from whom 24-hour specimens of urine could be regularly obtained this was not done.

The following method was used in testing the urine for an enzyme with properties of digestion similar to trypsin (see Hedin; *Jour. of Phys.*, Vol. XXX, 1903, pp. 155-195); also Cathcart; Products of Urotryptic Digestion, Salkowski's Festschrift, 1904). Urine with a specific gravity of 1011 and under was used undiluted, while urine with a specific gravity over 1011 was diluted one-third or one-half with distilled water for the following work. To each 1000 c.c. of the urine or urine mixture was added 5 c.c. of a 3½ per cent. solution of casein in 0.25 per cent. sodium carbonate. To less amounts 750 or 500 c.c. was added, 3 or 2½ c.c. of the 3½ per cent. solution of casein. The casein after thorough mixing with the urine was precipitated by 20 per cent. acetic acid. After complete precipitation the supernatant fluid was siphoned off and the precipitate transferred to a filter and washed free of acid with distilled water. After thorough washing the casein-enzyme combination was transferred in each case to a six ounce sterile glass-stoppered bottle, which was then filled with 0.25 per cent. or 0.5 per cent. solution of sodium carbonate made with distilled water. To each bottle were added a few pieces of fibrin that had been boiled for fifteen minutes. Toluol and chloroform were then added to each bottle to prevent putrefaction. The various bottles labeled with date and name of patient were kept in the thermostat for from one to seven months, at a temperature ranging between 35 deg. and 37 deg. C.

Four cancer cases on the trypsin treatment and a control case (epileptic) were selected as suitable, and three times a week twenty-four-hour specimens of urine were heated and the casein separated out as above described. The casein combination in each case was transferred after thorough washing to a sterile six ounce bottle, filled with 0.25 per cent. sodium carbonate, and a small amount of *unboiled* fibrin added. Toluol and chloroform were added and the bottles placed in the thermostat as soon as they were finished. These digests were made over a period of three weeks. Upon examination daily there was evident a gradual dissolving of the fibrin, and at the end of six weeks the amino-acids were found present in each case. These findings led to the making of some control digests.

Two sterile six-ounce bottles were filled with 0.25 per cent. sodium carbonate made with distilled water, and to each one was added 2½ cubic centimeters of a 3½ per cent. solution of casein. Two other sterile bottles were filled with a 0.25 per cent. sodium carbonate, and 2½ cubic centimeters of a 3½ per cent. solution of casein, and a few pieces of unboiled fibrin were added to each bottle. To another series of two bottles which were filled with 0.25 per cent. sodium carbonate were added 2½ cubic centimeters of 3½ per cent. casein solution, and a few flakes of fibrin that had been boiled for fifteen minutes. To each of the above bottles were added toluol and chloroform and they were placed in the thermostat. Observed over a period of six weeks numbers I and II of the first series remained perfectly clear, a few grains of casein being demonstrable at the bottom of the bottles. Numbers I and II of the second series showed solution of the fibrin. Number I of the third series showed slight solution of the fibrin (boiled); number II of the third series showed no change in the fibrin. Upon examination for digest products (about six weeks' time) the casein was found unaltered in bottles I and II of the first series. In the second series to which unboiled fibrin had been added digestion products were demonstrable in both bottles. In number I of the third series there was some digestion; this bottle had been frequently opened and contained *very small* amounts

of the preservatives. That the bottle became contaminated was evidenced later by its odor. Bottle number II of the third series showed no digestion.

Two more digests according to series III were made about one month later than the above. In this series number IV there was no digestion. During this month and the following there were many digests made from specimens of urine from different trypsin cases and control cases, to which the boiled fibrin was added; but not until March, 1908, was there a definite series of cases followed every day for a couple of weeks.

In March two cases on the regular trypsin treatment were selected, one a case of abdominal carcinoma, the other a case of carcinoma of the base of the tongue, epiglottis and glands of the neck. Two control cases were selected, one a patient not having cancer, the other a cancer case, but not on the trypsin treatment. Twenty-four-hour specimens of urine (when possible) or single specimens were obtained from these four patients twelve out of seventeen consecutive days. The method above described was used in separating out the supposed casein-enzyme and preparing it in each instance for the thermostat. Boiled fibrin was used in the thirty-four digests made. These digests were all kept in the brood oven four months; twelve of them were afterward kept at room temperature for another three months. In eight instances out of the thirty-four there was no evidence of any digestion of the fibrin. In three more cases there was some dissolving of the fibrin, but the presence of any of the group of amino-acids could not be demonstrated. Thus there were eleven negative digests in the thirty-four. In one control case (not cancer) the results were negative five times out of seven, but positive in the other two cases. In the other control case two digests were negative. In the trypsin cases results were negative in one instance twice and in the other three times. In seven of these eleven negative digests the urines when treated were slightly alkaline from beginning ammoniacal decomposition. These urines were probably neutral or slightly alkaline when voided. In the four other negative instances all digests made on the two days these were made gave negative results. It is possible that the casein was not sufficiently well mixed with the urines to separate any enzyme present.

In the other twenty-three digests the amino-acid group was found present in each one.

The above experiments showed the presence in the urine in cases on the trypsin treatment, in non-cancerous patients, and in patients with cancer who had not been treated by trypsin, of an enzyme possessing properties of digestion similar to trypsin. This body was not found in urines in which there was beginning ammoniacal decomposition. No attempt was made to ascertain the appearance or disappearance of the body in the urine during the various stages of a cancer case, which might be of interest in connection with the known anti-tryptic action of the serum in all cases of severe anemia, and said by Brieger and Trebing (*Berliner klin. Woch.*, July 20, 1908) to be present early in all cancer cases, and to be influenced by the administration of pancreatin as shown by a remarkable fall in this anti-tryptic action of the serum.

Effect of Trypsin upon the Tissues.—In submitting sections to pathologists for examination, in all cases where the tissues were removed after the institution of the enzyme treatment, it was requested that especial attention be directed to the determination of any structural changes that might in any way be attributable to the action of trypsin. Whenever it was possible to do so specimens were taken from time to time, care being taken in every instance not to encroach upon nature's barriers. Comparative studies were thus made of the pathological tissues before beginning the enzyme treatment, at various times during its course, and in some instances after the death of the patient.

Dr. F. B. Mallory, Professor of Pathology, Harvard Medical School, who made a number of examinations, found nothing that he could in any wise attribute to the action of the trypsin.

Dr. Martha Wollstein, Pathologist to the New York Skin and Cancer Hospital, who made the largest number of examinations during the course of the test, found no tissue changes which could be ascribed to the action of the trypsin.

Dr. James Ewing, Professor of Pathology, Cornell University Medical Department, after careful study of the specimens submitted to him, made the following statement: "In several sections the central cells in many tumor masses were loosened, degenerating or necrotic, while only the outer layers of cells adherent to an infiltrated lymph space seemed to retain their vitality. In some cases of cancerous infiltration of the uterine muscle originally larger tumor cell masses appeared to have been reduced by this process to thin strands of degenerating epithelial cells, and in some rather wide areas the tumor infiltration took the form of isolated cells scattered at wide intervals. In some cases a peculiar edema and vacuolar degeneration was prominent, but this condition differed only in degree from that sometimes seen in untreated cases.

"Occasionally there was encountered a peculiar edema and granular degeneration and fragmentation of fibrous, connective, and smooth muscle tissues which I have not seen in untreated cases. In all the cases considerable portions of the growth appeared little or not at all affected by the above mentioned degenerative processes, a fact which may account for the steady clinical progress of the disease. In one or two cases there apeared to be no change whatever referable to the treatment."

Summary.—From careful clinical and laboratory observations, extending over a period of three years, the following deductions may be drawn:

(1) That the internal medication with Holadin and oxgall aids digestion and increases elimination.

(2) That lotio pancreatis applied locally clears the ulcerating surface by removing organisms, thus aiding in diminishing the absorption of their products.

(3) That aiding digestion, increasing elimination (by skin, kidneys, and bowels), and decreasing local absorption are the most important features of the treatment.

(4) That the regime by increasing resistance may in some cases decrease the rapidity of the malignant process.

(5) That control cases given injections of glycerin and water or sterile water alone, plus the regime, did as well as those on the full enzyme treatment.

(6) That injectio trypsini, in some cases, seems to cause more rapid disintegration of (to "liquify," according to Beard) cancerous tissue.

(7) That while it may accelerate the breaking down in the center of the tumor mass, the periphery is found to be actively growing, as was true of Case VII (Case I of Dr. Morton's published series).

When injected into the tumor itself this disintegration is more marked.

(8) That because of the tendency of injectio trypsini to disintegrate the tissues, it may be a direct menace to life (*a*) by eroding large blood vessels (when the disease is contiguous to these structures, as when deep in the neck or in the pelvis), thus causing death from hemorrhage; (*b*) when given in large doses, over considerable periods of time, by overwhelming the system with toxic products (tumor toxins), thus, in some cases, hastening death.

(9) That the injections are often painful, and patients many times refuse to take them.

(10) That the so-called "trypsin abscess" proved, upon examination of the material, to be unabsorbed injectio trypsini plus broken-down tissue.

(11) That when real abscesses formed they were due to faulty technique, to localization of a general sepsis resulting from the absorption of toxic products, to an accompanying sepsis of whatever origin, or to a complicating acute infection.

(12) That injectio amylopsini seems to diminish cachexia in some cases, in accordance with the claims of Beard and others.

(13) That in some cases there was no reason to believe that injectio amylopsini exerted the action claimed for it.

(14) That when amylopsin was injected directly into the indurated area left after injecting trypsin, absorption of the trypsin solution was not hastened.

(15) That 100 minims daily of the "Quadruple X" solution, the strongest made, were given in some cases with no untoward effects.

(16) That improvement in hemoglobin (5 to 12 per cent.) during the first few weeks or trypsin treatment occurs in about one-sixth of the cases examined. In only one-third of these was the increase ascribable to the trypsin alone.

(17) That a gradual and moderate increase in the number of polymorphonuclear neutrophile cells was noted during the first two weeks of the trypsin treatment in a few of the cases.

(18) That with the exception of two cases such leucocytosis as was noted was attributable to the occurrence of complications during the first two weeks of trypsin treatment.

(19) That in fifteen out of the twenty-two cases above mentioned a steady increase (6 to 12 per cent.) in the number of eosinophile cells was noted while patients were on the trypsin injections. There was no eosinophilia in the control cases, nor in the cases treated by trypsin given by the mouth.

(20) That eosinophilia occurred regularly in cases of carcinoma involving the bones or the intestines, even without the exhibition of trypsin.

(21) That the claims for eosinophilia as a test have not been substantiated in our experience.

(22) That albumin and casts were found in the urine before treatment was begun in two cases. In neither of these was the amount of albumin or the number of casts increased at any time throughout the continuation of the trypsin injections.

(23) That in severe cases in the very last stages of the disease hyaline, granular, few pus casts, and occasionally albumin, made their appearance.

(24) That in two other cases in which it was impossible to obtain specimens of urine before beginning the treatment, albumin and casts were present when the cases came under examination; and as the trypsin doses were increased the amount of albumin and the number of casts were increased.

(25) That dextrose was at no time found in any of the urine specimens examined, not even when untoward manifestations of trypsin were present and large doses of amylopsin were being given.

(26) That the series of experiments which were conducted for the purpose of ascertaining the presence or absence of an enzyme in the urine with properties of digestion similar to trypsin, showed the presence of such an enzyme body (irregularly present) in (*a*) trypsin treated cancer cases; (*b*) noncancerous untreated cases; (*c*) cancer cases which had not received the trypsin treatment.

(27) That the exact constancy of this enzyme body in the urine with reference to the treatment was not ascertained. No enzyme body was found in urines in which there was ammoniacal decomposition.

(28) That the enzyme treatment as administered in the cases herewith reported, and according to the suggestions of Dr. Beard, plus important details of regime, does not check the cancerous process.

(29) That it does not prevent metastasis.

(30) That it *does not cure cancer.*

A CONTRIBUTION TO THE STUDY OF TREMORS.

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The study of tremors has occupied the attention of many great investigators with a view of enabling us possibly to devise some means of relief to those afflicted ones who are rendered helpless in following their ordinary pursuits, and in whom this condition awakens a physical depression, even despondency to the extent, not infrequently, of driving them to commit suicide. No matter, then, how insignificant a contribution to the study of this affection may be, it may bring us somewhat nearer to the solution of the problem. The particular feature of my contribution is the method of producing a characteristic curve of each form of tremor.

The ground which I intend to survey is not an untrodden one, for others have attempted to obtain a characteristic curve with each form of tremor, as I found on reading the extensive literature on the subject.

Clinically speaking, a tremor is an oscillation of a part or of the whole body produced by either a flexion of a group of muscles and a subsequent extension of their antagonists, or by a simple contraction and relaxation of the same group. This process may be a rhythmic or an arrhythmic one. It may be subdued by the will or intensified by it. Furthermore, we differentiate a static and an ataxic tremor, and finally we may include involuntary and irregular or choreiform movements.

The pathology of tremors is yet obscure, but recent investigations furnish us data sufficient to warrant the task I have undertaken. Horosley and Shaefer have obtained tremors by irritating various points in the cortex, corona radiata, and spinal cord. Silige agrees with the conclusions of Louget and Sancerott that the optic thalamus is the seat of inhibition and a lesion therein will produce a tremor. Raymond, on the other hand—who, so far as the literature shows, made a very exhaustive study of the pathology of tremors—found lesions in different places producing various tremors. In post-hemiplegic tremors he found the lesion to consist in a

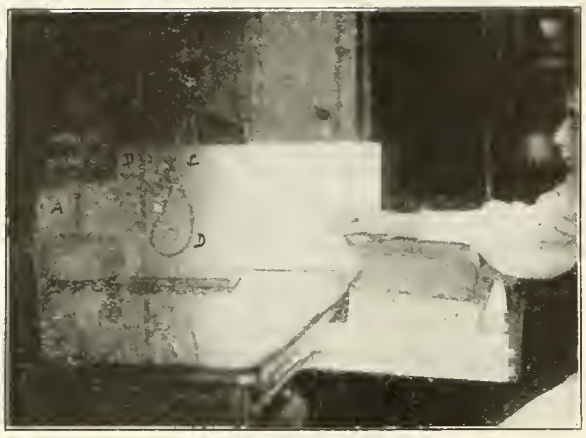

Fig. 1.—Tremograph.

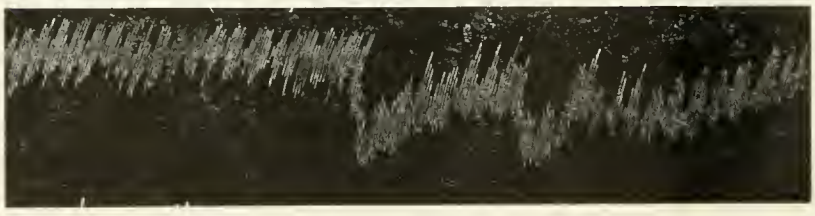

Fig. 2.—Paralysis agitans, superimposed on a post-hemiplegic tremor.

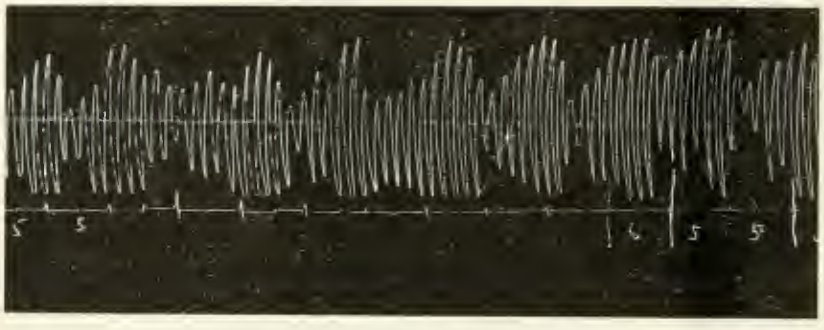

Fig. 3.—Paralysis agitans, left hand.

Fig. 4.—Multiple sclerosis.

Fig. 5.—Multiple sclerosis.

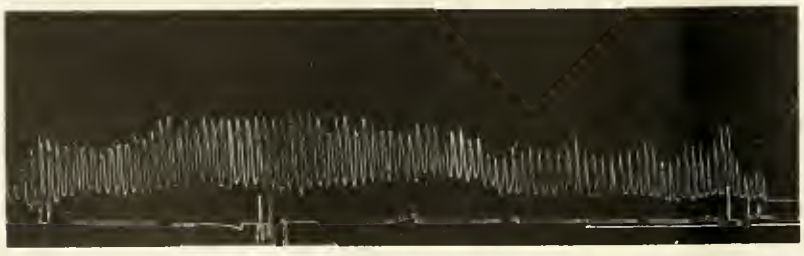

Fig. 6.—Post-hemiplegic tremor.

secondary degeneration of the lateral tracts, and the same is true of tremors accompanying cerebral atrophies. The exact site of this lesion he found to embrace an area of the lateral tracts between a horizontal line drawn through the middle of the anterior horns extending down to the posterior horns and at times even to the periphery of the cord. In multiple sclerosis and chronic myelitis he found sclerotic foci in the lateral tracts. On the other hand, in plumbism, accompanied by an ataxic tremor, lesions in the anterior horns and posterior columns were evident. It is interesting to note the lesion of hemichorea. This Raymond found in a particular fasciculus in the foot of the corona radiata. This fasciculus he describes as situated anteriorly and externally to the sensory bundle and in direct relation with the posterior part of the thalamus, covering it with its fibers. This bundle corresponds with the distribution of the posterior optic artery, which is a branch of the posterior cerebral. He bases his contention that these lesions are the cause of tremors on Charcot's explanation of tremors in lateral sclerosis. Charcot compares the spinal cord and its reflex arcs with an electrical apparatus composed of many wires, some of which are interrupted in many places. The current, then, instead of circulating freely will continue in jerks. In much the same way will probably an interruption in the lateral columns or the motor tracts of the central nervous system produce jerky instead of coordinate movements.

If, then, we clinically observe many forms of tremors and in their pathology we find that various forms of tremors are accompanied by lesions at different sites, tracings of these phenomena, or as Eshner terms them "tremograms," ought to produce characteristics peculiar to each form of this affection. And I venture to say here that for the first time in the history of these investigations I have been successful in the production of curves that give absolute characteristics of each form of tremor.

Fernet, Cramer, Debove and Boudet, Marie, Horsley and Shaefer, Eshner, and others who attempted to produce characteristic tremograms, have encountered difficulties, firstly, because of their unsuitable apparatus and, secondly, because they overlooked the fact that the part of which the record is made must be placed in a comfortable position so as not to interfere with the muscles involved and to exclude those not involved. The speed of the revolving drum has also a very important bearing upon the success of the record. Without going deeply into the details of the various apparatus used by other investigators, which have been fully described in the literature, I will at once proceed with the description of the apparatus I have devised and the manner in which I proceed to obtain a tremogram.

The apparatus consists of three parts: (*a*) a kymograph, (*c*) a tambour of the Marey type with a string attached to the lever and

fastened by a hook to a piece of rubber adhesive plaster, and (*b*) a recording tambour with a paper writing point; the two tambours are connected with a rubber tube.

The part affected is now placed in a comfortable position with the adhesive plaster attached to it. Each movement is transmitted to the lever, which causes a depression in the tambour *b*, which I shall term the receiving tambour. Here the air is compressed and the wave is transmitted to tambour *b*, which I shall term the recording tambour. This wave causes a bulging out of the membrane and a consequent lifting of the lever with its writing point. The drum of the kymograph is now revolving at a medium speed and a curve is thus registered.

I have made in all 328 tremograms including the following diseases associated with tremors: paralysis agitans, multiple sclerosis, hemiplegia, epilepsy, alcoholism, chorea, hemichorea, hysteria, cerebrospinal syphilis, dementia paralytica, and dementia præcox. The material was drawn from the salpétrière of Paris, from the divisions of Professors Raymond, Déjerine, and Voisin; from Professor Fisher's clinic at the University and Bellevue Hospital Medical College, from the Montefiore Home for Chronic Invalids, and from the division of Dr. Scratchley in the Hospital for Nervous Diseases on Blackwell's Island. I desire to thank these gentlemen for the opportunity afforded me and for their kind encouragement, and I enumerate these sources of supply for my clinical material in order to allay doubt as to the correctness of the diagnosis of the cases examined.

The characteristic feature of the tracing of paralysis agitans is the rhythmical periodicity of the curve. We notice short exacerbations of the oscillations and immediate exhaustion followed by another exacerbation. Each process occupies about two seconds, giving us a picture of a constant wave-like curve following closely the base-line with breaks at regular intervals, as shown in Figs. 2 and 3; and, no matter what the intensity of the oscillations may be, the characteristic feature of the curve will prevail.

In multiple sclerosis we get an entirely different feature, namely an arching out of the lines and a constant wandering off the base-line with breaks at irregular intervals, and curves of various sizes increased by intention, presenting a picture of segments of pointed arches (Figs. 4 and 5).

With the posthemiplegic tremors, which are intention tremors, the curve is quite different. Here the tracing also wanders off the base-line, but instead of presenting sectional arches it retains the ordinary curve for a period of five or six seconds, either to drop down toward or wander further away from the base-line, and making again a uniform curve (Fig. 6).

Fig. 7.—Chorea

Fig. 8.—Hemichorea.

Fig. 9.—Hysterical tremor.

Fig. 10.—Dementia præcox.

Fig. 11.—Dementia paralytica

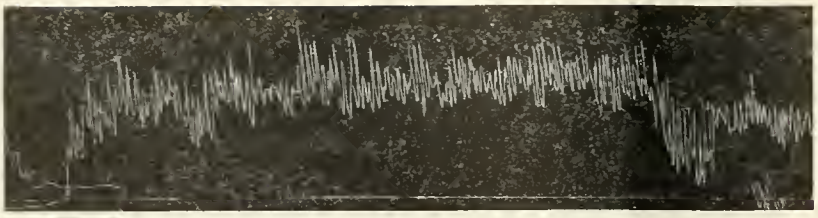

Fig. 12.—Alcoholism.

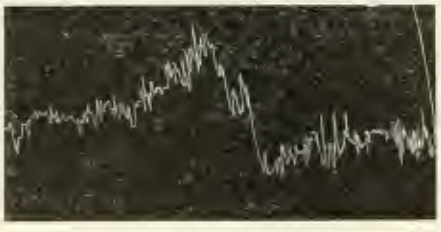

Fig. 13.—Cerebrospinal syphilis.

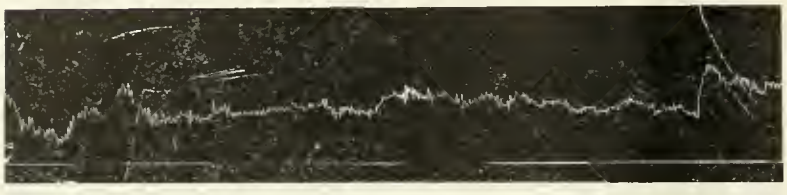

Fig. 14.—Epilepsy.

Chorea (Fig. 7) shows a uniformly characteristic feature. The curve touches the base-line at irregular intervals, giving long strokes with two or more short ones to follow them. This tremogram is to be differentiated from that of hemichorea in that one or at most two short strokes follow a long one (Fig. 8).

A characteristic curve is to be noticed in hysterical tremors. Here we have a unform and regular wave-like curve that retains its character throughout the entire course on the base-line, never wandering away from it. In connection with this tremogram I desire to mention a most interesting episode. Among the cases examined in the Salpétrière in Paris a patient with the following history, signs, and symptoms was presented to me: Mrs. Le C., 64 years old, a diabetic with an hemiplegia on the right side, 10 years duration, developed a tremor in the right hand six years ago. It looked very much like that of paralysis agitans. At the same time she had a marked ataxia, was unable to bring a cup to her lips, and had an intention tremor. I was requested to produce a tremogram with a view to determine, if possible, the nature of her affection. The patient was accordingly wheeled into the laboratory, assured by a nurse that a new treatment was to be instituted by an American doctor. She naturally manifested a great interest in the workings of my apparatus. I essayed first the right thumb, then the index finger and a regular curve as shown in Fig. 9 was obtained. Neither the characteristic Parkinson nor the post-hemiplegic tremogram is evident. The rest of the fingers showed no tremor, the spasticity of the hand gave away, she opened it freely, the ataxia disappeared, and she was able to drink from a glass as well as any normal person, and a perfect cure was effected so far as her tremor went. I saw the patient several times afterward and to all intents she was without a tremor. The result conclusively proved the diagnosis and the curve showed unmistakable characteristics of an hysterical tremor.

It is interesting to note the difference between the tracings of dementia præcox and dementia paralytica. In the former (Fig. 10) we see constant and irregular arching with oscillations from 8 to 10 per second wandering off the line, while in dementia paralytica (Fig. 11) there is no arching, but an irregular line of strokes going up and down the line and making 3 or 4 oscillations per second.

The post-epileptic tremogram is similar to that of multiple sclerosis, as shown in Fig. 14, but since I have not an opportunity to assay many cases I am not prepared to state the characteristics.

The tremogram of alcoholism is peculiarly significant (Fig. 12) inasmuch as it shows constant deviations from the base-line and at frequent intervals making long strokes, in spite of the fact that clinically it presents a constant static tremor.

Lastly, the tremor of cerebrospinal syphilis (Fig. 13) presents the same characteristics as that of multiple sclerosis. Here the etiology will have to help us rather than the tracing. While pathologically the lesion is of different nature in each affection, yet the distribution may be the same, and the tracings will of course be alike in both instances.

In conclusion, I want to say that (1) the differences between different tremors are of kind, not of degree, and every form of tremor is distinctive of a form or group of diseases.

(2) No definite relation exists between one form of tremor and any other.

(3) The frequency of movements has no bearing upon the character of the tracing.

(4) There is no material difference between the movements of the two sides of the body.

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111 Second Street.

Rupture of the Receptaculum Chyli.—J. F. Dobson reports the case of a child who was run over by a hansom. Some ribs were fractured. The child was in collapse, the abdomen rigid, tender, and dull on percussion in the right loin. The abdomen contained a small quantity of blood, and a swelling was found to the outer side of the ascending colon behind the peritoneum. On incising the peritoneum a considerable quantity of thin, milky fluid escaped. The fluid came from above the vena cava. The cavity was drained and discharged freely for some days.—*The British Journal of Children's Diseases.*

GASTRIC SURGERY OF THE PRESENT DAY.*

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Until within the past two years gastrointestinal surgery has made such rapid strides and so many changes that text books on gastric surgery were obsolete before they were issued. Each year the mortality rate was greatly reduced. Each year new and improved technical methods were introduced. The observer who visited the eastern clinical centers found the methods which were lauded last year discarded this year. The results which seemed good last year were not to be tolerated this year.

A few men were doing the gastric surgery of the country. During the past two years practically no changes of importance have been made in the technique of gastric surgery. Surgical principles and the finer details of technique have been worked out and fitted together so harmoniously that gastric surgeons of to-day are achieving results that seem almost as good as have been obtained in the minor abdominal surgery. In reading the statistics of 1906 and 1907, we find that the mortality was not materially lowered during the latter year over the former, and the probability is, will not be until our diagnosis is better and we are able to see the patient in time to do early and radical work.

Ten years ago gastroenterostomy and partial gastrectomy gave a mortality of from twenty to forty per cent. At the present time the same operations produce a mortality of from one to twenty per cent., depending upon the class of cases. During this stage of great mortality many reasons were sought for it. Surgeons studied the various types of operations. Various appliances were used; various stitches were devised and large series of experiments were made on animals to determine the best methods.

Some eight years ago the writer spent a considerable portion of two years in testing out results by such appliances as the Murphy button, absorbable plates and tubes, various forms of intestinal forceps and elastic ligatures. It was at that time thought dangerous to penetrate all the coats of the stomach and intestines, lest infection should follow the stitches, until Connell came forward with ample demonstration that perforation of all the coats was not dangerous, and that it was necessary in order to get good intestinal union. He thought it necessary to tie all knots on the inside, and devised a very ingenious method of doing it. Connell's persistence in demonstrating and redemonstratiug that the through and through suture was the only efficient method in gastrointestinal surgery and furthermore was not so dangerous as had been supposed, was of great service, and I think we do not exaggerate in considering Connell to be the peer of any in the development of the perfected technique of gastrointestinal surgery, notwithstanding the fact that his point of tying the last knot on the inside has proven to be of minor value and possibly an unnecessary refinement.

Senn, with his decalcified bone plates, paved the way for the Murphy button, possibly the most perfect surgical appliance ever invented. Maunsell paved the way for Connell's work, and Connell made the connecting link between all these surgeons and the modern perfected technique with the through-and-through suture and with rubber covered clamps serving the double purpose of holding back the contents of the canal and holding the two viscera near enough for the anastomosis to be made, thus combining all the good qualities in one. By the through and through suture, which was popularized by Connell, the firmer structures of the intestines are used, thus effectually preventing hemorrhage as well as leakage. I think it is not going too far to predict that no important advance will be made in the future in the technique of gastrointestinal anastomosis.

Early in the development of gastroenterostomy, someone suggested that the direct peristalsis of the intestine should be made parallel to that of the stomach at the point of union, therefore it was necessary to turn the aboral portion of the intestine toward the right. Bad results followed, regurgitation back into the stomach occurred and we had the vicious circle. After this the two limbs of the intestine above and below the point of union were united so as to short circuit the bile and pancreatic juice. This also failed to prevent the vicious circle. Then the proximal limb was cut off and closed, and the end sutured into the side of the distal segment. Even this did not prevent vicious circle. By observation at secondary operations and post mortem examinations, it was found that the vicious circle was probably due to adhesions which kinked the intestine on one side or the other of the anastomosis, or at the point of the anastomosis, thus causing the bile to pass around the duodenum to the stomach, or back through the opening made by the surgeon. About this time, Moynihan and Charles Mayo independently conceived the idea of making the loop so short that kinking could not take place, but they still turned the jejunum to the right. This was a very important step, and I had the pleasure of seeing Dr. W. J. Mayo during the week in which he changed from the old long loop operation, the last of which was done on one of Oregon's surgeons, over to the Moynihan operation. This operation was very much more successful than any of its predecessors, but a certain per cent. of the cases still had the vicious circle. Dr. Mayo, after making extensive study of the subject on the operating table, concluded that the normal direction of the jejunum after it came from behind the mesentary, was toward the left and into the left flank, so a little over two years ago he adopted the plan of making the anastomosis, using no loop, but bringing the stomach through the mesocolon at a point which would bring it in exact contact with the first part of the jejunum as it lay normally turning toward the left. This method produced a marked improvement over any other method which had been introduced. It is true that some of the English surgeons and a few prominent men of America have found some cases of regurgitation after this operation. It is barely possible, however, that they may have erred in technique by making the opening in the mesocolon too far to the right, for in order to bring the stomach and intestine in easy apposition, it is necessary to make the opening well to the left of the ligament of Treitz. In Dr. Mayo's hands this operation has been almost, if not entirely, free from regurgitation. In my own limited experience, consisting of but thirty operations by this method, the results have been entirely free from regurgitation, and comparatively free from pain. Mr. Moynihan has attacked Dr. Mayo's position, but has at the same time adopted a compromise in that, instead of turn-

*Read before the Idaho State Medical Association, 1908.

ing the jejunum to the right, as he formerly did, he now directs it downward as a rule, or to "whatever position seems suitable to the case." Admitting that Mr. Moynihan's practice is as sound as Dr. Mayo's (for on his ground he would be permitted to use the Mayo operation), there would still be no reason to question the correctness of Dr. Mayo's principles, for they are certainly in harmony with intestinal rotation as taught us in the study of embryology. While the mechanical technique of the operation in doing partial gastrectomy is not markedly different from that of Billroth's, the mortality has decreased several fold. After some years of the development of abdominal surgery it was the custom to lower the head and elevate the feet of the patient who had undergone a serious abdominal operation. Most of the patients who died, following stomach operations, died from pneumonia. After the introduction of the Fowler position, a great reduction of deaths in abdominal cases followed. Through practice in stomach cases it was found pneumonia occurred more frequently after stomach operations than other operations, which was believed to be due to the fact that absorption is much more rapid near the diaphragm, and that infection was absorbed rapidly and carried directly to the lungs, producing pneumonia. When the patient's head was elevated the infection was carried away from the diaphragm and absorption did not take place so rapidly, so this danger has been eliminated. Added to this, the use of Murphy's proctoclysis has taken away most of the duties of the stomach in the early part of the operation and has greatly increased elimination of the skin and kidneys, and, together with the great increase of technical skill which has developed in the hands of those who have prepared for this special line of work, has reduced the danger of shock. Favorable cases now nearly all get well. Fatalities in the hands of gastric surgeons are in those cases which are too far advanced to offer very much hope for permanent cure, but which give results better than one hundred per cent. of deaths, as is the result in cancer without surgical treatment. Just as the death rate following operations for appendicitis has in the past two or three years been reduced to a minimum in a given class of cases, so it has in pyosalpinx, tumors, etc. Likewise we have arrived at the stage of what might be called minimum fatality in gastric surgery, as far as operative and post-operative technique is concerned. But it is without doubt true that results will continue to improve markedly because the class of cases which we receive from the general practitioner and internist will improve by earlier and more accurate diagnosis. This is already coming true in cases of ulcer. Like all other goods things, surgery for non-malignant diseases of the stomach was unquestionably overdone a few years ago and therefore is diminishing rather than increasing. We find that while the Mayo brothers had 535 more abdominal operations in 1907 than they did in 1906, the number of operations for ulcers of the stomach was reduced from 104 in 1906 to 81 in 1907; and while the number of cases of cancer of the stomach and duodenum has increased from 77 in 1906 to 83 in 1907; cancer of the large intestine from 36 in 1906 to 41 in 1907; while the gall-bladder cases increased from 318 in 1906 to 445 in 1907. Instead of the large number of cases of ulcer there were reported 35 cases of pyloric spasm which were due to gallstones, appendicitis, or tuberculosis of the cecum.

Mayo in a recent number of the *Annals of Surgery* gives a picture of how it is possible to produce an anemic spot at the pylorus by lifting it up in the right way. These anemic spots have in the early part of gastric surgery deceived even the surgeon himself as well as the bystander. Mayo says recently, "We are inclined to look with a good deal of suspicion upon any supposed ulcer of the stomach which cannot be absolutely demonstrated not only to the operator, but to the onlooker as well."

It is a well-known fact that almost all cases of vicious circle have followed operations when there was little or no obstruction of the pylorus. Leggett and Maury did gastrojejunostomy or gastroduodenostomy on a series of dogs by the suture method and in two weeks the dogs were permitted to swallow pieces of meat in which small bullets tied to strings were imbedded. The upper end of the strings was then sutured to the pterygo maxillary ligaments. They found that the solid bodies, instead of being carried down the intestines, were returned into the stomach and in one instance the bullet passed out through the stoma; back through the pylorus, around through the stoma again, and back into the stomach. They suggest that the Murphy button might be returned in the same manner. It seems that the upper part of the intestinal tract tends to return solid bodies to the stomach for further action. On the other hand, they found that in gastroenterostomy, which was made between the stomach and ileum, the shot passed through the pylorus instead of the stoma, but the dogs so treated did not live long; first gaining, then losing, and finally, dying. So Leggett and Maury say their experience supports Blake's contentions, that gastroenterostomy should not be done except in the presence of pyloric stenosis. I would make an exception to this rule, however, as good results also follow gastroenterostomy for extensive ulcer along the lesser curvature in the majority of cases. This, however, may be due to the fact that as Cannon demonstrates in experimental work, in severe injury to the intestinal wall, the pylorus becomes closed and remains so for several hours. "It would appear," says Mayo, "that control of the pyloric sphincter is vested not only in the stomach and duodenum, but also in all the derivatives of the mid-gut, including the cecum, and that pyloric spasm may and often does originate in the attempt to prevent food entering the intestinal tract." It is probable that a well formed crater-like ulcer may produce this same spasm of the pylorus and thereby force the food out through the stoma.

In summing up conclusions as to the status of gastric surgery of the present day, we may say:

1. The operative and post-operative technique of gastric surgery is well nigh perfect and complete. Gastrointestinal anastomosis by rubber covered clamps and through and through suture as performed to-day leaves nothing to be desired. The "no-loop gastroenterostomy" gives as perfect results as any other operation in surgery. Partial gastrectomy as performed to-day is apparently mechanically perfect. Exaggerated Fowler position with Murphy's proctoclysis makes the post-operative treatment apparently complete. Modern methods of treating perforative peritonitis takes away many of the terrors of perforating gastric ulcer, if the surgeon is called early.

2. It is probable that the minimum fatality in gastric surgery has been reached, until both public and profession have been educated along this line

as they have been in the line of tuberculosis. Gastroenterostomy for obstructive ulcer in the hands of the well trained gastric surgeon should not produce a mortality to exceed two or three per cent, and in the hands of some surgeons, notably the Mayo brothers, it has been considerably less recently. Gastric ulcers of this type are nearly all cured by gastroenterostomy. Approximately two per cent of ulcers so cured develop carcinoma later. Ulcer of the stomach which produces no obstruction or which cannot be easily demonstrated, is not a surgical condition. When operated on these cases frequently develop vicious circle. Partial gastrectomy for cancer near the pylorus if done early should have an operative mortality not exceeding ten per cent. Mortality in all cases as we have them at the present day which justify an attempt at radical cure should not exceed twenty per cent. Of those diagnosed and operated on early in the disease and surviving the operation, from twenty to thirty per cent might be classed as cured according to our best statistics. Of all patients seen early enough to justify at all an attempt at radical cure and who survive the operation, approximately fifteen per cent may be classed as cures. Incurable cases, in which the pylorus is obstructed, are greatly benefited and life prolonged by gastroenterostomy, and the operative risk is small. Exploratory operation in cases which prove to be inoperable has practically no fatality, does not add greatly to discomfort of the patient, and does not prevent his going home within two or three days after the operation. A patient should have the benefit of this operation except in palpably hopeless cases.

3. Early diagnosis of Cancer is the desideratum of gastric surgery of the present day. This will only be brought about by a long period of education. The public must be instructed that a stomach trouble growing worse or beginning after the age of forty years demands the advice of a physician, for approximately twenty-five per cent of the cases are hopeless when they come to the family physician, having already used all the dyspepsia cures known. The family physician should be instructed that the stomach trouble growing worse or beginning after the age of thirty-eight or forty, not improved by dietetics and ordinary digestives in a few weeks, and especially if accompanied by loss of weight, should be recommended to someone who has facilities for thorough investigation of this class of cases. The average family practitioner is not prepared to make a diagnosis of gastric cancer until it is too late to cure it, as attested by the fact that seventy-five per cent at least of all cases are hopeless when he turns them over to the surgeon. The thoroughly trained scientific internist should be urged to see as much gastric surgery of this kind as possible in order to help to extricate him from the delusions he has developed from post-mortem training, for many of our best internists are holding on to doubtful cases, when an exploratory incision would reveal cancer.

4. No authentic cure of cancer of the stomach has ever been recorded by any other than surgical means. Therefore, the surgeon is the only man prepared to treat this condition and moreover, is best fitted to diagnosticate the condition, provided he has associated with him good reliable laboratory workers. Frequent consultation between the internist, surgeon and family physician in all obscure chronic abdominal conditions will bring about a great improvement in our surgical results in stomach diseases.

Following along the same lines set forth in these conclusions, I beg to submit one year's personal experience in gastric surgery, beginning January 18, 1907, and ending January 10, 1908, for the purpose of further setting forth the fact that patients afflicted with stomach diseases do not come to the surgeon until all other resources have been exhausted, but rather consult first the family physician and then the internist; also that the operative mortality is not necessarily great, but that the advanced stage of the cancer cases when they reach the surgeon is the serious feature.

Case I.—January 18, 1907, female, age 34. Gastric ulcer with hard cicatricial margins located on lesser curvature near oesophagus. Operation, Mayo gastroenterostomy. Symptomatic cure.

Case II.—January 20, 1907, male, age 36. Chronic gastric ulcer with history of recurring hemorrhages. Ulcer on stomach at side of pylorus. Operation, Mayo gastroenterostomy. Symptomatic cure.

Case III.—February 15, 1907, female, age 34. Decided obstruction symptoms and complete invalidism, due to prolapse of stomach. Hammock operation, suturing great omentum to abdominal wall. Greatly relieved and able to assume household duties. Had previously been treated by many physicians who had used bandages, etc.

Case IV.—March 18, 1907, male, age 44. Gastric ulcer obstructing pylorus. Mayo gastroenterostomy. Symptomatic cure.

Case V.—Female. Extreme gastroptosis with tuberculous ulcer of small intestine. Hammock operation (ill advised). No relief. Lived three months.

Case VI.—April 18, 1907, male, age 55. Exploratory operation. Gastric carcinoma of posterior wall. No relief, lived four months.

Case VII.—April, 1907, male, age 48. Cancer, with total obstruction of pylorus for six weeks' standing. Mayo gastroenterostomy for temporary drainage. Complete relief and great improvement in health. Partial gastrectomy May 10 (see case XI.). Had been previously treated for an aggravated case of dyspepsia.

Case VIII.—Male, age 52. Exploratory operation revealed carcinoma of lesser curvature based on previously existing saddle ulcer. Lived four months. Previously treated by various physicians for dyspepsia.

Case IX.—May 3, 1907, male, age 42. Complete obstruction of pylorus due to cicatricial ulcer base. Mayo gastroenterostomy. Cure.

Case X.—May 7, 1907, male, age 45. Perigastric adhesions broken up with only partial relief.

Case XI.—May 10, 1907, male, age 48. Partial gastrectomy, gastroenterostomy having been previously performed (see case VII.). Syptomatic cure, patient gaining forty pounds in six weeks. Cancer reappeared in liver four and one-half months after operation and patient died eight weeks later. Worked as contractor and builder all summer.

Case XII.—May 19, 1907, male, age 36. Marked symptoms of chronic intestinal obstruction making cathartics ineffectual. Prolapse of stomach and colon. Hammock operation. Symptomatic cure.

Case XIII.—June 26, 1908, male, age 18. Exploratory operation. Sarcoma posterior wall involving pancreas. No relief. Died one week later from hemorrhage.

Case XIV.—June 17, 1907, male, age 44. Total obstruction with vomiting for many weeks. Lost

ninety pounds. Operation for cancer of pylorus, larger than a man's fist. Partial gastrectomy. Regained sixty pounds in two months. Cancer recurred in liver three months later followed by death six weeks later. Referred by general practitioner. Previously treated for dyspepsia for many months.

Case XV.—July 10, 1907, male, age 42. Sent in for acute perforative peritonitis and diagnosed by the writer as probably appendicitis. Operation revealing perforating duodenal ulcer which was sutured and right flank was drained. Recovery complete and no further operation indicated.

Case XVI.—July, 1907, male, age 45. Extensive gastric carcinoma. Stomach drained by Mayo gastroenterostomy. Symptomatic relief followed by death five months later.

Case XVII.—July 9, 1908, female, age 22. Chronic ulcer at pylorus with recurring hemorrhages and vomiting. Mayo gastroenterostomy. Complete cure.

Case XVIII.—August 23, 1907, female, age 36. Prolapse of stomach. Hammock operation. Symptomatic cure.

Case XIX.—October 1, 1907, female, age 26. Gastric ulcer obstructing pylorus extending along lesser curvature for three inches. Mayo gastroenterostomy. Relief immediate and complete.

Case XX.—October 11, 1907, male, age 60. Carcinoma near pylorus and on lesser curvature of stomach. Mayo gastroenterostomy. Only partial symptomatic relief. Died two months later. Referred by internist after having taken treatment from various physicians for dyspepsia.

Case XXI.—October 15, 1907, female, age 52. Pyloric obstruction due to old ulcer. Mayo gastroenterostomy. Complete relief and rapid gain in weight.

Case XXII.—October 17, 1907, female, age 62. Carcinoma completely obstructing pylorus. The symptoms had existed for six months and cancer irremovable. Mayo gastroenterostomy. Symptomatic relief, and gain in weight. Death four months later.

Case XXIII.—November 8, 1907, female, age 36. Ulcer involving pylorus, of long standing. Mayo gastroenterostomy. Improved but not complete symptomatic cure.

Case XXIV.—November 12, 1907, female, age 60. Obstruction of pylorus by carcinoma. Partial gastrectomy. Recurrence in four months followed by death in two and one-half months. Had previously taken much medicine for indigestion.

Case XXV.—November 19, 1907, male, age 56. Carcinoma obstructing pylorus. Partial gastrectomy. Complete cure to date.

Case XXVI.—December 3, 1907, male, age 56. Large indurated ulcer on lesser curvature. Mayo gastroenterostomy; operation produced no apparent shock but was followed by complete suppression of urine and death two days after operation.

Case XXVII.—December 31, 1907, female, age 49. Carcinoma of stomach. Exploratory operation. No relief. Death two months later. Had had several months' treatment for indigestion.

Case XXVIII.—January 2, 1908, male, age 42. Carcinoma at pylorus and extending along lesser curvature. Partial gastrectomy. Recovery. No recurrence to date (June, 1909).

Case XXIX.—January 10, 1908, female, age 50. Carcinoma of posterior wall of stomach and involving liver, ascites. Exploratory operation. No improvement; death three weeks later. Had had much previous treatment for indigestion extending over a period of more than a year.

Summary of cases and operations:

Ulcer, 10—One death due to suppression of urine, one improved, and eight symptomatically cured.

Cancer, exploratory for inoperable cancer, 5—No operative deaths.

Cancer, gastroenterostomy, 4—No operative deaths. Life prolonged and made more comfortable for all.

Cancer, partial gastrectomy, 5—No operative deaths; three lived less than six months although comparatively comfortable, two well at time of sending to press, one fourteen and other eighteen months after operation.

Prolapse of stomach, Hammock operation—One improved, two cured, one unimproved, one perigastric adhesions slightly improved.

North Pacific Sanatorium.

THE TREATMENT OF SPECIFIC URETHRITIS (GONORRHEA) IN THE MALE.

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The great prevalence and gravity of specific urethritis together with the severity of its complications and sequellæ, to say nothing of the many and ever changing methods of treatment advocated for its rapid cure, are sufficient reasons for the selection of this much-discussed and important topic. Throughout the following pages the writer will consider only the treatment of urethral gonorrhea, purposely omitting that of its complications on account of the space required for their proper discussion.

For clinical purposes specific urethritis is best divided into four stages or periods, as follows: *First,* the *serous* or *prepurulent stage,* in which the patient has a slight watery discharge and in which the gonococci are free and superficially seated upon the mucous membrane of the fossa navicularis. *Second,* the *stage* of *acute suppuration,* in which the discharge is purulent, and the gonococci, having penetrated the cement substance between the epithelial cells, have passed down to the bloodvessels in the submucous layer and are deeply seated. *Third,* the *stage* of *decline,* in which the discharge and acute inflammatory symptoms are markedly decreased, and *fourth,* the *chronic stage,* in which the discharge is slight and the urine is clear and contains flakes.

From a study of the above-described stages, which are based upon the actual course of the disease, and its pathology, it may be safely stated that the successful treatment of gonorrhea depends entirely upon the stage of the disease in which the patient applies for treatment. In other words, if he is seen, as he very rarely is, in the first or serous stage, when the gonococci are superficially situated, abortive treatment may be employed, as in this period the diplococci are so situated as to be readily destroyed by local applications. If, on the other hand, the case is seen in the second, or the stage of acute suppuration, as it usually is, then it is too late to try abortive treatment, as by this time the gonococci have penetrated so deeply that they are beyond our reach, and any form of abortive treatment attempt-

ed at this time merely adds traumatism to the already intensely inflamed urethra, without even reaching the now deeply seated gonococci, and in addition it produces a more suitable soil for their growth and multiplication. Our aim, therefore, in this, the stage of acute suppuration, must be, not so much the destruction of the gonococcus, but rather the amelioration and cure of the acute inflammatory process, as a result of which the gonococci disappear.

In our attempts to annihilate the gonococcus we must not forget that we have a very acute and severe inflammatory process to deal with, which is attacking one of the most delicate and highly sensitive mucous membranes in the body, which, if overzealously treated in the acute, or suppurative, stage of this virulent process, leaves the urethra and its contiguous glandular structures, especially the prostate, in a more or less permanently damaged condition.

I shall now endeavor to outline a plan of treatment which in my hands, has given most satisfactory and permanent results, considering first the abortive method, and secondly what may be termed a conservative method.

Abortive Treatment.—If a microscopic examination of the serous secretion shows desquamated epithelial cells and free gonococci (*first stage*), then abortive treatment may be advised, and at the same time the patient informed that it is liable to failure in some cases. Unfortunately, however, the vast majority of patients do not consult a physician at this early period, as they then consider their disease to be but a trivial and transitory affair, thus losing the only opportunity to destroy the gonococci and prevent their invasion of the deeper tissues.

Technique of Abortive Treatment.—The patient having voided his urine, the meatus and glans are washed with sterile water, a small soft rubber catheter is passed into the fossa navicularis, the patient compressing the urethra firmly behind this point to prevent the backward passage of fluids: then by means of the catheter and hand syringe (Fig. 1.) the operator irrigates the fossa with warm

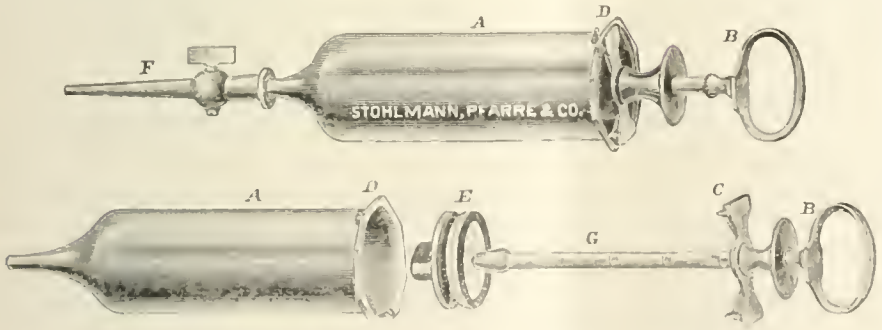

Fig. 1.—Author's irrigation syringe, with coupler and stopcock (all metal).

sterile water to free it of any remaining urine or secretion, after which it is distended with a solution of silver nitrate (10 grains to the ounce). In this manner the mucous membrane of the fossa, which is the seat of the disease at this period, is medicated with the silver solution and the gonococci situated upon its surface are destroyed. The patient is now instructed to rest as much as possible, put upon a light, nonirritating diet, both as to solids and liquids, and the urine rendered bland by still waters and alkaline mixtures. The bowels are moved freely by means of cathartic pills, and the penis and prepucial cavity kept clean by frequent immersions in hot lead water. The silver application is followed in a short time by painful urination and a purulent discharge which, if the treatment be successful, subsides in a few days, leaving the patient with a slight mucopurulent discharge, which is readily controlled by astringent injections. If, on the other hand, the treatment has failed to abort the disease, then the discharge continues, showing under the microscope gonococci and pus cells in increasing numbers, the case now presenting the clinical picture of the acute or suppurative stage, in which event all further attempts at abortive treatment should be abandoned, and the patient placed upon the "conservative" plan of treatment.

Conservative Treatment.—The presence of gonococci having been demonstrated microscopically, in the purulent urethral discharge (*second stage*), the patient's history is carefully inquired into as to the number, severity, duration and complications of previous attacks, and also the treatment employed. Each patient is given a printed list and personal instructions as to his mode of life, diet and medication, and is also told how to prevent infecting others. It is of the utmost importance that these patients be kept as quiet as possible, rest in the recumbent position being preferable, especially during the first week, when overexertion of any kind is apt to be followed by a marked increase in all of the acute inflammatory symptoms. Sexual excitement must be guarded against, as it adds greatly to the local inflammation. The diet should be light but nutritious, and contain no highly spiced or seasoned dishes, or, in fact, anything that in any way is liable to cause concentration of the urine with subsequent irritation of the urinary tract. Alcohol in all forms, as well as coffee, chocolate, cocoa, and charged or medicated water must be prohibited. To render the urine copious and bland, the patient should drink a glass of still water every hour, and take full doses of the citrate of potash, either alone or in combination with tincture of hyoscyamus.

The testicle should be worn in a snug bandage which does not impinge upon the urethral floor, thus producing injurious pressure on the inflamed canal. This point is of great practical importance when one considers the frequency of patches of infiltration, and even true stricture at the penoscrotal junction, which represents that portion of the canal pressed upon by the suspensory.

The bowels should be kept open by the use of cathartic pills, as saline purgatives are liable to produce more or less urethral irritation.

The penis should be so dressed as to allow of free drainage of the urethral pus, which at the same time must be kept from the prepucial cavity, the patient's clothing and his fingers. These requirements are fulfilled by a piece of absorbent gauze cut about four inches square, with a slit in the center through which the glans is passed until the gauze rests in the coronal sulcus, when the prepuce is drawn forward carrying the gauze before and beneath it, thus causing it to protrude beyond the prepucial orifice. If there is much inflammation in the glans and prepuce, great relief can be ob-

tained by keeping the gauze moistened with lead water. If the prepuce is too short to hold the above dressing in place, the end of the penis can be placed in a bag of absorbent gauze which is pinned to the suspensory bandage. To allay the local pain and inflammation, the penis should be immersed several times daily in a hot lead solution, which can be easily and quickly prepared by dissolving one tablet in a glass of hot water, each tablet containing 15 grains of a subacetate of lead, which is equal to about one drachm of Goulard's extract. The hot sitz bath relieves to a great extent the feeling of soreness and stiffness in the groins, penis and along the bulb.

When the disease passes into the *third stage*, or the *stage of decline*, as is indicated by a diminution and thinning of the discharge, less pain on urination, and a decrease in the redness and swelling of the meatus, it is time to begin the use of nonirritating hand injections and the antiblennorrhagics (balsamics), which latter if used at this time will give most satisfactory results. The antiblenorrhagics are liable, if continued too long, to delay the cure by overstimulation and irritation of the urethral mucous membrane, so that great care and judgment should be exercised in their use. In dispensary practice we are sometimes obliged to employ the "Lafayette mixture" on account of the price of sandal wood oil, which, if pure, is, in the writer's opinion, far superior to copaiba or cubebs, and can be given in five or ten minim capsules one hour after meals. It should never be administered in the acute stage of the disease, on account of its stimulating and even irritating effects on the mucous membrane. Should the sandal oil produce gastrointestinal irritation, or renal congestion, the quantity must be reduced, or the drug suspended for a time, and the urine examined for casts and albumen.

As a general rule, hand injections can be begun on about the seventh to the fourteenth day of the attack, depending entirely upon the amount and degree of local inflammation in each individual case. The patient must be shown how to inject his urethra in a gentle manner, the surgeon always impressing upon him the danger of forcibly injecting or overdistending the inflamed canal, and also warning him not to retain the fluid for any length of time by compressing the meatus. The solution should be warm and thrown in slowly until there is a feeling of uneasiness or beginning discomfort, when it is allowed to escape. The injections are taken three or four times in twenty-four hours, beginning with warm lead water, boric acid, or normal salt solution, which in a few days is changed to weak solutions of zinc, alum or lead, either alone or in combination, or if preferable, weak injections of permanganate of potash, which latter preparation, although of great value in the subacute stage of gonorrhea, is in the writer's opinion absolutely contraindicated in the stage of acute suppuration.

Having lessened the discharge by the use of the hand injections, great benefit will now be derived from the daily use of warm and soothing irrigations thrown into the bulb of the urethra in the following manner. The patient having urinated, the surgeon passes a small soft rubber catheter into the bulb, and injects from four to eight ounces of a warm medicated fluid slowly and gently by means of a hand syringe (Fig. 1). In this manner the solution medicates the entire anterior portion of the canal from behind forward. We should begin the irrigation treatment with warm solutions of lead water, or boric acid, and later, mild solutions of zinc, alum, permanganate of potash, and finally silver nitrate, which latter preparation brings the case to a speedy and satisfactory termination by causing absorption of the submucous exudate, and also a restoration of the damaged mucosa.

In using irrigations of nitrate of silver in the anterior urethra, it is best to begin with about 1-16,000, and increase the strength slowly and gradually up to 1-4,000, or even higher, according to the results obtained, which can be readily noted by the patient's symptoms and sensations, and also by the condition of the urine, which should be examined prior to each treatment. When, as a result of the irrigations the pus disappears and nothing but flakes and tissue elements remain in the otherwise clear urine (*fourth stage*), then it is time to stop the irrigations and substitute for them instillations, which consist of a few drops of a concentrated silver nitrate solution, thrown into the bulb by means of a small soft rubber catheter and instillation syringe (Fig. 2).

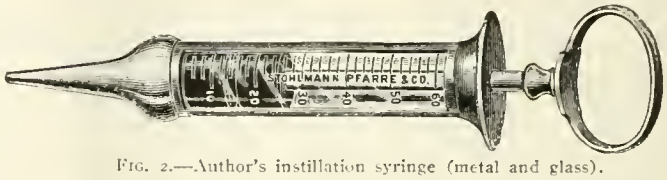

Fig. 2.—Author's instillation syringe (metal and glass).

Instillations should be given about every second to fifth day, depending upon the results obtained and the strength of the solution employed, which as a general rule is about 1-8,000 at the beginning, and finally increased up to 1-500 or even higher in rebellious cases. As a result of the instillations the flakes will be seen to grow lighter and smaller from day to day and finally disappear, so that the patient passes a normal morning urine.

If during the course of an acute anterior gonorrhea, the inflammatory process passes beyond the compressor muscle, as it frequently does, and invades the deep urethra, as is shown by a diminution of discharge, increased frequency in urination, more or less vesical tenesmus, and perhaps terminal hematuria, then we know that our patient has developed an *acute posterior gonorrhea*, the treatment for which is as follows: The patient is kept very quiet, or better still, put to bed and kept there until the acuteness of the attack subsides, as it usually does in a few days. The diet should be the same as that outlined for an acute anterior gonorrhea. All local treatment of the urethra is stopped, as in every case of posterior urethritis there is an infection of the prostate gland (prostatitis), in which condition any form of local urethral treatment is exceedingly harmful. If the patient has been taking the antiblenorrhagics, these remedies must be stopped temporarily and replaced by suitable alkaline mixtures with the addition of triticum repens and uva ursi. Still water is taken in moderation. Hot water bags over the bladder and on the perineum give much relief, as does also the hot sitz bath and especially rectal irrigations of normal salt solution at a temperature of 118° F. These irrigations are given by means of the fountain syringe and two soft rubber tubes (Fig. 3) morning and evening, using four quarts at each sitting. In this manner the prostate, deep urethra, and in fact all of the structures about the vesical neck are brought in direct contact with the hot saline solution, which soothes the inflamma-

tion and congestion, thus lessening vesical tenesmus, pain and compressor spasm. Should the above measures fail to control the acute inflammatory symptoms, we are then compelled to resort to the guarded use of sedative suppositories.

In all cases of acute posterior gonorrhea, but especially in severe ones, the surgeon should make frequent rectal examinations of the prostate and seminal vesicles, in order to be prepared to treat efficiently and promptly any pus formation that may occur in or about these structures. This point is of paramount importance, and should always be borne in mind, especially when the patient runs a high temperature, and has marked difficulty in urination. From a large number of rectal examinations, made during the course of acute posterior gonorrhea, I am firmly convinced that the prostate is involved to a greater or less degree in the vast majority, if not in all of the cases, whereas the seminal vesicles are quite exceptionally attacked. There are some cases of acute posterior urethritis which, in spite of rest, local heat, and internal medication, show no improvement, and the acute symptoms continue unabated for days. In these cases much benefit will be derived from retrojections of warm boric acid solution thrown into the deep urethra and bladder by means of a small rubber or silk catheter and hand syringe.

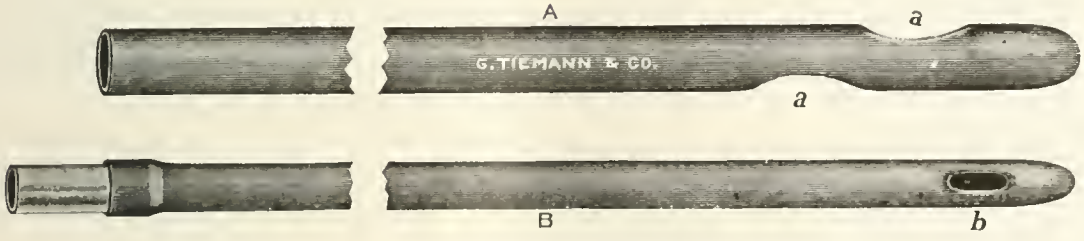

Fig. 3.—Author's rectal irrigating tube.

When the acute symptoms subside, the patient is allowed to be up and about, and the urethra treated locally in the following manner: The patient having voided his urine, lies down with head and shoulders comfortably elevated and muscles relaxed. A soft rubber catheter is passed beyond the compressor muscle and the residual urine is drawn and measured. In some rare cases it may be found impossible to pass the soft catheter beyond the muscle, and for these cases we should substitute a small woven silk instrument which, having more rigidity, passes with ease. The especially constructed metal instruments or "drop catheters," should, in the writer's opinion, never be employed, on account of the traumatism they are likely to produce, even in trained hands. If the surgeon fails to enter the deep urethra with soft rubber or woven catheters, it is proof positive that he is either unskilful, or that the parts are in a far too sensitive condition for any kind of local medication. The much talked of spasm of the compressor urethræ muscle is, as a rule, caused by rough or rapid instrumentation, and will rarely be encountered provided the surgeon is gentle and uses soft or flexible catheters in preference to metal or rigid ones. A hand syringe is now attached to the catheter by means of a coupler (Fig. 1), and the medicated fluid thrown slowly into the prostatic urethra, from which it passes upward into the bladder; the eye of the catheter is now drawn into the bulbous portion and the entire canal irrigated as the instrument is slowly withdrawn. The patient now stands and passes the medicated fluid, which, having already acted on the deep urethra and bladder base, washes out the posterior urethra a second time, and flowing forward through the anterior portion, distends it as it rushes out, and in this manner medicates all of the diseased areas along the canal. The solutions must be warm, and increased very slowly in strength, especially the silver solution, which, if used too strong, will set up intense vesical tenesmus, which is liable to be followed by an exacerbation of the acute symptoms, and also by such complications as epididymoorchitis, urethrocystitis, and severe prostatitis, with perhaps abscess formation in the gland. The fluid should always be injected with a hand syringe, as with it we know the exact amount of fluid thrown in, the resistance offered by the bladder, and the force used; whereas if an irrigator or fountain syringe were employed, none of the above valuable information could be obtained and more or less damage might be done. The amount of fluid used at each treatment varies somewhat in different cases, my custom being to throw in about four ounces into the deep urethra and bladder and about the same amount into the bulb. Beginning with boric acid and then changing to mild solutions of zinc, alum or permanganate of potash, we endeavor to use the silver nitrate as early as possible, beginning with 1-30,000 and increasing the strength in a guarded manner up to about 1-5,000, as a result of which the patient passes a clear urine, except for a few flakes and tissue elements (*fourth or chronic stage*), which condition calls for instillations of silver nitrate given in the deep urethra and bulb, by means of the soft catheter and instillation syringe. Prostatic massage, sounds, and the endoscope are employed in the chronic stage when indicated, but overdilatation with metal "dilators" is never employed on account of the injurious traumatism it produces. Injections of antigonococcus serum have been followed by gratifying results in some cases, but a discussion of this subject will be taken up at a later date.

Having described a plan of treatment which, in the writer's opinion, is based upon the pathology and course of the disease, and one also which takes into consideration the delicacy of the urethral canal and its contiguous glandular structures, we will now consider briefly some of the so-called abortive methods, or rapid cures, the inefficiency and harmful results of which are encountered almost daily, if one may judge from a fairly large personal experience, both in private, hospital, and dispensary work.

The Janet method, which consists of irrigating the urethra and bladder with warm solutions of permanganate of potash from a considerable elevation, does cause a very rapid cessation of the purulent urethral discharge as is claimed by its advocates, but at the same time it produces a very severe exudative inflammation into the submucous connective tissue layer, which leaves the canal in a thickened, congested and irritable condition, associated with a

mucoid or watery discharge, which is at best very difficult and sometimes impossible to cure, especially in those cases where the lips of the meatus have a swollen and pouting appearance. Spasm of the compressor urethræ muscle, and even of the muscular layers of the urethra, is frequently observed following this treatment, as is also a congested and painful condition of the prostate gland, which gives rise to a sense of uneasiness just before and after urination. The dribbling of urine after each act, which is so frequently complained of, is due to a loss of elasticity of the urethral walls. The muscular spasm and irritability are sometimes so marked that it is very difficult to pass a soft catheter through the anterior portion of the canal, and well nigh impossible to get it beyond the compressor muscle, even with the greatest care and gentleness. Having seen a very large number of patients suffering from the above conditions in private, hospital, and dispensary practise, I feel thoroughly convinced that I am justified in condemning this unnecessarily harsh and severe treatment, which merely washes off the surface of the mucous membrane without any beneficial action whatsoever upon the deeply seated gonococci.

The above cited sequelæ are not to be wondered at when one considers the force and strength of the solution, rushing through and distending such an acutely inflamed and swollen canal as the urethra is, in this, the acute stage of the disease; also the injurious effects of overcoming by hydraulic pressure the delicate musculature which guards the deep urethra, and parts beyond, and also the injurious dilatation of the orifices of the glandular structures opening into the urethra.

In regard to the silver salts, or "gonococcocides," which are being extensively employed at the present time as hand injections and irrigations in all stages of the disease, and which are said to destroy the gonococci in a very short time without causing any pain or injury to the urethral mucosa, I must admit that, after a fair and impartial trial, I can see no advantage from their use, nor do I get as satisfactory and permanent results as from the conservative method above described, a method which if carefully carried out in every detail will cause a rapid absorption of the submucous exudation, together with a restoration of the urethral mucous membrane; the practical results of which are fewer cases of chronic gonorrhea, stricture of the urethra, and prostatitis, to say nothing of the avoidance of the many other unnecessary sequelæ which result from the over-zealous and too radical treatment of the acute or suppurative stage.

Having considered the treatment of the disease, the ever important question now arises: When is gonorrhea cured? In order to answer this question in an intelligent manner the surgeon must examine the patient's morning urine, passed in his presence, every other day, on several successive mornings, and if it be clear and contain microscopically neither pus nor shreds; that is, if it be perfectly normal on repeated examinations, we then know that the urethral lesions have been cured. If, on the other hand, there are shreds and flakes in the urine, which under the microscope are found to consist of pus and epithelial cells, whether they contain gonococci or not, we know that the urethral lesions are still uncured, and that the secretions from these areas may be infectious. If the shreds consist of epithelial cells alone, they of course, may not be dangerous; but even these patients must be warned not to have sexual relations, and advised to take a proper course of treatment.

In order to ascertain that there is no lurking trouble in the periurethral glands, the prostate, the seminal vesicles, or the ampullated ends of the vasa deferentia, the patient should pass all of the urine, and then have the bladder filled with warm sterile water, after which the prostate, vesicles, vasa deferentia, Cowper's glands, and the periurethral follicles are carefully examined and massaged: any material appearing at the meatus as a result of this examination is caught on slides. The patient now passes the warm sterile water which washes out any remaining secretions that have been expressed into the urethra. The centrifuged sediment in the sterile water and the secretions caught at the meatus are examined microscopically, and if the findings show the prostate or other glands to be diseased, these structures should be treated and the patient be informed as to his infectious condition. The little follicles in the integument of the penis, between the layers of the prepuce, and in the lips of the meatus (paraurethral follicles), should be carefully examined in order to ascertain that they also are free from the gonorrheal process. The so-called "beer test" is never employed as it is considered crude and unnecessary, especially when we have scientific and more dignified methods at hand. The examining physician cannot be too careful in giving his opinion on this all-important subject, and should therefore make the above examinations in a most thorough, painstaking and conscientious manner, and warn patients against sexual relations until their disease is absolutely cured.

121 West Fifty-fifth Street.

A NEW SPHYGMOMANOMETER.

By J. RUDISCH, M.D.,

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While mercury manometers have come into general use for the determination of blood pressure, several important objections may be urged against them: Either fouling of the surface of the mercury or a capillary tube that is not absolutely clean will prevent accurate registration; as the result of inertia, the mercury will rise and fall in an exaggerated wave even after the force of the pulse wave has been expended; the fine dividing lines on the capillary tube make readings difficult: such manometers are not readily portable.

The chief objections advanced against manometers depending upon a spring are the inaccuracy of these instruments and their deterioration in time. The inaccuracies encountered, however, are not inherent in the principle of the spring, but are due solely to imperfections in manufacture. The second point will be discussed later. It may be pointed out that the chronometer, an extremely delicate instrument, is based wholly upon the principle of the spring.

My instrument consists of three parts — a manometer, a cuff, and a syringe. These are all connected by heavy rubber pressure tubing through a metal T-tube. The manometer consists of a hollow curved metal spring (Fig. 1, A) from the free end of which a silk thread (B) runs to an upright revolving metal bar around which it is wound. A second metal bar bearing the indicator (c) is attached to the upper end of the upright at right angles. As the air is forced into the spring, the

increase in pressure will cause the latter to straighten, this movement being communicated to the indicator through the silk thread and upright bar. The latter will revolve in proportion to the pull exerted by the hollow spring, causing the indicator to sweep over a divided dial (Fig. 2), on which the force of

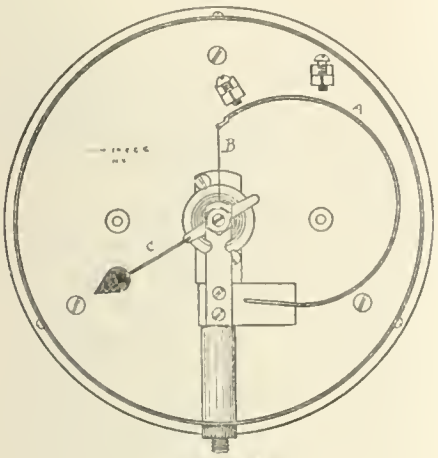

Fig. 1

the pull may be read directly in millimeters of mercury. A hairspring attached to the upright at its base and exerting its force in the opposite direction causes the indicator to return to its original position in proportion to the diminution in pressure. The dial is movable, enabling the indicator to be brought opposite the zero mark, thus counteracting variations in the position of the arrow due to thermal influences acting upon the spring.

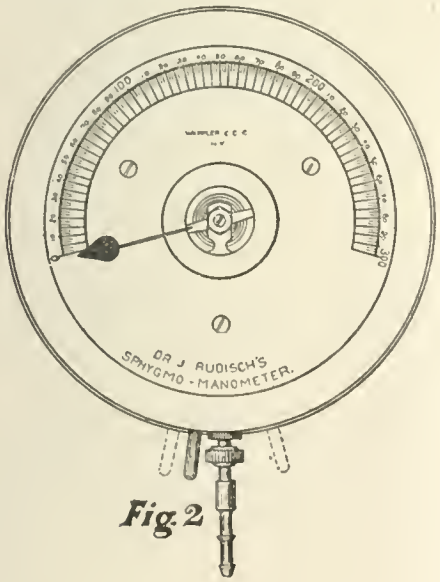

Fig. 2

The cuff is the usual 15-centimeter von Recklinghausen cuff. The metal syringe contains a two-way cock, by means of which the air pressure in the cuff and in the manometer may be readily increased or diminished at will.

To determine systolic pressure the cuff is tightly strapped about the arm. Air is forced into it and into the manometer from the syringe until the indicator shows minimal oscillations. This point is usually found to be 5 to 10 mm. higher than that at which the radial pulse is no longer palpable. To determine diastolic pressure the air is allowed to escape slowly by reversing the cock of the syringe, carefully noting the extent of the oscillations of the indicator. The point at which these oscillations are greatest will correspond to the diastolic pressure. Below this point it will be noted that the oscillations again become smaller.

The advantages of this instrument may be summed up as follows: (1) It dispenses with the use of mercury; (2) it is readily portable; (3) the air pressure is at all times under absolute control; (4) the extent of the oscillations is sufficiently great to make accurate readings on the dial very easy.

A series of comparative tests was made, using a mercury manometer as a standard. Pressure registrations were identical with both instruments. A similar model has been in constant use in my wards for the past two years. It has required no repairs, and, recently standardized with the Stanton instrument, showed a difference of only five millimeters, a negligible quantity in practical work. Von Recklinghausen has had a similar satisfactory result with his model.

This instrument is manufactured by the Wappler Electric Controller Company of New York, 39 East Sixty-third Street.

39 East Sixty-third Street.

A SIMPLE METHOD FOR PREPARING A USEFUL STAIN.

By ROSCOE W. KING,

LAS ANIMAS, COL.

The following working formula is the outcome of a long series of experiments covering three or four years:

Methylene blue (Grubler's)	1.0
Sodium acid carbonate (C. P.)	0.5
Sodium acid sulphate (C. P. crystal)	0.72
Distilled water q. s.	

Dissolve the methylene blue and the sodium acid carbonate in 100 c.c. of distilled water. Transfer to a porcelain dish (500 c.c.) and evaporate to dryness directly over the flame, a wire gauze being used to distribute the heat. The solution should be allowed to boil gently until one-half to two-thirds of the water has escaped. The heat is then somewhat reduced, evaporation hastened, and spurting prevented by occasionally tilting and rotating the dish so as to cause the fluid to flow upon the sides of the dish. When perfectly dry, and almost cool, add the acid sodium sulphate previously dissolved in ten to fifteen c.c. of distilled water. Rotate and tilt the dish to bring this acid solution in contact with all of the stain in order to insure complete neutralization of the sodium carbonate present. When effervescence ceases again evaporate to complete dryness over the flame. Remove the stain by means of a small spatula and keep as free from moisture as possible.

The blue stain as made above is permanent. It can be used in aqueous solution in all cases in which a well polychromed methylene blue is desired. For tissue work a slightly alkaline solution is quite as satisfactory as Unna's. The sodium sulphate has no injurious effect whatever, while it probably serves to keep the powdered stain more nearly free from moisture than it would be without the sodium sulphate. This is, of course, desirable. The writer has always used Grubler's stain in preparing the blue, but experiment might show that another brand was as good. Some grades of methylene blue will not work at all, but so far only one lot of Grubler's

has been found that did not give satisfaction. This was thought to be mislabeled, as it had not the physical appearance of methylene blue. The working formula as given above is adapted only to the preparation of the quantity of stain mentioned. If larger amounts are desired separate dishes should be used. One of the necessary requirements for success seems to be that the time required for evaporating the blue solution to dryness should be between one-half and one hour. This always occurs when the volume of the fluid is 100 c.c., and the directions are followed. It is obvious that were the volume increased five or ten times the action of the alkali on the blue stain would be greatly prolonged, the result being an over oxidation, amounting to a destruction of the staining properties. Large volumes could, of course, be evaporated within the time limit by correspondingly increasing the surface of the dish exposed to the heat.

The principal use of the stain, and the object for which it was especially prepared, is in the making of a modified Romanowsky staining fluid. This being easily and quickly done by dissolving 175 milligrams* of the blue in 25 c.c. of methyl alcohol containing 40 milligrams of eosin (Grübler's W. J.). The eosin may be kept as a stock solution by dissolving 0.8 grams in 500 c.c. of methyl alcohol. The blue stain is readily soluble, and the Romanowsky stain is ready for use immediately after its addition to the eosin solution. Filtration is apparently not necessary, but it is probably preferable to filter after a few hours. The Romanowsky staining fluid made in this way has identical staining properties with Wright's, Leishman's, and others. Washing or other differentiation is, however, not required. In staining blood smears on the slide it is best to draw a heavy line with a grease pencil about half an inch from each end. Drop on about twenty drops of the stain, or enough to cover the film well, allow to act one minute and then add an equal number of drops of distilled water and allow to remain from three to five minutes. In some cases longer staining may give better results. Almost any kind of methyl alcohol will give a staining solution that gives satisfactory results. But if an impure alcohol—especially one containing water—is used the staining solution will not keep so well as when absolute alcohol is employed. Any alcoholic solution of a Romanowsky stain will at times be found to overstain with eosin or with the blue. In the former case a drop of alkaline alcohol (0.5 per cent. NaOH in ethyl alcohol), and in the latter a drop of acid alcohol (3 per cent. HCl.) will usually remove the trouble.† Thick blood films always overstain with blue, and for this reason the smears should always be made as uniformly thin as possible.

*For routine blood work it is better to employ only 150 milligrams of the blue, as a larger quantity gives a fluid which tends to overstain.

†This can also be overcome by remembering that the greater the amount of water used for diluting the stain the more intensely will the eosin stain. Thus, if equal amounts of stain and water do not stain the nuclei distinctly, it indicates that to 20 drops of stain only 15 drops of water should be added. The presence of a scum on the surface is not a reliable guide.

U. S. Naval Hospital, Las Animas, Cal.

Mammary Gland Extract.—The mammary gland is said to secrete or contain a substance which stimulates the uterine muscle.

Blood Pressure in Children.—According to Stowell (Archives of Pediatrics), the blood pressure in healthy children is usually between 91 and 103 mm. of mercury.

Fixation of Bile Pigments in the Placenta.—Odorico Viana has made a study of the placenta in eight cases of jaundice in pregnancy, four of which were merely catarrhal cases, while four showed acute yellow atrophy of the liver. The examination was made to ascertain whether the death of the fetus, which generally occurs in the severe cases, and is absent in the catarrhal ones, was due to the carriage of bile pigments to the fetus by the maternal blood. The author finds it much more likely that the death of the fetus is caused by toxins passing from the circulation of the mother than by bile pigments. It must be admitted that a certain amount of bile pigment is deposited in the tissues of the placenta, especially the sincitium. There is no reason to believe that the pigment is combined with the lime of the placenta. The presence of bile pigments in an alcoholic extract of such a placenta is not a demonstration of the deposition of the bile salts, because those found may come from the blood that is contained in the placenta.—*Annali di Ostetricia e Ginecologia.*

Racemose Ovarian Cysts.—Le Jemtel describes racemose ovarian cysts, consisting of agglomerations of several cysts attached to a central pedicle formed by the ovary. Such a cyst he observed in a patient from whom he removed it. They are of variable size, without an enveloping membrane. The cyst may be implanted on the most prominent part of the ovary which is of normal character. The liquid contained is transparent and sticky. The walls are very friable. The ovaries contain graafian follicles in process of development. The solid portion of these tumors consists of a tissue rich in mucus, with connective tissue cells, and large vessels with thin walls. The epithelium varies in characteristics, from cylindrical with cilia, to cuboidal. These tumors may be extraovarian or ovarian, and may constitute true supernumerary ovaries. The clinical history gives no characteristic symptoms that will aid us in making the diagnosis from other ovarian cysts. They appear at any age, and develop slowly or rapidly. They are very soft, and quite mobile. The only possible method of treatment is by ablation of the cysts and ovary.—*Annales de Gynécologie et d'Obstétrique.*

Pulmonary Emphysema and Fatty Degeneration of the Diaphragm in Diphtheritic Intoxication.—G. Mya has observed in children who were subject to severe diphtheritic intoxication a condition of emphysema of the lungs, which may go so far as rupture of the vescicles of the lungs and sub-pleural, and even subcutaneous emphysema. The type of case in which this is seen is that in which there is a necrotic angina with great enlargement of the glands of the neck, myocarditis, albuminuria, cutaneous hemorrhages, and muscular asthenia. Such cases generally result fatally. In life the area of resonance of the lungs extends down to the seventh rib in front and the twelfth behind, and the vesicular murmur is enfeebled, while inspiration is short and superficial. In these cases there is no laryngeal stenosis, and hence the condition cannot be referred to the extra effort required for respiration. At autopsy the clinical evidences are confirmed by finding the macroscopic and microscopic characteristics of emphysema. In these cases there is also found a fatty degeneration of the muscular fibers of the diaphragm, which aids the lack of elasticity of the lungs, due to deficient power of the elastic fibers in producing the emphysema.—*Rivista Di Clinica Pediatrica.*

Hypertrophy of the Lymphoid Tissues of the Pharynx and Its Relations to Tuberculosis.—P. Nobécourt and Leon Tixier have examined twenty-two children from thirty-one months to four years of age, all of whom had large adenoids and enlarged tonsils, but none of whom had pulmonary tuberculosis. They sought for appreciable tuberculous lesions and used tests for the presence of tuberculosis; the subcutaneous method, ophthalmic reaction and skin reaction were used as tests. A table of the results is appended. Bacteriological and histological examinations of the tissues removed were made. Of the children thirteen had no sign of tuberculosis: six had doubtful signs; three were considered clinically tuberculous, and two were clinically doubtful. The skin reaction was positive twelve times; the ophthalmic reaction was positive four times; only five infants out of the twenty-two could be considered free from tuberculosis, and yet almost all enjoyed excellent health. The portions of tissues removed and examined never showed tuberculous foci. The authors conclude that tuberculosis of the tonsils and adenoid tissues of the pharynx is rare. In these children who were openly tuberculous the inoculation of guinea pigs with the tonsilla tissue never produced tuberculosis. The lymphoid tissues did not serve in these cases as the door of entry for the bacillus tuberculosis.—*Gazette des Hôpitaux.*

MEDICAL RECORD.

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DIAGNOSTIC REACTION OF TUBERCULIN ON THE NASAL MUCOSA.

FOLLOWING in the direction suggested by von Pirquet, Wolff-Eissner, and Calmette, two physicians of Bordeaux, Lafite-Dupont and Moulinier, have made certain observations on the effect of applying tuberculin to the nasal mucosa and record their results in the May issue of the *Annales des Maladies de l'Oreille*, etc. They declare that they have in this way obtained a characteristic reaction in the form of a peculiar exudation which dries and forms a yellow crust upon a congested mucosa from which clumps of extravasated red cells project here and there as minute reddish points. Observations were made on one hundred patients taken by chance. Only those with tuberculosis in some form reacted. Use was made of the dry tuberculin prepared at the Pasteur Institute in Lille in one per cent. solution in distilled water. Cotton tampons were soaked in this solution, eight tampons being placed in half a cubic centimeter of it, and assuming that the tampons absorbed equally, each one represented 0.000625 of dry tuberculin. The tampon was then inserted in the nose and for ten minutes the patient was cautioned against violent breathing, coughing, or using the handkerchief. This time was found to be quite sufficient to produce the reaction, a lengthening of the time making it neither more pronounced nor more speedy in appearance. The authors consider the septum preferable to the turbinate as the site of application because the former possesses fewer glands and the secretions are naturally less abundant.

The characteristic of the nasal reaction is the appearance at the point of application of a localized exudation preceded by a more or less intense congestion of the mucosa which sometimes persists after the distinct exudation has passed off. The latter soon dries under the influence of the air and becomes a light thin yellowish crust. The reaction comes on in from eighteen to forty-eight hours after the application of the tuberculin and disappears in from seven to eight days. Occasionally it persists for ten and even eleven days. The crust generally falls off from the fourth to the sixth day. If it is forcibly removed, another crust forms containing more or less blood and remaining for a longer time than the primary deposit. Examination of the latter has shown a considerable number of white cells with altered nuclei, especially the polynuclear variety, and the predominance of this polynucleosis harmonizes with the results of cytological examinations made in the ophthalmo-reaction.

Out of the 100 patients examined 90 received the tampons on the septum and 10 on the inferior turbinate. Of the former, 17 had pulmonary tuberculosis, pleuritic lesions predominating, 21 had tuberculosis complicating some previous affection, while 11 had surgical tuberculosis, and 20 were non-tuberculous. Observations were incomplete in 10. All the tuberculous patients gave a positive reaction, even those with pulmonary cavities, although in this class the reaction was not so pronounced. Three of the pleurisy cases not reacting were in patients presenting conditions of bodily decay in which the reaction does not present itself by any method, confirming results already obtained in the ophthalmo-reaction. Thus one was cachectic, one syphilitic, and one had a true serofibrinous pleurisy without any bacillary element. In short, 68 out of 73 tuberculous patients reacted in the manner described. Of the 5 others, 3 presented a congested mucosa without the exudate and 2 are still under observation.

According to Lafite-Dupont and Moulinier, the nasal procedure is just as reliable as the ophthalmo-reaction and the cutireaction. Over the former it has the advantage of being absolutely harmless and over the latter that of applicability without the knowledge of the patient.

MILK SUGAR AND THE CALORIE METHOD OF INFANT FEEDING.

SINCE Heubner, a few years ago, carried out his experiments on the energy requirements of the infant, the calorie method of feeding has been adopted almost universally throughout Germany and is attracting some attention among the younger pediatrists in this country. The method employed in the German clinics is to make a milk and water mixture which the physician believes the child can digest, calculate the energy equivalent of this in terms of heat units, and add enough milk sugar to raise the calorie content of the food to between eighty and one hundred and twenty calories for each kilogram of body weight, the figures arrived at by Heubner as the energy requirement of the healthy infant. In this country, when the calories are calculated, it is done more often as a guide to the quantity of a definite mixture to be given than as a method of determining the quality of the food or the percentage of sugar to be added.

This dependence upon the use of milk sugar to make a food of the proper nutritive value for the infant would seem *à priori* to be a rational procedure, as lactose is the form in which nature administers carbohydrates to all suckling animals. That there may be some doubt, however, as to its efficiency is brought out in an article by Richard Weigert in the *Berliner klinische Wochenschrift* for May 24, 1909. In his position in charge of the city milk dispensary in Breslau, he was able to study a large number of healthy and ill infants. Before he took charge the routine diet given to the very young infants requiring artificial feeding was a mixture

consisting of one part of whole milk and two parts of a ten per cent. lactose solution. On a certain day he stopped all the lactose distribution from the dispensary and in its stead diluted the milk with plain water. The results were watched with great care and it was shown that the infant's weight increased as rapidly and as regularly without the milk sugar as it did with it. Certain symptoms, such as redness of the mouth and frequent, thin, slimy stools, which had been common, disappeared immediately. No increase of constipation nor the passage of soapy stools was observed. For the past year all infants fed from the Breslau dispensary have received mixtures without the addition of lactose and have gained as well and have been generally in better health than before.

A point of even greater interest than the inefficiency of lactose, is, if Weigert's charts are to be believed, the gain in body weight of his patients on a diet so extremely weak that, according to the tables of Heubner, it should be quite incapable of sustaining life. According to these charts, Weigert's infants, before the elimination of milk sugar, received but some seventy calories of food per kilogram of body weight and afterward between twenty-five and thirty-five calories. Though the amount of milk was rapidly and disproportionately increased soon after the lactose was stopped, it rarely got above fifty and never above seventy-five calories per kilogram. The fact that infants can gain weight and thrive on such an extremely low diet is quite contrary to the teachings of Heubner and his school. If these results of Weigert, which have stood the test of time for a year, continue, a new minimum limit may have to be given to our rules for the energy requirement of healthy and ill infants. The entire piece of work gives the pediatrist plenty of food for thought.

BLOOD TESTS FOR MENTAL DISEASES.

During the past year some marked advances have been made in our means of diagnosing certain forms of mental conditions and steps have been taken pointing to the possibility of more exact methods of diagnosis of the psychoses. Not the least of these is the butyric acid test of Noguchi for the globulin or globulin-like substance found in excess in the spinal fluid and blood of syphilitic and parasyphilitic patients, by which he is able to differentiate these from the other forms of psychoses.

There now appears still another definite laboratory test in an article by Much and Holzmann, who describe in the *Münchener medizinische Wochenschrift*, May 18, 1909, a new hemolytic test for certain mental diseases. They give no explanation of the theory of the test, nor do they tell by what steps they reached their results. The principle of the reaction is as follows: Washed human blood corpuscles are dissolved by cobra venom. The addition of healthy human serum does not interfere with the hemolysis, but the serum from patients with certain forms of psychoses does prevent the solution of corpuscles by venom. The exact technique is as follows: Cobra venom from Ehrlich's laboratory is used, 0.2 gm. being dissolved in 10 c.c. each of water and of glycerin, and kept on ice. In the test of 0.35 c.c. of serum is mixed with 0.25 c.c. of a 1:5000 venom solution, the dilution from the stock solution being made with physiological saline solution. To this is added 0.5 c.c. of a 10 per cent. suspension of human corpuscles, the blood having been obtained with a sodium citrate solution and the corpuscles twice washed with physiological salt solution. The mixture stands in the thermostat for two hours and for twenty-two more on ice. At examination the tube is shaken. If the solution is completely opaque the reaction is positive. A partial restriction of hemolysis, where, though the fluid is not transparent, some solution has taken place is considered as a negative result. The shaking is essential to the reading of the results. Hemolysis may occur in the control within two hours, but it will always have taken place by the end of twenty-four hours when the fluid is kept on ice. This reaction the authors call the "psychoreaction." They examined some 400 patients. Of these they report upon 151, of which number 42 gave a positive reaction and 109 a negative one. Of the positive cases twenty-four were classified as of the manic depressive type, ten as dementia præcox, and seven as having a family history of manic depressive insanity. From their results the authors conclude that their test is specific for both dementia præcox and cyclic insanity either in the patient or in his family.

If this new reaction should stand the test of time it would undoubtedly prove of value to the alienist in diagnosing certain obscure cases of mental disease. A careful critical study of the article, however, impresses one with the necessity of a repetition of the work by less enthusiastic observers. Too many of the cases classed as manic depressive insanity, in which the reaction was positive, were otherwise diagnosed before the test was made; and, on the other hand, a number sent to the observers as cases of this condition, in which the reaction proved negative, were promptly considered as of some other form of dementia. In one or two positive cases the authors state that the patients were mentally normal, and no family history of insanity could be obtained. If, too, the reaction holds from an insane grandmother through normal parents, it loses much of its value. The pure empiricism of the test, which is given with no effort at explanation, would also argue against its acceptance. In the Noguchi test it was known that the spinal fluid contained an excess of globulin in syphilis and the step from that to tabes and general paralysis was a logical one, the test being a test for globulin. The reaction of Much and Holzmann has no such basis and it can hardly receive general acceptance until it has undergone more rigid investigation.

Gastric Secretion During Pregnancy.

One of the most trying experiences that the physician meets in the course of his duties is the care of a persistent case of the vomiting of pregnancy, and he who throws light on the etiology of this disease which may lead to a more intelligent and successful

therapy will be a benefactor of his kind. Many theories have been promulgated as to the cause of this distressing affection, varying from the direct pressure of the gravid uterus to a faulty metabolism making the condition a milder grade of eclamptic toxemia, none of which theories seems, however, to have accomplished much toward preventing or relieving the attacks. For this reason every addition to our knowledge of the physiology of the condition should be greeted hopefully as a possible step toward the goal of prevention. Such an addition has, perhaps, been made in a small piece of experimental work carried out by Borodenko and reported in the *Berliner klinische Wochenschrift* for June 7, 1909. This investigator studied the gastric secretion of a pregnant dog by the common method of the "Pawlow stomach." The examination began two months before the termination of pregnancy and continued until after the end of lactation. The dog was in good health during the entire period. At first the gastric juice showed no abnormality, but, as pregnancy advanced, the secretion decreased steadily and the acidity lessened markedly, until at the end of pregnancy, and on the day of birth, the content of the Pawlow stomach consisted of mucus only, and was neutral or slightly alkaline in reaction. Shortly afterward the gastric juice reappeared and gradually increased, remaining low, however, in both quantity and quality until the end of lactation, when it rapidly returned to the normal. With the steady decrease in the acidity the animal's appetite underwent a change. Whereas at first she took meat, bread, and milk with equal avidity, as the pregnancy approached its climax she developed a marked fondness for milk, cared much less for meat, and refused bread entirely. During the nursing period the appetite slowly reverted, and at the end of lactation the dog again took all three foods with equal relish. Whether this decrease in gastric secretion is due to a lack of salts in the maternal organism, owing to the extra deposit in the fetus, or to some more obscure metabolic change, it is within the realm of possibility that the vomiting of pregnancy is in some way related to or dependent upon such a physiological change. Though it is not to be expected that a means of preventing or curing the vomiting of pregnancy will be obtained as the result of one experiment on a dog, still the findings of Borodenko are sufficiently striking to receive serious consideration, in the hope that they may prove the basis of more extended and fruitful investigation.

Iron as a Substitute for Bismuth in *X*-Ray Diagnosis.

During the past few years the practice of giving bismuth subnitrate to patients in doses of a size previously unheard of has become quite common. This is due to two new uses of the drug, the one in *x*-ray diagnosis, and the other, an outcome of the first, the treatment of tuberculous sinuses by mixtures of bismuth and vaselin, as recommended by Beck of Chicago. Both of these uses of bismuth have been distinct advances in medical science and have led not only to more accurate diagnoses, but also to some remarkable cures. At the same time, however, this use of the massive doses of bismuth subnitrate has recalled to us a fact previously well known, but apparently forgotten by the new generation of medical practitioners, namely, that this drug is far from innocuous and if used too freely is liable to cause serious or even fatal results. Its action appears to be twofold, both the bismuth and the nitrate radical causing definite symptoms of poisoning. These intoxications are serious, for even when not fatal they are chronic in nature and may cause decided discomfort over periods of many months. In this connection it is of interest to find in the *Münchener medizinische Wochenschrift* for June 8, 1909, a brief note by Karl Taege of Freiburg describing a method by which iron can be substituted for bismuth in *x*-ray diagnosis. The objection to a watery suspension of iron is that the metal sinks rapidly, and is not evenly distributed, while an oil emulsion is disagreeable to physician and patient alike. Taege, therefore, suggests as a substitute an emulsion in tragacanth. He grinds iron oxide in a mortar with tragacanth powder and then shakes the mixture thoroughly with water in a flask. Enough tragacanth must be used to make the final watery solution contain about one per cent of the substance. This gives a syrupy fluid in which the iron oxide remains in suspension for hours. If this iron preparation acts as well in obstructing the *x*-rays and is less toxic than bismuth subnitrate, it should prove a valuable substitute for the latter more dangerous drug.

News of the Week.

Medical Camp at Antietam.—An army medical camp will be held at Antietam from July 15 to August 15, in connection with the army maneuvers. It will be under the command of Major Frederick P. Reynolds, who will have as his chief aids Capt. R. H. Patterson, Capt. Frank W. Weed, and First Lieut. Charles W. Cullen of the Medical Corps. About 250 of the best-trained veterans of the Army Hospital Corps will assist these officers. There is to be a fully equipped field hospital, where daily instruction in the care of the sick and wounded will be given. The hospital will be conducted on the lines of a field hospital during warfare. Sanitation will be another important part of the exercises. Every appliance to rid camps of garbage and of mosquitos and other insects will be used.

New York City Play Grounds.—To meet the overcrowding in the vacation playgrounds of New York City, the Board of Education this week opened 64 additional playgrounds. Lessons at the playgrounds continue from 1 until 5.30 P. M. From 1 to 1.30 the children assemble, chant a salute to the flag and sing folk songs. Then follows an hour of games and athletics. From 2.30 to 3 the time is spent in organized free play and recess. An hour of free hand drills, work on light apparatus, military drills, and folk dances is followed by forty-five minutes of games and gymnastics; a half hour of athletics, racing, jumping, etc., and fifteen minutes of assembly and dismissal. In addition, 72 playgrounds for mothers and babies and morning playgrounds will be opened.

Official Recognition of the Dog Star.—The Health Department of New York has again ordered the destruction of all dogs not muzzled or held in leash, the order to be effective until September 1. This is an excellent regulation, but why it is put in force only during July and August of each year is not apparent.

An Anti-Noise Ordinance.—The Mayor has

signed the ordinance, recently passed by the Board of Aldermen, prohibiting all blowing of horns, shouting, or other methods of attracting attention to their wares on the part of hucksters and peddlers, except in that curious survival, known as "Paddy's Market," in Ninth Avenue.

Appointments.—The Memorial Hospital of Richmond (Va.) has had a complete reorganization of its medical staff. Dr. Lewis C. Bosher is chief of the surgical staff, and the following additional appointments have been made: Seniors, Dr. Edward P. McGavcock, dermatology; Dr. St. George Grimm, pediatrics, and Dr. R. H. Wright, ophthalmology. Juniors, Drs. C. W. Massie, Hunter R. Scott, H. B. Sanford, and T. D. Jones, obstetrics; Drs. McCaw Tompkins, and H. Norton Massey, abdominal surgery; Drs. Sidney Baker and B. Giles Cook, gynecology; Dr. E. H. Terrell, general surgery, and Drs. B. M. Rosebro, E. W. Gee, and B. L. Taliaferro, diseases of children.

Dr. M. P. Ravenel, director of the State Hygienic Laboratory, Madison, will be placed at the head of the Wisconsin Pasteur Institute, which was recently established in connection with the State Laboratory.

Dr. H. Gideon Wells has been appointed professor of pathology in the University of Chicago, and Dr. A. G. Carlson has been appointed professor of physiology in the same institution.

Resignations.—Dr. S. M. Yutzy has resigned from the medical faculty of the University of Michigan, after eighteen years' service.

Dr. H. B. Ward has resigned from the medical faculty of the University of Nebraska.

A Conference on Prevention of Infant Mortality will be held at New Haven, Conn., on November 11 and 12, 1909, under the auspices of the American Academy of Medicine. The work of the conference will be divided into four sections—medical prevention, philanthropic prevention, institutional prevention, and educational prevention. The subjects will be discussed by many pediatrists and social workers in the country. The committee on local arrangements will be under the chairmanship of Dr. W. Merriman Steele of New Haven, and the secretaryship of Prof. C. J. Bartlett of New Haven.

The Phipps Psychiatric Ward.—Plans have been completed for the new psychiatric ward of the Johns Hopkins Hospital which is to be built by Mr. Henry Phipps, of New York. The building will be of dark brick and stone to resemble the other buildings of the hospital, but the interior will be quite different from the usual hospital ward. The white coloring common to hospitals will be omitted, and the rooms will be made as homelike as possible. The idea of non-restraint will be carried out as much as possible. The court will be made into a garden, and the windows will be guarded by flower boxes and trellises instead of bars. Extensive arrangements for recreation and exercises will be supplied.

A Dispensary for Epileptics.—A few months ago there was formed in Philadelphia a Society for the Securing of Suitable Employment for Epileptics. The unusual response and numerous demands made upon this new organization by helpless and neglected epileptics, have made the establishment of a dispensary, where they may receive treatment and medicine without cost, an absolute necessity. This will be called the Letchworth Clinic for the Home Treatment of Epileptics. This clinic and the parent society will have for their object, besides the enlightened sanitary supervision of these unfortunates, the study of all means for the prevention and care, as well as cure, of epilepsy; and since the disease is increasing, the urging upon the State the enactment of law prohibiting the marriage of epileptics until at least three years after recovery. An effort is being made to obtain the necessary funds to provide a suitable dispensary equipment for such service.

A Clinic for Mental Defectives has been established at the Long Island College Hospital out-patient department. Here advice is given to mothers, teachers, and guardians as to the diagnosis and care of mental defectives. At present the clinic is held each Tuesday afternoon, at 2 o'clock, under the charge of Dr. Siegfried Block.

Department of Public Health at Harvard.—Harvard University has announced the establishment of a department in its medical school exclusively devoted to the subjects of public health and preventive medicine, and the election of Dr. Milton J. Rosenau, now director of the Hygienic Laboratory of the U. S. Public Health and Marine Hospital Service, as Professor of Hygiene and Preventive Medicine. He will be at the head of the new department. Dr. Rosenau will begin his service at Harvard with the opening of the next college year.

A Memorial to the Late Captain Henry Lomb, presented by the employees of the Bausch and Lomb Optical Company, was recently unveiled in Rochester. It is in the form of a bronze tablet resting like an open book upon a pedestal of Siena marble. The tablet bears, at the head of the inscription, the following words, being Captain Lomb's last public utterance and spoken to the directors of the Rochester Public Health Association, June 5, 1908, in answer to their request for advice: "Think of others first, yourselves afterwards."

The Cholera Epidemic in St. Petersburg is gaining headway. During the twenty-four hours ending at noon July 10 there were 124 new cases and 42 suspects reported at the municipal hospitals.

Anti-Vivisectionist Congress.—At the International Anti-Vivisection and Animal Protection Congress, held in London last week, Mrs. Belais of New York made one of her characteristic speeches in which she said that the salvation of both animals and man depended on disproving the germ theory of disease.

A Trachoma Hospital.—A special hospital has been established at the Phoenix Indian School, under the charge of Dr. Ancil Martin, assisted by Dr. W. W. White and Dr. W. H. Harrison. The hospital is designed to be a training station for Indian Service physicians and nurses, qualifying them especially for treating trachoma.

A New Hospital for Tuberculosis.—Ex-Governor Benjamin B. Odell, Jr., has presented to the tuberculosis committee of Newburg, N. Y., a hospital and camp for the treatment of tuberculosis patients. He has transferred to the city a plot of four acres of high ground near the city. The dwelling on the property will be used as an administrative building, and there will be a modern infirmary which will accommodate twenty-five patients. The cost of the hospital will be about $25,000.

The Addition to Saint Joseph's Hospital, Bloomington, Ill., recently built at a cost of about $75,000, was opened for public inspection June 19 and 20, 1909. This addition includes about seventy rooms and wards.

The Jewish Consumptive Relief Society of Chicago dedicated its building for female patients June 27. The building has been presented to the Chicago-Winfield Tuberculosis Sanatorium, and is said to accommodate ten patients.

The University of Louisville Medical Department at its commencement exercises on June 30, graduated 182 men. This is the first class to be graduated since the consolidation of the various medical schools of the city, and is the largest class ever graduated in the State of Kentucky.

Consolidation of Colleges.—On June 15 the trustees of Carroll College, at their annual meeting, voted unanimously to accept the proposition of the Wisconsin College of Physicians and Surgeons, Milwaukee, to affiliate with that institution. Dr. T. C. Phillips has been appointed Dean of the Wisconsin College of Physicians and Surgeons, the new Medical and Dental Departments of Carroll College.

The Vermont Medical School Alumni Association at the annual reunion in Burlington on June 29 elected the following officers: *President*, Dr. U. A. Woodbury of Burlington; *Vice-Presidents*, Dr. W. Bryant of Ludlow; Dr. P. E. McSweeney of Burlington; Dr. M. F. McGuire of Montpelier; Dr. C. Fletcher of Dover, N. Y.; Dr. D. D. Grout of Waterbury; *Secretary and Treasurer*, Dr. Lyman Allen of Burlington.

Obituary Notes.—Dr. SAMUEL B. TOMLINSON of Cincinnati died on June 25, 1909, aged 81 years. Dr. Tomlinson was graduated from the Ohio Medical College in 1856 and was the oldest practising physician in Cincinnati.

Dr. RUSSELL G. ANDREW, for forty years a practising physician at Navesink and the Highlands, N. J., died at his home at Navesink on July 6 in his sixty-ninth year. He was a graduate of the Albany Medical College in 1866, being at the time of his death the sole surviving member of his class.

Dr. RAPHAEL ASSELTA, prominent in the Italian colony of New York, died July 9 in the New York Hospital while undergoing operation for an affection of the throat. Dr. Asselta was 52 years old and received his degree from the University of Naples in 1884. He came to this country soon after, and had since practised in New York.

Dr. CHARLES D. JACKSON of Denver, Col., was killed by a street car in Denver on June 28, aged 27 years. He was a graduate of the Western Pennsylvania Medical College in 1904.

Dr. ANDREW J. DOWER of Brooklyn died at his home, July 10, from pneumonia, aged 57 years. He was a graduate of the Bellevue Hospital Medical College in 1878. At one time Dr. Dower was a member of the Board of Education of Brooklyn. He was a member of the Kings County Medical Society, the Long Island Medical Association, the New York State and American Medical Associations.

Dr. JAMES M. KELLEY of Griffin, Ga., died at his home on July 2, aged 56 years. He was a graduate of the Bellevue Hospital Medical College in 1878. Dr. Kelley was until a short time ago chief surgeon of the Second Regiment National Guard of Georgia, with the rank of major.

Dr. HUGH L. MANNING of Louisville died on July 1 in Manchester, Ky., aged 41 years. He was a graduate of the Louisville Medical College in 1898 and of the Hospital College of Medicine, Louisville, in 1899. He held a chair in the faculty of the latter institution.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

KING'S BIRTHDAY HONORS—QUEEN'S FÊTE FOR CHILDREN'S HOSPITAL — WEATHER — BIER'S METHOD—SPINAL ANALGESIA—ROYAL SOCIETY'S CONVERSAZIONE—PHYSIOLOGY INSTITUTE AT UNIVERSITY COLLEGE—AMBULANCE PROPOSALS—EXPERIMENTS ON ANIMALS—OBITUARY.

LONDON, June 25, 1909.

THIS is the King's birthday—not the actual, but the official one. A long list of honors conferred in celebration of it is issued this morning. No new peers have been made, but there are 12 baronets and over 30 knights, with promotions in various orders. The profession is not forgotten. A baronetcy is conferred on Mr. Henry Morris, P.R.C.S., and Sir Dyce Duckworth is advanced from knighthood to the same rank. Lieutenant Colonel Leishman is among the knights. Surgeon-General L. D. Spencer, M.D., I.M.S., retired, H.K.S., advances from C.B. to K.C.B. Surgeon-General Whitehead, P.M.O., southern command, receives C.B. Lieutenant-Colonel Robert N. Campbell, I.M.S., inspector civil hospitals, receives C.I.E. So does Edgar Thurston, L.R.C.P., superintendent Madras Museum. The C.M.G. is conferred on Professor W. J. R. Simpson, M.D., for services on various missions in connection with plague; also on P. J. Garland, Dept. P.M.O., Gold Coast, in recognition of similar services at Africa.

The "Queen's fête," as some are calling the fair opened by Her Majesty on Wednesday, is on behalf of the oldest and most important Children's Hospital, established in Great Ormond street 60 years ago. You know its great repute, as do other countries. But it is in debt, as usual, £9,000 and its expenditure regularly exceeds the income. The Queen takes a great interest in it, and the great fête under her auspices, which remains open until to-night, is expected to raise a considerable sum. It certainly ought, for it is the most picturesque and fashionable of the season. It takes the form of an antique French garden of the time of Louis XV., and arranged to resemble Versailles. The garden beds, enclosed in stays of box and orange trees, are visited, and among them hundreds of ladies wander about in the dresses of the period. There is a theater, too, where an entertainment is provided of the Madame de Pompadour order, and in which she appears. Scattered about are kiosks, which serve as stalls, where curios and other gifts are exhibited under the presidency of duchesses and other noble ladies who have worked enthusiastically for the success of the fête. To-day all the exhibits will be put up to auction, and, as all have been given, there is great hope for the hospital funds, especially as from the generosity of the promoters and helpers there are no expenses to deduct from the returns. The day is also marked by two performances in the theater and a variety entertainment by eminent artists. The closure is fixed for 10:30 o'clock.

The weather has been the only drawback. Each day we have had cold and rain enough to dissipate the old superstition of Queen's weather, and to-day many thousands will be disappointed of their holiday in honor of the King's birthday. June has indeed done its utmost to make us forget the sunshine we had in part of May. Statistics are quoted to show that this summer, so far, promises to be a precise replica of that just 100 years ago. Yet, while we are shivering, we learn from Reuter that you are suffering from a "heat wave" which may portend a too great change in store for us.

Bier's method of treatment does not seem to gain ground in London, as the results seem to be rather uncertain, if one may judge by the conversation of surgeons who have tried it. This impression is supported by a discussion at the Dublin Academy, where Mr. Atkinson Stoney read a paper describing the means of producing passive hyperemia. In septic inflammation he had found the method more promising than in tuberculosis. He was emphatic in his warning not to produce too great a degree of hyperemia. Pain, he held, must not be produced, nor excessive pressure applied, or sloughing might occur.

Mr. Lentaigne (president) thought Mr. Stoney had explained why some unsatisfactory results had been reported. He had seen many tuberculous cases deteriorate under the treatment, but he had recently been converted to its use for boils. Mr. Gunn had tried it in knee and wrist cases, but it always produced pain. Perhaps Germans were less sensitive to this.

Mr. Wheeler had had the same results—pain. But in some cases of gonorrheal origin there seemed improvement.

Mr. Pearson understood that pain followed the bandage plan as a matter of tension, but suction might relieve at first by reducing atmospheric pressure.

Mr. Stoney, in reply, said Bier's worst results were with the knee joint; why, he knew not. He did not suggest the method where better and quicker results could be obtained by operation.

At the West London Society Mr. Canny Ryall brought forward on the 4th inst. the subject of spinal analgesia, which he uses for all sorts of operations, and believes it has many advantages over general anesthesia. He has injected for craniectomy, extirpation of larynx, excision of one-half the tongue with glands of neck, etc. He injected a child of two and one-half years. In Vienna he injected an old woman from whom Eiselberg removed most of the thyroid (over 12 ounces). The results he attributes to Jounesco's discovery, which led to combining strychnine with novocain, and so neutralizing the depressant effect and preventing respiratory paralysis. He gave a dog 20 centigrams of novocain without death following. He rarely uses lumbar puncture; for operations on the upper part of the body he inserts the needle into the first dorsal space, and for those on the lower half into either the eleventh or the twelfth. There is no advantage, he says, in making the puncture higher, for perfect analgesia, lasting for an hour or more, can be obtained in the head and neck by injecting between the first and second dorsal spines. The great danger of spinal analgesia is respiratory paralysis, but now that it is known that strychnine completely antagonizes novocain, Mr. Canny Ryall urged that every one employing the method ought to feel it his duty to combine the two drugs in all cases.

The Royal Society held a conversazione last evening. The invitations included the delegates to the Darwin centenary celebration at Cambridge, of which you will have had full accounts, for your own country has been well represented among the scientists assembled from the whole civilized world.

The exhibits at the conversazione were as interesting as usual on these occasions. One man declares they cover the whole field of science, from changes in comets to microbes and radiation. A sample or two must suffice. There was on view a luminous watch and night compass. The dial is of transparent glass, at the back of which a compound, containing radium bromide, is pointed, rendering it easily read in the dark. Dr. Waller demonstrated the electrical variations of the human heart by Einthoven's galvanometer. The researches at Cambridge on the malignant jaundice of dogs, which is prevalent in India and on red water in cattle, were illustrated. A section of the aorta of the Pharoah of the Exodus, showing calcification, was also on view, as were many sections of fossils from different countries, and a great number of other most interesting exhibits.

The Physiology Institute of University College was opened this day week in the presence of a distinguished assembly. Lord Reay, vice-chancellor, presided and thanked the donors who had made the building possible which was the growth, not of an isolated college, but of the university itself. Mr. Haldane performed the opening ceremony, and said the equipment in physiological research would put the institute into the first position among the universities of the world. In the last 20 years great progress had been made, and a number of new universities (which he enumerated) had been founded and technical colleges rivaling the great German polytechnics. There was a distinct awakening to the absolute necessity of the progress of the nation in the highest kind of knowledge. Even the treasury had been interested. He wished he could be as happy as to other branches of education.

The institute is the first step in a larger scheme for providing all that is required for medical science and education. The cost, including equipment, is put at £20,000. But £30,000 in addition is wanted for the requirements of anatomy and pharmacology. The ground floor is devoted to physiological chemistry, and the laboratory will accommodate 96 students. There are, further, a research laboratory, or private laboratory, and rooms for distillation, combustion, gas, and optical studies. Above is the great theater, library, and departments for neurology, histology, and for aseptic experiment. In one wing is a large class room; in the other a demonstration theater, sterilization and operating rooms, an animal hospital, and a room for keeping monkeys. Refrigerating chambers and machinery occupy the basement, and animal sheds the yard. The institute is under the direction of Professor Starling.

The asylums board adopted, on Saturday, a report of its ambulance committee to the effect that it is prepared to extend its system so as to provide 10 additional stations in London, with call boxes in the busiest thoroughfares and at difficult crossings. The board is further prepared to inaugurate an efficient service for the county and outlying police district. The cost is estimated at £10,000 per annum.

The report of last year's work in experiments on live animals has been issued as a White Paper by the Home Office. There were 453 licences, and all have furnished reports; all are declared to be persons of the highest scientific standing and well qualified for the work. The experiments have been made in suitable places, duly registered, and the usual inspections have been made. Numerous experiments have been made, mostly simple inoculations. Seventy county councils have their own laboratories, in which bacteriological experiments were carried on, and a sewage farm was used for testing the effluent on fish. Two thousand experiments were performed for the tuberculosis commission, and many others for government departments and health authorities; many, also, for testing sera and vaccines and standardizing drugs. The inspector says the animals were well cared for and the requirements of the act observed. Some trifling irregularities happened by mistaking the precise application of the different certificates.

The death occurred on Wednesday of Professor Daniel John Cunningham at Edinburgh, where he had been Professor of Anatomy since 1903 and Dean of the Faculty of Medicine. Born in 1850, he was the son of Dr. J. Cunningham, Principal of St. Mary's College, St. Andrews. He took M.B., Edinburgh, 1874, and M.D., 1876, when he was appointed Demonstrator of Anatomy in the university. He was professor at University of Dublin from 1883 to 1903, when he received the Edinburgh chair. He has served as Examiner at the Universities of London, Edinburgh, Cambridge, Oxford, and Victoria, as well as for the military and naval examinations. He had been president of the Royal Zoological Society and vice-president of the Royal Society of Dublin, served on the South African Hospitals Commissions, etc. His scientific contributions are well known. He was acting editor of the *Journal of Anatomy and Physiology*.

Letters from the Sleeping Sickness Camp, Kisü, British East Africa, announce the death on June 10, from malaria, of Dr. Henry Hugh Baker, at the age of 31. He was an Oxford graduate, M.A., M.B., and B.Ch., all taken the same year (1905). He took the medical classes at St. Mary's Hospital, London. He was government medical officer at Nairobi and had previously served as medical officer at Kharga Sasisis, West Egypt.

The death occurred yesterday of Dr. Nathaniel Hobart, the oldest doctor in Cork, and perhaps in the kingdom, for he was over 90 years of age. In his time he had served as senior surgeon to the City of Cork Hospital and Infirmary, and had also served on the staff of the Eye and Ear Hospital and other institutions. He took M.R.C.S. as long ago as 1846 and M.D., Glasgow, 1847.

OUR VIENNA LETTER.

(From Our Regular Correspondent.)

BENCE-JONES ALBUMINURIA—TETANY CURED BY TRANSPLANTATION OF PARATHYROID GLANDS—THE EFFECTS OF ADRENALIN IN TETANY—NEW OPERATION FOR TRIGEMINAL NEURALGIA—HIGH FREQUENCY CURRENT AS A SOURCE OF HEAT—ANGIOMA VENOSUM RACEMOSUM LEADING TO ASTERIOGNOSIS—THE NATURE OF ANAPHYLAXIS—EXPERIMENTS WITH HEPATOTOXIN.

VIENNA, May 15, 1909.

DR. PAUL GERBER has reported a case of Bence-Jones albuminuria, which he had recently observed. The peculiar behavior of the urine on addition of acetic acid led to the discovery of this rare condition. The patient was a diabetic, 56 years old, who constantly showed sugar in the urine, usually amounting to less than one per cent. The addition of acetic acid and of potassium ferrocyanide to the urine led to the appearance of a moderate cloud, which could be estimated to amount to not more than ½ per cent. of albumin. On the other hand, quantitative estimation of the protein contained in the urine, the usual albuminometer being used, gave much higher values, reaching as high as 12 per cent. The biuret reaction was very marked. The addition of concentrated acetic or nitric acid to the urine led to the formation of a marked precipitate, the fluid being very quickly transformed into a thick, gelatinous mass. The substances which could be precipitated from the urine by the addition of alcohol or of ammonium sulphate gave the typical reactions of Bence-Jones body.

Dr. Julius Boese has lately observed a case of tetany

coming on after the removal of a goitre. The patient was a girl of 20 years, who was suffering from a large colloid goiter which had compressed the trachea, producing a saber-like deformity. During the operation care was taken to leave intact the posterior capsule of the gland as well as the upper lobes. Very severe tetany appeared 24 hours after the operation; the administration of parathyroid extract as well as other remedial measures proved quite without effect, and transplantation of parathyroids was decided upon. These organs were obtained from another patient in whom a unilateral goiter was removed. The glands were transplanted pre-peritoneally, and the effect of the operation was most marked. The phenomena of tetany, which seemed to endanger the life of the patient, disappeared very quickly, and three days after the transplantation she was quite free from symptoms of the disease.

Falta and Rudinger have made several experiments with the use of adrenalin in the idiopathic tetany of laborers. It has been found that the subcutaneous injection of one mgm. of adrenalin in a normal human being leads to a well-marked rise of blood-pressure. The rise in pressure appears quite gradually two to four minutes after the injection of adrenalin, and reaches its maximum six to eight minutes after the first rise. The rise as measured by the Riva-Rocci instrument reaches thirty to sixty mm. of mercury and continues from one-quarter to three-quarters of an hour. In four cases of tetany, on the other hand, quite a different result has been observed by the authors. In all of them the maximum rise of pressure could be noted three to four minutes after the injection of adrenalin. In one patient the blood-pressure rose from 90 to 180 mm. of mercury; in another it changed from 115 to 165. The other two patients likewise showed more marked effects from the use of adrenalin than is usually seen in normal persons. Of great interest was the fact that in all patients the use of adrenalin led to acute exacerbations of the tetanic phenomena. Generalized paresthesia appeared, the phenomenon of Chvostek was much more marked, the fingers of both hands were bent in various forced attitudes, and the lower extremities were forcibly extended. In one case there even appeared a severe contraction of the abdominal muscles and a temporary spasm of the glottis.

Professor Julius Dollinger of Budapest has tried a new method of operating in trigeminal neuralgia. The removal of the Gasserian ganglion in this disease has proved to be a dangerous procedure because of the hemorrhage from the cavernous sinus which was usually wounded during the operation. In order to avoid this complication Dollinger has decided not to extirpate the ganglion at all. Instead he pulls out the roots of the ganglion from under the tentorium cerebelli and divides them. Dollinger has operated in this fashion in three cases of severe trigeminal neuralgia. The operation was very successful in the case of the first patient, the bleeding being insignificant and the time of the procedure quite short. The result was very satisfactory, the patient having been relieved of his trouble and having remained quite free from pain for the several months that have elapsed. Indeed, he has been able to take up his former trying vocation, that of an officer in active service. Although good results were obtained by Dollinger in the other two cases, he admits that hemorrhage and technical difficulties may occur with his method of operating as well. A physiological advantage of his technique consists in the fact that by leaving the Gasserian ganglion intact a branch of the sympathetic leading from it to the bulb is preserved. Accordingly, the pupil remains quite unchanged after this operation. Dollinger expects to modify his operation still further by dividing as far as possible the nerve fibers that carry sensation and leaving intact such others as supply the muscles of mastication, these latter fibers being usually placed below and to the median line of the former. It is quite possible that with this modification the operation for trigeminal neuralgia will show much less untoward result than has been the case heretofore.

Erich von Bernd has constructed a very handy piece of apparatus with which he has been able to apply thermotherapy to deep lying tissues of the body. It consists essentially of a transformer by means of which high frequency current is obtained from the usual electric supply. When such high frequency current is passed through the tissues the latter are subjected to a uniform degree of heat. The intensity of the current and therefore of the heat can be modified at will. Indeed, it is possible to apply enough heat to coagulate the proteins of some portion of the tissue, and such portions then may be removed by the knife without any loss of blood. The application of such current during an operation for carcinoma prevents the implantation of living cancer cells into the surrounding healthy tissue. However, it must be remembered that the bloodlessness of such a procedure is only temporary, because the thrombi produced by the current are not very extensive or firm. All divided vessels must, therefore, be carefully ligated so that postoperative hemorrhage may not occur. If a lesser amount of electricity is used the heat may be applied as a therapeutic measure; a joint, for instance, simply need be placed between the electrodes to have heat applied to its deep tissues. In this manner it has been possible to kill gonococci in an infected joint within one-half hour, after which various mechanical measures such as massage or traction may be applied without the danger of aiding the infection. In old processes of whatever origin the heat acts by producing hyperemia and by diminishing pain. In one case brachial neuritis was very favorably influenced, while in cases of fracture, etc., the formation of callus was distinctly modified by the use of the current. Uric acid derivatives present in the joints appear to be dissolved by the heat, but are later again precipitated. Cancer tissue covered by healthy skin is made soft and almost fluid by the current, yet the overlying skin is not at all affected; after the application of heat in this manner, *x*-rays seem to be much more destructive to the cancer tissue. Care must be taken, of course, to regulate the current properly, for harm may be done by the application of too much heat. In the treatment of air-containing cavities, especially, the current must be modified properly, for such cavities offer increased resistance to the high-frequency sparks and too much may quite easily be used. The procedure may prove quite useful in the treatment of the diseases of the prostate and in the presence of extravasated blood in the body.

Julius Flesch has recently reported a case of a man, fifty-six years old, who showed the curious phenomenon of loss of tactile memories, though sensation of touch was not abolished. This symptom is always a sign of cortical disease and in this patient there were enough external evidence to make it probable that a lesion of the cortex likewise existed. He showed numberless dilated vessels, forming tumors and folds in the upper eyelid of the right eye, in the right temporal region, and elsewhere. Like dilatations of blood-vessels must have been present in the right orbit, for the eyeball was pushed into one corner and there embedded in a net of enlarged veins. The bones on the right side of the skull were eroded so much that the external plate was almost absent and the spongy structure of the diploe could be felt by the finger. In some places it seemed as if the bone was absent altogether, nothing but dilated vessels being placed between the brain membranes and the external coverings of the skull. Enlarged veins were likewise present in the nasopharynx and could be seen hanging downward behind the arch of the palate. Compression of the internal jugular vein led to a marked swelling of the external dilated vessels, and the patient experienced at the same time a sensation of dizziness and fullness in the head. Coughing and letting the head hang down likewise led to an enormous increase in the size of the vascular mass. The connection between the disturbances of sensation, marked by asteriognosis and the tumor seemed quite evident. The tumor could be classified as an angioma venosum racemosum originating in a vascular nevus. The growth of the vessels has in the course of time resulted in the destruction of the bones of the skull. It was quite probable that the veins of the arachnoid were involved in the process, being dilated and pressing upon the underlying brain tissue. The latter has probably led to some changes in the cortex, resulting in the singular disturbances of touch.

Drs. Biedl and Kraus have been studying the question of anaphylaxis in an experimental way. They have noted that injections of Witte's peptone can result in an antianaphylaxis for serum, and that animals that have passed through an anaphylactic stage for serum become much less sensitive for Witte's peptone. These data justify the assumption that the anaphylactic symptom-complex has much in common with the phenomena produced by poisoning with Witte's peptone, the action of peptone having much to do in producing ana-

phylaxis. It may be supposed that Witte's peptone and the toxin which is active in the production of anaphylactic phenomena are somewhat similar to each other physiologically; perhaps they attack the same structures in the organism, producing paralysis of the peripheral vasomotor apparatus and diminishing the coagulability of the blood. The subsequent phenomena mentioned above, that is, antianaphylaxis on the one hand and immunity to peptone on the other, may be explained by the lack of reaction in the paralyzed tissues to the additional toxic action. However, in both cases there occurs a gradual recovery of the reactive power; the blood-pressure assumes its normal height and may then be again reduced by other factors having this effect, such as the division of the spinal cord or of the splanchnic nerves. It may again be supposed that the same substance which is active in the production of anaphylaxis is responsible for the toxic action of Witte's peptone, rather than that these two substances are different, though attacking the same structures. Physiologically Witte's peptone and the anaphylacting body may be considered, therefore, as identical substances, so far as their action is concerned.

Dr. Joannovics has attempted to immunize rabbits with a cellular extract obtained by washing and mincing the livers of cats. The animals were immunized by intraperitoneal injections of this substance, the injections being continued for the period of two and a half years. The serum of such rabbits proved to have a marked effect upon cats. Three cats died very shortly after receiving injections of such serum, three others died in two to four months. In the case of the latter animals there was found a fatty necrosis of the liver, much of the parenchyma being likewise replaced by connective tissue. Other portions of the organ showed regenerative phenomena in the liver cells and in the bile passages. The other organs were in the main normal. It seemed as if the serum was specifically toxic for one organ, namely, the liver. Moreover, it was specific for the kind of animal used. The absence of hemoglobinemia, of icterus, and of hemoglobinuria spoke against simple hemolytic action of of the toxin. Large doses of this "hepatotoxin" seemed to paralyze the respiratory function, though the heart continued to beat in a normal manner. The animals could be saved by the use of artificial respiration, but they gradually became marantic, refusing food and losing flesh and strength. This method of studying the condition of the organism after gradual destruction of one organ may enable us to gain some insight into the specific functions of the different organs of the body.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

TYPHLITIS IN BERLIN—THE NEW INSURANCE LAWS—TEST FOR DEMENTIA PRÆCOX AND CYCLIC INSANITY

BERLIN, June 15, 1909.

THE Berlin Medical Society has had a collective investigation on the subject of typhlitis in Berlin for the year 1907. At the session on May 12 the etiology and symptomatology were presented by von Albu and the therapeusis by von Rotter. Questions had been answered by 134 physicians. It could not be shown that the disease was becoming more serious, nor could it be determined whether the infection came from the intestines or from the blood. In 100 cases there had been a mistaken diagnosis, in that the condition was confused with some gynecological trouble. In hospitals the mortality was 9.2 per cent.; in private practice, 1.7 per cent. of the cases treated. For every acute case, two of the chronic recurrent type were found. It is most common between the tenth and twentieth years of age. Though the disease is rarer in more advanced age, the steady rise of the mortality curve shows that it is more dangerous. Abdominal pain, fever, and vomiting are the three main symptoms. The observations show that the occurrence of the spasm of the abdominal muscles increases with the severity of the attack.

Rotter stated that there had been in all over 2,900 definite cases, of which 2,300 were treated in hospitals with a mortality of 9 per cent. There were 1,344 cases operated upon, with 14.6 per cent. mortality; in the early operation the mortality was 5.6 per cent. in 423 cases: after 31 days, 18.8 per cent. in 921 cases. Of 1,021 cases without operation the mortality was 1.6 per cent. It is worthy of note that only a small proportion of the cases came to operation in the first or second day. On the third and fourth day the operation mortality increases five to tenfold. As most of the fatalities occur in the first attack, and the later attacks are apt to be less severe, the interval operation is not to be recommended.

The further development of the insurance laws, of which the summary has been published, brings new large groups of people within the limits of labor insurance. But it appears that the regulations concerning the struggle which the German physicians have for years carried on against the injustices of the present laws toward them have been entirely neglected. The profession is therefore raising its voice far and wide. Since the profession has been interested in this question for a long time, it seems worth while to describe it carefully:

The new law, as an essential step, broadens the sickness insurance to include various classes of workmen, laborers, servants, and others. We expected from it a decided simplification in the mode of treating the individual cases. We had hoped that the three great institutions—the sickness clubs, the industrial societies, which take over the care of the sick after they have left the sickness clubs, and the invalid stations, which attend to the patients who have become chronic—would be improved by the new law. It is evident that this treatment of the same patient in three institutions causes much needless work and waste of money. The hoped-for union was defeated on political grounds. The physicians regret this on both social and hygienic grounds. Such a great comprehensive organization could accomplish much in the sphere of hygiene. But such a centralization of the single units has been accomplished to but a very small degree. In Germany alone there are 23,000 sickness clubs, each with its own administering apparatus.

Entirely new relations appear in regard to the government of the clubs by the physicians. Whereas before the choice of the system of medicine to be used depended solely upon an agreement between the physician and the club, and in no instance was the physician forced to any definite system, by the present laws general councils are formed. These councils are without representation from the physicians and have charge of the clubs and their regulations, their judgment being final. It could, therefore, easily happen that a system of medicine might be adopted of which the profession disapproved. This was sufficient to increase tremendously the bitterness which the German profession has long felt concerning the position of the club physician. What the profession at large thinks about this matter will be shown at the "Physicians' Day" at Lübeck. We must therefore wait for a complete discussion of the position of the profession until after that meeting.

A word should be said in this place concerning a significant discovery of the two Hamburg physicians, Much and Holzmann. They found that in manic depressive insanity and dementia præcox a small amount of some material circulates in the blood, the presence of which may be proved by a biological reaction. The reaction also appears in patients who show no sign of cyclic insanity, but in whose family it has occurred. The reaction consists in the blood of such patients preventing the hemolytic action of cobra venom on normal blood.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 1, 1909.

Some Analogies Between Malaria and Syphilis.—W. H. Deaderick says that these two diseases present more striking analogies than any other two in the whole field of medicine. Both have manifestations varying in intensity from the mildest to the most severe. Both to be acquired must be inoculated. Both have stages of latency. The deposit of melanin in malaria may be regarded as analogous to the formation of the gumma in syphilis. They are the only diseases for which we possess almost true specifics. In both, proper drugs cause the rapid disappearance of the immediate lesion, but mercury and the iodides are powerless against the resulting cicatrix, which may eventually kill; while in pernicious malaria, with localization of parasites, quinine may kill the organism, it avails nothing against the amelioration of peri-vascular exudation, hemorrhages or necrosis depending on parasitic occlusions. Both have para-sequelæ against which the remedies used are powerless. Too early application of the specific drugs has the same disastrous effect in the diagnosis in both cases. Physicians have learned the necessity of continuing specific treatment for two or three years after the subsidence of active symptoms, but they have not learned to do the same thing with quinine after malarial

outbreaks. The danger to the community arises in the latent stage in each malady. The syphilitic is often so visibly affected that he is shunned and seeks treatment promptly, but the malarial patient in the latent stage believes himself cured, takes no medicine, and may be a source of infection for an indefinite time.

Resuscitation After Relative Death.—C. R. Metcalf refers to recent literature on resuscitation after relative death, saying that generally men rely on hypodermic medication and artificial respiration. If the patient's heart is still beating such methods may be successful, but artificial breathing has no effect on a pulseless heart. Arrest of the heart signifies relative death. With the onset of flaccidity recovery cannot occur spontaneously, but will follow only radical efforts. Presence of heart beat cannot be determined by auscultation. Reference is made to the heart massage of Schiff in experiments on dogs, and to the work of Prus, who used artificial respiration, heart massage, and arterial infusion of normal saline, plus 3-100 per cent. of saccharate of soda. Experimental coronary perfusion and attempts at resuscitation in experimental animals, too long continued, have been followed by fibrillary tremor of the heart instead of normal pulsation. Stewart and Crile have shown that a combination of artificial respiration, heart massage, occlusion of the aorta, and arterial injection gives the best results. The success of this combination is limited by ante-mortem clotting, overdistension of the heart, later cardiac failure, and imperfect recovery of the brain. Authentic records of 44 cases are at hand, including the author's four. Of the 44, no less than 33 have been anesthesia syncope, 24 chloroform, 6 ether, 1 a mixture, and 2 unknown anesthetic. Of the other 11, 1 each in pulmonary embolism, suicide by hanging, diphtheria, acute cardiac dilatation, 2 each tracheal asphyxia, traumatic injury of the brain, and electric shock. Of the 14 cases, 9 have met with complete recovery, secured after relative death; 8 have been partly successful, while the remaining 27 have been failures. Of the 9 successful cases (summarized by the author), 4 have been after ether, 3 after chloroform, and 2 from an anesthetic not named. Of the 8 temporary cases recovering, but later proving fatal, 5 have followed chloroform, 1 tracheal asphyxia, and 2 brain injuries. Permanent recovery has not followed unless intervention was begun within 12 minutes after apparent death. Massage should not be discontinued before 30 minutes have elapsed, although 30 seconds have proved efficacious. Not infrequently a considerable time elapses between the return of the heart beat and the reestablishment of breathing. Until the latter returns, artificial respiration must be kept up. Subdiaphragmatic massage appears to be the safest and most practicable way of reaching the heart. Any abdominal incision will suffice. This route affords rapidily, is free from the danger of pneumothorax, and does not interfere with artificial respiration. The paper of Metcalf is of extreme interest and will well repay careful reading.

Principles of Therapeutics by Sense Culture.—P. W. Goldsbury says that rest and stimulation are the principal lines of therapeutic procedure and have been employed for general and local disorders by various measures. Muscular activities have been used in promotion of both these lines. Nervous activities, including those of the special senses, have not been as systematically studied, though instances of their empirical introduction as healing measures are common. Recreation by means of the special senses should be employed as contributing to general and local health, and the employment of such measures may be made more systematic and scientific. It is the purpose of the writer to prove that the special senses as nerve organs, no less than the orther organs and muscles, need for their healthful development this same adjustment of rest and stimulation, and, as the brain must be rested somewhat by readjustment of energies within itself, the different sense organs may be refreshed by varying and qualifying forms of stimulation peculiar to themselves. Physical culture seeks to recreate by variations of the expressive or muscular activities. Why should not variations of stimulation for the avenues of impression, the special senses, be used for their tonic effect?

New York Medical Journal, July 3, 1909.

Complications of Malarial Fever.—J. M. Swan gives the detailed histories of two cases. Case 1 was one of quartan malaria complicating chronic parenchymatous nephritis, and Case 2 one of estivo-autumnal malaria complicated by bronchopneumonia. In Case 1 the nephritis was considered to be independent of the malarial infection, because the cure of the latter had no influence on the former. The return of the dropsy, with chest pains, chills, cough, and blood-tinged expectoration from which the patient, a man recently from Jamaica, died, was unaccompanied by the recurrence of the sporulating parasites in the peripheral blood, and examination of the bone marrow after death failed to show malarial pigmentation. The author quotes Thayer as saying that in the Baltimore region, albuminuria is of frequent occurrence in malarial fevers, that it is more frequent with the malignant tertian parasite, and that at least in tropical countries malaria may play an important part in the causation of chronic renal disease. In Case 2, that of a sailor, smears made from expressed spleen pulp showed a large number of pigmented macrophages and a fair number of deformed and partly degenerated parasites. During life there were no symptoms suggesting pneumonia. Naked-eye appearance at autopsy suggested only the usual hypostatic congestion, but under the microscope a peculiar exudation was seen, consisting of erythrocytes, polymorphonuclear leucocytes, granular matter, and large uninuclear cells containing malarial pigment. The author is inclined to believe that the pneumonia in this case was due to the irritation of the malarial pigment on the lung tissue.

Histological Changes of the Spinal Cord in Pernicious Anemia.—The patient of A. Gordon was a man of 48 years, clerk, whose symptoms dated back four years and followed an accident in which he lost considerable blood. The course of the anemia was not unusual. A complete autopsy was made, and the following changes were found in the spinal cord: The most marked degenerative state was found in the lower cervical and upper thoracic segment. In the lower cervical region the anterior columns on both sides, Gowers's tract on one side, the direct cerebellar and crossed pyramidal bundles on both sides were profoundly degenerated. Only a small portion of fibers were preserved around the comma. The posterior columns were almost entirely degenerated except the middle portion near the median line corresponding to the comma of Schultze and the very posterior portion. There were a great many vacuoles in the degenerated segments. The upper thoracic segment showed still more degeneration than the preceding one. Here the anterior columns, direct cerebellar, and crossed pyramidal tracts were markedly affected on both sides. Disseminated foci of degeneration were found in both Gowers's columns. Goll's and Burdach's columns were almost totally destroyed. Vacuoles were present along the borders of the posterior columns. The process of degeneration in the lower segments of the cord was less and less marked, so that in the lumbar portions the crossed pyramidal bundles alone were in a state of mild degeneration. A few degenerated fibers were seen only very anteriorly, and vacuoles in a linear distribution were noticeable in the posterior columns near the median line.

Treatment of Diabetes as an Infectious Disease.—A. King says that he has been able to obtain a pure culture from the blood of *Saccharomyces cerevisiæ* in every case of diabetes he has examined since his attention was drawn to the possible infectious nature of this disease. His general conclusion is thus stated: Because diabetes is a disease of fermentation, because the yeast fungus is found in the blood, because its actions explain all the symptoms as well as the pathological conditions, because the patients show a disturbed power of resistance to this fungus, and because this lowered resistance is increased by treatment with vaccine, he believes this yeast fungus is the cause of diabetes and that it should be treated as an infectious disease. As to treatment, he notes the indications to be restoration of resisting power, removal of causes, and of complications. The lowered resistance may be removed by the action of vaccines and the careful regulation of the diet. In the diet, some starch food should be used to prevent other fermentations of fats and albuminoids, which give rise to more serious toxic substances. The destruction or removal of the cause may be accomplished by the use of antiseptics, by increasing the phagocytic action of the leucocytes, and by maintaining a healthy activity of the kidneys. To prevent, relieve, or remove the complications there must be a relief from mental worry, a careful regulation of the diet, a promotion of oxidation by the use of those remedies which will improve the oxygen-carrying function of the blood, and by deep breathing exercises in fresh air, which at the same time assist in the removal of the excessive amount of carbonic acid gas from the body.

Journal of the American Medical Association, July 3, 1909.

Prophylaxis in Infants.—Thomas S. Southworth says the reduction in infant mortality has not been so great as we had supposed before the publication of the researches of Newman in England and Stowell in this country. This need not surprise us much if we consider the growth of the slums in great cities and the decreasing

prevalence of maternal nursing. The improvement of antenatal conditions is a sociologic rather than a medical question, but much can be done by the profession toward decreasing the early mortality of children. A careful study of the problem has convinced Southworth that women do not of choice neglect their children, but have often prematurely weaned their infants from bad advice. He shows how large a part ignorant midwives may play in this matter, but medical men are also partly to blame. Instead of weaning, the breast milk should be still utilized and supplemented by other methods under medical supervision. Turning our attention now to the exclusively bottle-fed babies, we find ourselves much better equipped to cope with a difficult case. He does not speak highly of the percentage system as practiced, but criticises the tendency to employ a very limited number of inelastic formulas. The supervision of the growth and development of the bottle-fed infant, as practised, leaves much to be desired. It should not be left to the mother or nurse between the seventh and twentieth months, and periodical and regular inspection are certainly advisable. Diet is not the only factor needing medical oversight. Next to a normal proportion of muscular tissue, the hemoglobin may be called the most important index of the child's resistance. Parents seldom notice any slight pallor, and fresh air in abundance and at all times is one of the most effective agents in producing good blood. A complete rearrangement of the infant's hygiene may be even more effective than the administration of iron in bringing about improvement. Fresh air, however, alone, without attention to its unobstructed entrance to the lungs, is not sufficient, and possibly no single factor recently employed has been more effective than the attention given to hypertrophied tonsils and adenoids. There is still much to be done, as full inspection will show. Valid contraindications are rarely seen in early surgical attention to these matters, even before the expiration of the first year of life if symptoms of mouth breathing are present. The neglect of children's teeth is also mentioned by Southworth as not fully appreciated, and the eye also should receive attention, as it has of late years. In fact, it has been much less neglected than the ear, which has only begun to receive prophylactic attention. The ear is especially implicated in many infectious diseases, and the conscientious physician who wishes to do his full duty must carry with him in his pocket the means of examination of the ear. More cases of otherwise unexplainable temperature can be traced to the ear than to any other complication, and these cases can be relieved by paracentesis. This is the conservative operation, according to our modern ideals, as by relieving congestion in cases of effusion it limits the process and aids recovery. There is less apparent glory in patient prophylaxis and conservative methods than by later successful intervention, but prophylaxis is and should be the ideal of our profession.

Dropsy of the Optic Nerve Sheath.—J. A. Tenney discusses the theories of optic neuritis and reports several cases in which sudden loss or impairment of sight, with or without headache, occurred without ophthalmoscopic appearances to correspond or other things in the history or symptoms that would aid in the diagnosis and treatment. In all these cases he adopted a treatment based on the theory of intracranial pressure as the cause, and recovery followed. It consisted of moderate doses of potassium iodide, sometimes increased if not at once effective. He has never used pilocarpin in such cases, of which he has seen a number, thinking the iodid might, with its alterative action, more efficiently prevent the return of the symptoms.

Acute Pellagra.—N. P. Walker reports a summary of the observations on fifty-one cases of pellagra occurring among the colored female insane patients at the Georgia State Sanatorium previous to January 1, 1909. He does not report any conclusive facts proving the disease due to corn diet, and in some cases this seems improbable unless the toxins are retained for long periods of time before their effects appear. In the majority of instances, dermatitis, stomatitis, and diarrhea were noticed simultaneously among the first symptoms. Vomiting is ocasionally an early symptom, and slight rise of temperature and indefinite abdominal pains may be complained of. The dermatitis is almost always symmetrical, and, in some cases, contrary to some recent writers, it may occur on the palms of the hands or the plantar surfaces of the feet. The stomatitis also varies in extent and severity, and vaginitis occurred in about 12 per cent. of the cases. Diarrhea was present in all cases at some time or other and was absent in the beginning in only two or three. In the later stages constipation may replace it. The nervous symptoms are not so constant as would appear from the description of the chronic forms. Many of the cases running an acute course do not show spinal cord symptoms at all. Just preceding death, marked delirium may supervene, and a general mental reduction is often present. The blood of one patient presented a typical picture of pernicious anemia, and some other cases presented points of interest. Hemoglobin varied from 65 to 95 per cent. and red cells from 2,500,000 to 5,292,000. Nucleated reds were found in three cases, and may appear comparatively early in the disease, while the hemoglobin is still normal. Of the patients who developed the disease in the sanatorium a few have recovered from the pellagrous symptoms. These numbered 12, or 26 per cent.; 6 patients were removed before the termination of the disease; 28 of the remaining 45, or 62 per cent., died.

Interstitial Keratitis.—H. Gifford says that the more he sees of interstitial keratitis the more convinced he is that Hutchinson is right in attributing practically all of it to inherited syphilis. He refers only to the typical form which occurs almost always between the ages of three and sixteen years, and almost never after twenty-five. The prophylaxis of the condition, therefore, resolves itself for practical purposes into the prevention of syphilis and the cure of syphilis, more particularly of the hereditary form. He does not attempt to cover the whole field, but simply lays stress on certain peculiarities of the teeth as aids to diagnosis, on the treatment of the disease when it has broken out in one eye, and on the prophylactic management of children marked with the disease but without active manifestations. He thinks it highly probable that if all children between the ages of three and sixteen showing the signs of inherited lues could receive a long, continuous course of treatment, the number of cases of interstitial keratitis and of syphilitic deafness could be greatly reduced. The ordinary signs are well enough known, but he calls attention to certain peculiarities of the so-called Hutchinson teeth, the bulging of the lateral lines of which he considers as the most permanent feature. As regards the milk teeth, Hutchinson in his second paper made some important observations which have practically passed into oblivion. One of these refers to a condition which he illustrates in which the incisors are small and discolored, while the canines are healthy looking. This is a common symptom. Other figures show another peculiarity of the milk canines on which Hutchinson lays great stress and which Gifford has seen a number of times. A central discolored blunt peg projects from and is separated by a shallow groove from a base or collar of normal-looking tooth tissue. If we imagine the same sort of defect in a molar tooth, we shall have a symptom on which great stress has been laid by Darier. Gifford considers such molar teeth and the peg-shaped milk canine fully as characteristic as the Hutchinson incisor. Another form of syphilitic tooth on which Darier lays stress is the tuberculated permanent canine which is also figured by Gifford. He also mentions another form of first permanent molar which he calls the slope molar, in which the base is much wider than the crown, which is probably due to the same influences of malnutrition. Formerly he placed little reliance on the use of specific remedies, but of late years he has followed a more vigorous treatment and with better success. He thinks that he has the best results since adding arsenic to the treatment. Summing up, he says that he thinks the following points may be made with reference to the prophylaxis of interstitial keratitis: "First, in the text-books which treat of the diagnosis of hereditary syphilis, instead of the single faulty cut of the teeth so commonly used, at least half a dozen figures should be presented to show not only the varieties of the Hutchinson tooth, but the other more important forms of syphilitic teeth mentioned in this paper. Second, all children in public institutions and in private families who show any of the well-marked signs of inherited syphilis should receive a course of antisyphilitic treatment, even if in other respects they seem to be entirely well; the results and indications of this treatment being controlled, if possible, by the serum diagnosis test. Third, when a case of syphilis, inherited or otherwise, appears in a family, all other members of the family should be examined for signs of the disease, and if such are found, should be subjected to specific treatment. Fourth, by an extra vigorous use of specific treatment the disease may be kept out of the second eye in a larger proportion of cases than has hitherto been thought possible."

The Lancet, June 26, 1909.

Oral Sepsis in Its Connection with Throat Disease.—G. I. Stewart discusses this topic under the headings of signs of oral sepsis and the effect of oral sepsis on the

throat generally and particularly on the tonsils, adding some observations on the physiological function of the tonsil and other adenoid tissue in the pharynx. The signs are enumerated, as redness, swelling, heat, local pain, increased secretion and loss of function of all the muscles of the oropharynx, viz., the buccal, oral, and lingual muscles which forward the food particles to the gullet, keep the mouth clear of food, cleanse the teeth, and, in connection with the pharynx, promote proper articulation in speech. The author regards the lymphoid tissue in the pharynx as essentially protective in function by means of leucocytosis. Every inflammatory attack destroys a portion of this protective and resisting tissue. As regards the removal of tonsils which have become so diseased as to be no longer a barrier to infection, but an actual invitation to further microbic invasion, we should first remove the local cause and then the lymphoid tissue itself, if necessary, but the latter should not be done until the former has been attended to. The teeth must be looked after and the brush used regularly. Any furtehr obvious cause of oral sepsis should, of course, be removed. Neglect of these rules accounts for unsatisfactory results after tonsillar and adenoid removal.

A Case of Inherited Tachycardia.—J. Kirkland reports the case of a man now 56 years old, of independent means, average build, but varying considerable in weight. In 1897 he had a bad heart attack, with hemorrhage, but no bacilli were found in the sputum. When he came under the author's observation, the heart beats varied from 120 to 240. There was a mitral systolic murmur and strong pulsation in the cervical vessels. The right lobe of the thyroid was enlarged and evidently irritated the pneumogastric nerve. There was a marked irregularity of the heart action, increased by any slight exertion. Digitalis preparations gave considerable relief, while strychnine hypodermically with a mixture by mouth of apomorphine and caffeine seemed to cut short the attacks. In a sudden attack, the patient finally died. The especial interest in the case centered about the matter of heredity. The whole family seemed to be subject to tachycardia. Both grandmothers, the father, the mother, the aunt, four out of six daughters, the three sons, and at least one niece were, or are, victims to heart lesions. The trouble did not show itself to any appreciable degree in most of these cases until at least early adult life. We cannot therefore say definitely how many of the fourth generation will escape, but from present appearances it is almost certain that more than the one will suffer.

The Effect of Diphtheria Antitoxin on the Tuberculo-Opsonic Index.—From the tabulated results given by A. G. Banks, it appears that there is no great variation in the index before and immediately after the injection of the serum. But in two days after a definite rise is apparent in the average index, and this gains significance from the even distribution over the individual readings. Age and dosage seem to have little difference. During some weeks following the injection, a somewhat low index to the tubercle bacillus is the rule.

British Medical Journal, June 26, 1909.

Pneumococcus Invasion of the Throat Upon Which Laryngeal and Pulmonary Tuberculosis Supervened.—This case is reported in great detail by Felix Semon, who refers to two other instances already put on record by him, of pneumococcus throat. The characteristic symptoms in the previous cases were profound asthenia, ulceration of the affected parts, almost entirely a febrile course, complete absence of swelling of the cervical lymphatic glands, pneumococci in almost pure culture or predominating over all other organisms, and eventually a punched-out loss of substance and finally the healing of the greater part of the substance without any cicatrix. The third case occurred in the person of a physician, and the course of events is indicated in the title of the paper. Death occurred after a lapse of five months from the initial symptoms. The two previous cases recovered, one spontaneously and the other during a iodide treatment. There was no doubt as to the correctness of the diagnosis. The history of the case is most interesting and cannot be reproduced here. A most striking fact was that at one time in the later stages cultures from the pharynx yielded almost a pure culture of pneumococci, while those from the larynx an equally characteristic picture of tubercle bacilli. Insufflations of anesthesia are mentioned as affording great relief to the painful swallowing.

Acute Pneumococcus Infection in the Pharynx—J. Elliott refers to the prevalence of pneumonia in Chester during the first three months of the current year and the occurrence in the course of this period of several cases of pharyngitis due to the organism of the chest malady. Influenza could be ruled out clinically, because the usual visitation of the latter disease came later, and several of the pharynx cases developed influenza, which ran a typical course. The author was unable to trace exposure of his throat cases to pneumonia cases, although, as said, the latter disease was unusually prevalent at the time. Cultures were taken from two of the pharnyx cases and were undoubtedly pneumococcic in character. The exact form the pneumococcus invasion of the throat may take is still undetermined. The organism has been found in one instance of tonsillar abscess, in one of pseudo-membraneous pharyngitis, in acute pharyngitis with high fever of short duration (nature proven by animal inoculations), but in none of these cases was there any ulceration or false membrane. Glandular enlargement has been very marked, and again has been absent. Finally reference is made to the dictum of Rendu and Bulloche who have summed up the various types of pneumococcus throat as follows: (1) proven—(*a*) suppurative; (*b*) pseudo-membranous; (2) doubtful—(*a*) follicular; (*b*) inflammatory; (*c*), herpetic.

Pneumococcus Vaccines in the Treatment of Pneumonia and of Some of Its Complications.—After a study of eleven personal cases, A. B. Harris says that, clinically, death in this disease usually comes from cardiac failure, especially in those virulent cases terminating about the fourth day of the attack. Under these conditions the vaccine treatment in many instances will indeed reduce the fever but fails to avert a fatal result. The toxemia already induced is too profound for merely the arrest of the infecting process to be successful. Hence the vaccines should be used at the earliest possible moment and be accompanied by the use of a antitoxin. It is not improbable that in the case of the pneumococcus the success of a vaccine is due not simply to the fact that it should be autogenous, but the fact of a vaccine being autogenous narrows down the issue to (1) the right organism being selected, and (2) the vaccine being prepared, if not unduly subcultured, from an organism of requisite virulence. Fraenkel's pneumococcus is, however, as far as we know, invariable; it is not like the streptococcus (Gordon) an inclusive term for several varieties. On the other hand, we know from the staphylococcus and colon bacillus that these may be so subcultured as to lose their original virulence, and that vaccines so prepared are of little use, therapeutically. If, then, a potent and reliable stock pneumococcus vaccine is to be obtained, it should be made from as virulent a strain as possible. There is unhappily no difficulty in the early months of the year in obtaining as much as is wanted. The truth of this argument can only be verified by a great number of observations. With regard to the treatment of acute pneumonia by inoculation, the practical conclusions which alone can interest the busy clinician are: (1) that successful inoculation for pneumonia is possible; (2) that inoculation does no harm; (3) that a vaccine from one or a number of virulent strains should be used; (4) that it should be introduced as early as possible; (5) that the estimation of the opsonic index is not necessary; (6) that the observation of the temperature and physical signs is in pneumonia a sufficient guide in gauging the repetition of the dose. Infections of the lung by the pneumococcus which fail to resolve after an acute pneumonia, as well as pneumococcic infections of other areas, ought certainly to be treated with a pneumococcic vaccine; and these cases appear to afford a reasonable prospect of success.

Berliner klinische Wochenschrift, June 7, 1909.

Adhesions of the Diaphragm.—L. Bassenge says that while the usual methods of physical examination teach us but little about the condition of the diaphragm that an *x*-ray examination of the chest is of value. It shows differences in the position of the diaphragm, its bilateral raising from increased abdominal pressure, due to meteorism, ascites, tumor, or pregnancy, its bilateral depression in emphysema, its unilaterally high position from distention of the stomach, enlargement of the liver, or onesided paralysis, and its unilateral depression from vicarious emphysema or from air or fluid in the pleural cavity. Further than these the author has found that the *x*-ray may give valuable information as to the quantity and quality of diaphragmatic adhesions. These are told by the abnormal shape of the diaphragm in the *x*-ray picture during forced inspiration, when the dragging of the adhesions may cause bulgings and angles in the contour of the diaphragm. Such adhesions may occur between the diaphragm and the parietal pleura or between the diaphragm and the pericardium. The author reports seven cases, and publishes the *x*-ray pictures showing the varying contour of the dia-

phragm caused by different kinds of adhesions. The author concludes that: (1) an *x*-ray examination is desirable in all affections of the thoracic organs. It is necessary on diagnostic, therapeutic, and social grounds if the ordinary methods of examination fail to demonstrate a cause for the patient's complaint. (2) Diaphragmatic adhesions, if not connected with a pleural sinus, can be diagnosed only by means of the *x*-ray. (3) The *x*-ray examination is especially necessary when the present trouble has been preceded by a disease of the heart or lungs or trauma of the chest wall.

Kidney Transplantation.—Ernst Unger says there are two classes of operations for organ transplantation: partial transplantation, in which only a portion of an organ is removed, and complete transplantation, where the whole organ is changed and the circulation maintained by anastomosis of the blood-vessels. He refers to the work of Carrel and then describes his efforts to duplicate them. His operation is Carrel's transplantation *en masse* of the kidneys. He carries out the latter technique very closely, except that apparently he neglected to impregnate his sutures and cover his vessels with vaselin, which is possibly the secret of Carrel's success. He performed the experiment seventy times in all, fifty times on cats and twenty times on dogs. Most of the animals died either during or immediately following the operation, one dog lived eighteen days after operation and voided normal urine, another five days, and a third twelve days. One cat lived five days. Most of his animals developed extensive thromboses and nephrites. On two other cats he implanted new kidneys without removing the old, by resecting the aorta and vena cava below the site of the renals. One cat lived ten days with the four kidneys. At death the implanted kidneys showed marked nephritis. In the other, after sixteen days of health the animal's original kidneys were removed. The animal died in three days of uremia. Those implanted kidneys also showed marked nephritis.

Münchener medizinische Wochenschrift, June 1 and 8, 1909.

The Spreading of Typhoid Fever Through a City.—Kayser has analyzed the cases of typhoid fever which occurred in Strassburg over a period of three and a half years—1903 to 1907—and discusses them at length as to the mode of infection. Ninety-three per cent. were true typhoid and 6 per cent. paratyphoid. In all there were 505 cases. Sixty-six, or 13 per cent., were imported cases. Milk drinking accounted for 26.7 per cent. of the cases. Only 14.6 per cent. could be traced to contaminated water, and these were frequently from bathing and swimming. Food infection accounted for 2 per cent. and direct contact for 11.9 per cent. These latter were usually from atypical undiagnosed cases. Occupation explained 4.9 per cent. This class comprised nurses and washwomen especially. The bacillus "carriers" played an important rôle, as 9.5 per cent. were traced to this cause. Improper toilet arrangements accounted for 2 per cent. only. Typhoid was found to occur especially in certain streets which the author called "typhoid streets." These he explains by the residence of "carriers" on these streets. The morbidity varied with the temperature, being lowest in February and highest in August. This the author believes is due largely to the increased thirst in summer and consequent increased liability to infection. Twenty-eight definite bacillus "carriers" were discovered. The Gruber-Widal test was of help in finding "carriers," as three-fourths of these gave positive reactions.

The Use of the Morning's Milk for Infants.—Berger says that when possible the morning milk should be used for infant feeding, as it is much more fresh and contains fewer bacteria than the milk of the night before. It must, however, be remembered that this milk is poorer in fat than the evening milk, and must therefore be given in somewhat larger quantity.

The Effect of the Removal of Police Supervision on the Spread of Syphilis.—E. Jacobi discusses this subject. Until April, 1908, there had been official segregation and regular medical inspection and licensing of prostitution in the city of Freiburg. The number of women was small, considering the size of the city, the university, and the barracks. On that date the licensed houses were closed and the inmates scattered. Jacobi reports the number of venereal cases attending his dermatological clinic before and after this date. During the last six months he had seen more initial lesions than during any similar period of his twenty years' experience. There was no increase in the soft sores or in gonorrhea. During the last six months of 1906 there were in the wards thirteen men with fresh leutic infection; during the same period in 1907 there were eleven, whereas in 1908 the number rose to twenty four. On the women's ward the number in 1906 was nineteen, in 1907 seventeen, and in 1908 twenty-nine, while the number of venereal cases was reduced to one-half. Jacobi considers that segregation and control is an important means of protection against the danger of specific infection.

The X-Rays for Prostatic Concretions.—Gösta Forrsell discusses the use of the *x*-ray in the diagnosis of concretions of the prostate gland. He made *x*-ray photographs of eleven cadavers, and then dissected out the glands. Among these there were two with prostatic stones. He also examined one hundred living patients. The author gives details of the exact position in which the patient should be placed in order that the symphysis may not hide the concretions. He intensified his plates. In thirteen of the one hundred clinical cases prostatic stones were found. These were of two types. The first type were found in ten cases and the second in three. In the first type the shadows of the stones appeared as small discrete round dots, varying in size from pinhead to that of a hempseed, arranged symmetrically on both sides of the midline just above the symphysis. The histories showed no etiological factor, the concretions seeming to be normal results of old age. Between the ages of twenty and fifty they occurred in only five per cent. of the cases, while between fifty and ninety-three they were found in twenty per cent. In the second type the shadows occurred as good sized patches made up of conglomerations of the small ones. These appeared higher up in the pelvis, from 1.5 to 3.0 cm. above the symphysis. This type does not seem to be so definitely a senile condition, as it occurs in middle life. It appears to be caused by pathological changes. Forrsell concludes that his researches have demonstrated that the position, arrangement, form, and density of prostatic concretions are very characteristic, and that, as a rule, the differentiation from other concretions within the pelvis is possible. Also, that prostatic stones, both normal and pathological, are much more common than previously thought, and that they can be discovered by a careful *x*-ray examination.

Deutsche medizinische Wochenschrift, June 3, 1909.

The Treatment of Gastric Ulcer.—W. V. Leube describes his routine treatment of gastric ulcer. There are four cardinal points: (1) Rest in bed from one to two weeks. This relieves the pain and promotes healing. After the tenth day the patients lie down two hours after dinner. (2) Karlsbad water, a quarter liter lukewarm. (3) Application of a hot stupe or thermophore to the epigastrium. The stupe must be changed every fifteen minutes and kept very hot. He never uses stupes with bleeding ulcers, as they are apt to cause a recurrence of the hemorrhage. During hemorrhage ice bags are used instead. (4) Light diet of high nutritive value and easy digestibility. All four of these factors must be carried out. By this routine he has reduced his mortality from 13 per cent. to 2.5 per cent., and finally to hardly 0.5 per cent. In severe hemorrhagic cases Leube puts the patients to bed, gives one dose of 30 minims of a 1-1000 solution of suprarenal extract, places an ice bag on the abdomen, and quiets the stomach with bismuth and a hypodermic injection of morphine. He does not believe in giving eggs and milk to bind the acid. He says it simply causes the secretion of more acid, and produces peristalsis. He reports the following results: In 547 non-hemorrhagic cases 90 per cent. cures, most of these being effected in from four to five weeks, no deaths; in hemorrhagic cases 90 per cent. cures and 2.5 per cent. deaths. For the first few days after a hemorrhage he gives no food whatever by the mouth.

Chronic Chorea Following Migraine.—Schabad reports the case of a woman of fifty who since she was twenty-two had suffered from severe attacks of migraine. At forty, when three months pregnant, the migraine ceased and was replaced by a marked chorea, which lasted during the remaining six months of pregnancy. After the birth of the child the chorea ceased and the migraine returned. For the past fifteen months the chorea had returned and the migraine had again left. The case is either one of chorea adultorum permanens or Huntington's chorea. The author is not able to determine which. Migraine is supposed to be a vasoconstrictor spasm of the cerebral arteries, but various pathological findings have been reported as effusions of blood in the brain, softening of the brain, hemorrhagic pachymeningitis, and thrombosis of the internal carotid artery. Almost the same lesions are found in Huntington's chorea. This probably explains the change in the symptoms from migraine to chorea and back again.

Book Reviews.

THE PROBLEM OF AGE, GROWTH, AND DEATH. A study of Cytomorphosis, based on Lectures at the Lowell Institute, March, 1907. By CHARLES S. MINOT, LL.D. (Yale, Toronto), D.Sc. (Oxford), James Stillman, Professor of Comparative Anatomy in the Harvard Medical School, President of the Boston Society of Natural History. Illustrated. New York and London: G. P. Putnam's Sons, 1908.

THE author of this most interesting and thought-stimulating work sustains throughout his thesis the paradox that the cell changes characteristic of old age begin at birth and advance most rapidly in the early years. Senescence, he says, is at its maximum in the very young stages, and the rate of senescence diminishes with age. Life to him is like a race by an untrained contestant; the greatest speed is made at the outset and, as the struggle is prolonged, the pace grows slower and slower until, as the goal is approached, the progress becomes a walk, and finally a weary dragging of the limbs. Dr. Minot has little use for Metchnikoff's well-known theory of the rôle of the macrophage in the destruction of the noble cells, but looks upon senility as a result of the natural and inevitable cell changes; that is to say, upon the increase of protoplasm and differentiation of the cells. Conversely, rejuvenation depends upon an increase of the nuclei. These theorems are well sustained by plausible argument and experiment, but the proposition is too startling to be accepted unreservedly without more convincing proof than the author has been able to bring forward, and the reader is stimulated to search for the fallacy which he feels must be concealed somewhere in the argument. Old age and natural death are not always and invariably the consequence of differentiation of cells, for they occur, Weismann to the contrary, in unicellular organisms in which no differentiation takes place. In the metazoa, moreover, it is not the most differentiated cells, those of the nervous and muscular systems, for example, that show the first and most marked degenerative changes in old age. Furthermore, the being starts from an old and differentiated cell, or from the union of two differentiated cells. This is not the place for, nor would the reviewer attempt, a refutation of Prof. Minot's theories. We merely mention a few of the objections that would naturally occur to any one; they do not necessarily invalidate the author's argument, and we would advise every one interested in the great problem of senescence—and who is not?—to read this fascinating book and formulate his own objections to the theory and offer a better one, if he can.

LE DIABÈTE SUCRÉ. Par R. LÉPINE, Professeur de clinique médicale a l'Université de Lyon; Correspondant de l'Institut Associe de l'Académie de Medicine, etc. Paris: Felix Alcan, Editeur, 1909.

THE work of Claude Bernard, terminated only by his death in 1877, did much to clear up by experimental methods the conditions under which glycogen is formed in the liver, and also many of the immediate causes of the appearance of glucose in the urine. The carrying on of the problems which Claude Bernard laid down fell more to the Germans than to his own countrymen, and much of our present knowledge of the peculiar disorder of metabolism which we call diabetes is due to the studies of Voit, Seegen, Külz, Minkowski, Naunyn, and von Noorden. The writer of this volume has been the exception to this rule, and in the last twenty years has done much, both from the clinical and from the experimental side, to advance our knowledge of diabetes and to save France from the reproach that she had forgotten Claude Bernard. Lépine's interests have been concentrated rather more especially on the nature, amount, and transformations of the sugar found in the circulating blood; but there are few phases of the subject of diabetes to which he and his pupils have not made contributions. This book, therefore, carries the authority of an ingenious experimenter, tempered by the shrewdness of the experienced clinician. That he appreciates, in addition, the work of others, is shown by the enormous number of footnotes, the majority of which refer to German writers. After an historical introduction the writer considers the sugars of normal blood and the changes of the carbohydrates in the intestine leading to final formation of glycogen and the deposition of this latter substance in the liver and other organs. Nearly two hundred pages are devoted to a consideration of the various types of non-diabetic glycosurias. The writer then turns to his main subject: diabetes, its symptoms, complications, course, diagnosis, and treatment. Almost every page is suggestive, but the experimental part is stronger than the clinical. Perhaps the portion which is apparently the least helpful is that on treatment, in which general principles are given, but not the rigid, almost military regulations; and the long tables of foods, permissible or not, with which we are familiar in the treatises of von Noorden and other German writers are absent. It is possible that Lepine feels that every case must be treated on its own merits, and that the setting up of hard and fast rules does not result in as intelligent a treatment of the patient as does leaving the physician free to exert his own judgment. The question of acidosis and coma is fully discussed, and, as in most recent publications, the use of infusions of sodium carbonate is suggested, with the observation that the results are not very encouraging. The volume is a very valuable contribution to the literature of diabetes.

A SYSTEM OF DIET AND DIETETICS. Edited by G. A. SUTHERLAND, M.D., F.R.C.P. London: Oxford University Press, 1908.

THIS treatise on dietetics is a combination of the personal experiences of men who have seen enough of sickness to make their opinions of value. The first part of the book is taken up by a discussion of the scientific aspect of dietetics, written withal in simple words, explaining the details where necessary, but keeping to main ideas enough to avoid confusion. The chapter on experimental work on diet, by E. I. Spriggs, gives many valuable tables showing the fuel value of the commoner kinds of food in a way which makes the tables of practical value. The essentials of the various diet cures and the composition of the more common proprietary foods are discussed briefly but thoroughly. The second part of the book considers the proper diets in the various diseases. Each author tells what he has found of the greatest value in his own practice in some detail, and also touches lightly upon the various methods of others, where those methods seem worthy of mention. The work is eminently practical. The articles are written in a simple, straightforward style, which makes them interesting reading and gives one quickly and accurately the essentials of the authors' opinions as to the best way to feed patients suffering from various diseases. The book contains many tables, dietaries, and recipes, which are so inserted as not to interfere with the text or confuse the main thoughts of the authors. It is well printed on dull paper in large, clear type, with a good margin. Heavy-faced type is used in the text instead of headings or marginal notes. The book is, taken all in all, a good addition to a library, and is to be recommended to anybody who wishes a safe and sane exposition of the principles of dietetics in disease.

DIE PARENCHYMATÖSE HORNHAUT-ENTZÜNDUNG. Von Dr. KARL HOOR, o. ö., Professor der Augenheilkunde an der konigl. ung. Universität in Budapest. Halle a. S.: Carl Marhold, 1909.

THIS brochure is a complete critical review of the subject of interstitial or parenchymatous keratitis, occupying 124 pages of text. Many authors have been consulted. A bibliography occupying 21 pages is appended. There are no illustrations.

GENERAL MEDICINE. Vol. I of the Practical Medicine Series. Edited by FRANK BILLINGS, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. SALISBURY, A.M., M.D., Professor of Medicine, Chicago Clinical School. Chicago: The Year Book Publishers, 1909.

THE review of the literature pertaining to general medicine and its progress in 1908 is well presented in this small book of about four hundred pages. The first half of the book is given over to the consideration of the diseases of the respiratory organs—the first hundred pages having to do with pulmonary tuberculosis. Then follow the diseases of the circulatory organs, infectious diseases, diseases of the ductless glands, metabolic diseases, and diseases of the kidneys.

HOW TO NURSE SICK CHILDREN. By CHARLES WEST, M.D. London: Longmans, Green & Co., 1909.

To those interested in the care of children the name of Charles West, the founder of the first and greatest of the world's children's hospitals, is attractive. This little book, written many years ago and sold for the benefit of the young and struggling Great Ormond Street Hospital, is welcome in its new edition. It is full of useful hints to the nurse who attends a sick child, both as to symptoms to be observed and minor details of care. It takes up various systems, as the brain, lungs, and stomach, separately, and gives good advice to the nurse about each disease. The book should be made a part of the required reading in every training school.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held May 20, 1909.

Dr. John A. Wyeth in the Chair.

This meeting was held under the auspices of the Section on Laryngology and Rhinology.

Amendment to the By-Laws.—A motion to amend Art. XIII, Sec. 14, to read: "Any Fellow, Associate Fellow, or other person violating the rules of the library shall, in the discretion of the Committee on the Library, subject to approval of the Council, be suspended from the privileges of the library for a period of time, and shall be liable to a fine," was carried.

Presentations.—Mrs. William T. Bull presented to the Academy of Medicine a bust in bronze of her late husband. The bust was Dr. Bull's last gift to his wife. The sittings for it were made after the operation, when he had great bodily suffering.

Dr. Virgil P. Gibney accepted the gift in behalf of the Academy.

The American Gynecological Society presented a bronze medallion of Ephraim McDowell, who performed the first ovariotomy a century ago. It was moved and carried that a vote of thanks be sent to the Society for the gift.

Clinical Diagnosis and Operative Procedures, from the Standpoint of the Laryngologist.—Dr. Chevalier Jackson of Pittsburg gave a lantern slide demonstration of operations for intralaryngeal carcinoma.

Microscopical Diagnosis of Intralaryngeal Growths from a Practical Standpoint.—Dr. Jonathan Wright said that the surgeon and microscopist could only hope to be mutually helpful, and, above all, helpful to their patient, by the fullest and frankest interchange of information and opinion. The opinion of the microscopist as to the meaning of a cell or two in his shred of tissue might hinge upon the question of whether the patient had been thoroughly treated for syphilis. The contingencies were innumerable where the clinical history was a deciding factor in the microscopic diagnosis. Every one who had had much surgical experience knew of the spontaneous recovery from tumors pronounced malignant by the microscopist, as well as by the clinician. The clinician was always modest enough to acknowledge his own fallibility, but he thought the microscopist should have known better. They were both fallible, yet it was becoming clear from animal experimentation with cancer that they were fallible because some thirty or forty years ago a slip in logical reasoning occurred. It was observed that *most* men afflicted with tumors of a certain tissue synthesis died from their continued growth. They jumped at the conclusion that *all* men died who had tumors of that particular synthesis. It was dogmatically asserted that structure, the apposition of certain kinds of matter in a certain arrangement, was an expression of malignancy. Forgetful of the fact that in the cancer question there were two sides, one the invasion of the malignant cells and the other the resistance to it, they had ascribed to the clinician and the microscopist the errors inherent in the fallacy presented by a faulty syllogism. This plainly arose from a study of structures in advanced cases of cancer. Structure was not an infallible guide, and really all the microscopist had any right to say in any given case was that the tissue presented the appearance usual in cases which ended fatally. Now, while this might seem amply sufficient, on account of the rarity of cases recovering at the stage where reasonable doubt of diagnosis was admittedly very slight, it was a different matter entirely when they came to deal with a small excrescence on the vocal cord. At the very outset such a cancer caused symptoms that could not be concealed, and no set of men saw cancer at so early a stage histologically as the laryngologists. It naturally followed that when the microscopist was given a paring from such a growth he more frequently fell into error if he said that it was going to run a fatal course if left to itself. The structure was the same, but the result, the clinical prognosis if the tumor was left to itself, manifestly must be more uncertain. He hoped to convince them how extremely fallible the microscopist dealing with laryngeal growths was. Structure, and especially the nascent structure of tumors, was not a safe criterion for prognosis.

The Treatment of Cancer of the Larynx from the Point of View of the General Surgeon.—Dr. George Emerson Brewer read this paper. Cancer of the larynx, whether considered from the point of view of the laryngologist or the general surgeon, presented one and the same problem. Can the victim of this dread disease be subjected to any form of treatment which would offer a probability or possibility of cure, or, if not, could anything be done to mitigate his sufferings? Not one authentic case of carcinoma of the larynx was ever cured, except by early surgical removal of the disease. Four methods of radical surgical treatment had been proposed. (1) Intralaryngeal removal; (2) thyrotomy, allowing exposure of the diseased area, and removal of the lesion with subsequent closure of the laryngeal cavity; (3) partial laryngectomy; (4) total laryngectomy. The almost uniformly disastrous results which have followed intralaryngeal removal of the growth had led to its general condemnation and abandonment. Since Semon's masterly presentation of the subject in America in 1904, thyrotomy or laryngotomy was an operation that had steadily grown in favor, and was to-day the operation of choice in early cases of intrinsic cancer. He said he could do no better in this connection than to quote Semon's advice regarding indications. "All intrinsic cases of cancer, not too extensive, not too near the posterior wall, and not infiltrating the cartilages, ought to be treated by thyrotomy." Partial or hemilaryngectomy was indicated in cases of unilateral intrinsic disease, in which the lesion extended too far backward to promise a favorable result by simple thyrotomy, or when there was reason to believe that the perichondrium or cartilage was involved. Although the indications for this operation were not as frequently encountered as for thyrotomy or total laryngectomy, it had the great advantage that it preserved the normal oral or nasal respiration, and not infrequently allowed the patient to retain a speaking voice of fair quality. The cause of the immediate mortality of total laryngectomy was recognized by all careful observers to be, first, the occurrence of inhalation pneumonia, and, second, the extension of the infection from the wound downward along the cellular planes of the neck to the mediastinum. The first notable advance in technique was that proposed by Gluck in 1881, who suggested and practised prophylactic resection of the trachea and implantation of the distal extremity through a button hole cutaneous wound just above the suprasternal notch, thus cutting off all connection of the air tube with the wound, and preventing thereby the entrance of pharyngeal mucus and wound secretion. In 1908 Gluck reported 128 operations; 20 patients were alive and free from recurrences at the end of three years, or a trifle over 15 per cent. Two operations had been advised to diminish the suffering in advanced and inoperable cases—tracheotomy and the starvation treatment, recommended by Dr. Dawbarn. Dr. Brewer said that he had performed thyrotomy sixteen times, with one death; of these sixteen cases only seven were for undoubted carcinoma. His experience with total laryngectomy was limited to eleven cases; of these, five died as the result of the operation, and six recovered. Dr. Brewer's technique in total laryngectomy was as follows: Under general anesthesia a median incision was made extending from the cricoid to the sternal notch. The isthmus of the thyroid

was doubly ligated and divided. The separated edges were pushed to each side and the trachea freely exposed. A low tracheotomy was then performed and the canula introduced, after which the upper part of the incision was united with silk worm gut sutures, and the peritracheal spaces generously packed with iodoform gauze both above and below the cannula. The word was dressed and the patient placed under a tracheotomy tent, into which a small amount of steam is introduced by means of a croup kettle. The external opening of the tracheal cannula was constantly covered with four or five layers of gauze wet in warm boric acid solution, with a view of filtering the air which entered the trachea. About ten days after the preliminary operation the secondary operation was undertaken. Under chloroform anesthesia an incision was made from the body of the hyoid downward to the upper limit of the former cut. From the upper extremity of this incision two lateral incisions were made in an upward and outward direction, extending to the anterior borders of the sternomastoid muscle. The two triangular flaps were turned outward, the sternohyoid muscles divided just below their attachment, and the sternothyroids detached from the cartilage. The two superior arteries were ligated. The superior laryngeal nerves were cut and all lymph nodes removed. The attachment of the inferior constrictors were next divided and the posterior surface of the cricoid partly separated from the esophagus. When the larynx was thoroughly skeletonized the trachea was severed just below the cricoid and its distal extremity immediately packed tightly with gauze. The finger was next introduced into the upper or laryngeal segment of the tube, and the larynx gently raised from the esophagus. When the larynx was completely separated from the esophagus the tips of the thyroid cornua were divided, the thyrohyoid membrane incised, and the larynx completely removed. The pharyngeal wound was then packed with gauze. The oval pharyngeal wound was next tightly closed by two layers of suture. After closure of the pharyngeal opening the entire upper wound was temporarily packed with wet formalin gauze, while the tracheal stump was prepared for closure. This was accomplished by removing redundant tissue above the canula opening, dissecting out or destroying with cautery the mucous membrane, and packing firmly with iodoform gauze above the tube. A rubber feeding tube was then introduced through the left nostril into the esophagus and secured. The wounds were next united above with the general gauze packing about the tube.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held April 29, 1909.

DR. JOHN O. POLAK IN THE CHAIR.

A Case of Ureterovaginal Fistula Cured by Vaginal Operation.—Dr. HENRY DAWSON FURNISS reported this case, a woman, sixty-three years of age, who had had one child. In December, 1906, she bled for one week, and then had no more bleeding until the following November. On December 7, 1907, a hysterectomy was performed for the removal of a carcinomatous uterus. The left ureter was tied, and for a day and a half there was complete anuria. Three weeks after the operation her bed was found wet with urine, and from that time on the urine escaped continuously. She was cystocoped and found to be suffering from a catarrhal cystitis. The catheter could not be made to enter the left ureter. The cystitis was treated, but the constant flow of urine continued. A fistula was sought, using the methylene blue method, but none could be found. Three large braided silk sutures which were introduced at the time of the operation were found. He saw the patient several times, but never saw any urine coming from that ureter into the vagina. The patient was put in the knee chest position after giving methylene blue by the mouth. The vagina was then tamponed, and he was able to detect the ureteral fistula by the stain. A filiform bougie was passed and the patient was made to sit on a vessel for two hours in order to collect the urine passed through the fistula. It was then shown that the left kidney was secreting less urine than its fellow. There was a ureterovaginal fistula which required operation. As the patient would not consent to an abdominal operation, the vaginal operation was performed. The ureter emptied into the vagina high up. A vesico-vaginal fistula was made in front of the ureteral opening. The mucous membrane of the vagina was denuded anterior to the vesicovaginal fistula and posterior to the ureteral fistula, the areas of denudation coming together laterally. By a transverse line of sutures (silkworm-gut and catgut) the denuded areas were brought together so that the ureterovaginal fistula, with a small portion of intact vaginal mucous membrane around it, was turned into the bladder. A retention catheter was used for five days. There had been no leakage since. There was practically an atrophied kidney on that side. The filiform bougie passed but one-half inch into the meatus of the ureter.

Dr. JAMES N. WEST said that he thought the method used by Dr. Furniss was a very ingenious one, and one which would give excellent results in such cases. It was simple and comparatively easy to bring together the walls of the fistula as had been shown. Dr. West asked what the operation was during which the ureter was divided.

Dr. Furniss replied that it was an abdominal hysterectomy for carcinoma of the body of the uterus.

Dr. West said that he could see no excuse for tying off the ureter at that point. In carcinoma of the uterus the cervix was of normal size, and one need not come near the ureter. Again, the braided silk sutures passed away. To-day few used silk sutures for such operations, but only catgut.

Vaginal Cysts and Their Histology.—Dr. GRACE PECKHAM MURRAY presented this paper. She said that vaginal cysts were exceedingly rare, and that the case she reported was the only one that had come under her observation. The vagina was, as a rule, free from neoplasms of all kinds. She could recall only one case of a tumor in the vagina having its origin in the vagina, and that was a case of polypus. The case reported was that of a woman thirty years of age, who was seen at the Post Graduate Hospital in 1907. She had been married six years, had two children and no miscarriages. The older child was six years old and the younger one two years. She had menstruated at the age of fourteen, and had always been regular. After each period she had some leuchorrhea, more since her children had been born. She presented herself at the hospital because of a growth in the vagina about the size of a hen's egg. The tumor was found to be elastic, with slight fluctuation, and was situated between the cervix and the vulva, its base being about two inches in diameter. The cervix was small and the uterus retroverted. The patient entered the service of Dr. James N. West at the Post Graduate Hospital for operation. The cyst was shelled out, the cavity obliterated and the wound closed. An Alexander operation was also performed. The patient was discharged with her uterus in the normal position. Vaginal tumors were of little interest except from the standpoint of their origin. Every case found should be presented and its histological appearance studied. The diagnosis was a simple matter, although they should be carefully differentiated from hernia in the vagina. From a surgical point of view, vaginal cysts were of little importance. When the tumor was situated in the anterior wall, care should be exercised not to injure the bladder. These cysts were usually unilocular and situated in the anterior wall. Cysts of the lateral wall were very rare.

These tumors were of very slow growth. In the case reported there had been no change for several months; many years were required before the tumor reached the size of a hen's egg. These cysts usually contained a fluid which might vary in solor and consistency, and all authorities seemed to agree that the fluid contents of these cysts were without particular significance. Casts had been described as traumatic in origin, as being superficial, and as being deep; it had been though that the vaginal mucous membrane was incapable of producing cysts of such a size and that any cyst the size of an orange must originate outside the vagina. In 1887 the theory was advanced that these cysts were embryonic in origin, and many thought the problem was solved. The text books of the day dismissed the subject quite readily; some said the vagina had glands, and some that the vagina had no glands, while others stated that the glands of the vagina were scanty. It seemed surprising that there should be such a conflict of opinion in regard to this matter. One pathologist had taken thirty specimens, and took six pieces from different parts of the vagina, and in only one instance did he find anything that appeared like glands. His conclusion was that normally the vagina was glandless. Dr. Murray was of the opinion that these cysts arose from the vagina itself, and were retention cysts.

Dr. James N. West said that the cysts of the vagina that he had seen were situated in the anterior wall and extended to the broad ligament. They had been regarded as the fetal remains of the ducts of Gärtner. They extended far up in the broad ligament, and were quite hard to remove. The only cyst he had ever seen situated in the posterior wall was that reported by Dr. Murray. He had seen small cysts arranged in little rows resulting from injury to the perineum high up. These cysts, when of large size, were of practical interest only from the obstetrical point of view, causing considerable resistance to the descent of the head. Dr. West thought the conclusion regarding the origin of these cysts had been well taken so far as he had followed the subject in the literature. These cysts were interesting from a scientific point of view, from their rarity, and from their location. Their removal offered no difficulty as a rule.

Dr. Dinkelspiel said that during pregnancy these cysts increased rapidly in size. Personally, he was familiar only with the retention cyst of the Gärtner duct.

Dr. C. Clarence Sichel said that he had seen three or four vaginal cysts, and that one was now under his observation. This was situated in the posterior vaginal fornix, high up, and dated from the birth of the last child.

Dr. Murray, in closing the discussion, said that there had been described in literature one or two cases in which small cysts followed others, and they were supposed to arise from the remains of Gärtner's duct. It was her opinion, however, that cysts situated high up in the broad ligament were of embryonic origin. What was most interesting was whether or not they had to deal with a true vaginal cyst, and her paper was offered as a contribution to this much discussed subject regarding the origin of these cysts. One of the noted pathologists, Stokes, took the position that there was no such a thing as a vaginal cyst of considerable size; such a tumor must come from structures other than the vagina.

Dr. James N. West said that he had a case under observation with a cyst just to the right and beneath the urethra, as large as a pigeon's egg; it was on the anterior wall, quite low down. The woman was married, but has never borne children. It was situated within one inch of the meatus urinarius, and did not run in the direction of the ureter. Nothing had been done to it thus far.

The Cost of Typhoid Fever.—It is estimated that typhoid fever costs the United States $90,000,000 annually.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, April 19, 1909.

The President, Dr. Robert T. Morris, in the Chair.

Cerebral Affections of Nasal Origin.—Dr. W. Freudenthal, in this paper, said he would limit himself to those infections of the brain of nasal origin which might be called primary, namely, those following empyema of any of the accessory sinuses. While cerebral affections of otitic origin were comparatively common, a careful search of medical literature showed the records of very few of nasal origin. This the speaker attributed not so much to their rarity as to the fact that their true source of infection was so commonly overlooked. Speaking of the modes of infection, Dr. Freudenthal said that many years ago Zuckerkandl described defects in the posterior wall of the frontal sinus, in some instances only the mucosa and dura separating the sinus from the cranial cavity. In such a case, if an empyema of the frontal sinus developed, extension of the infection to the brain might readily occur. Similar defects had also been observed in the walls of the ethmoidal and sphenoidal sinuses, and this should serve as a warning against rough curettage, especially in the sphenoidal sinus. In cases in which there was no bony defect the infection might result from direct continuity. First, the mucous membrane became diseased, followed by a subperiosteal abscess. The necrotic bone then produced an extradural abscess, followed by meningitis, cerebral abscess, and sinus thrombosis. There were also cases of metastases where the bone was not affected, only the discoloration of the bone proving that the process had penetrated there. Infection from the nasal cavity to the brain might also be the result of an anastomosis of the veins of the mucosa of the frontal sinus with those of the dura: when such a vein became infected the infective material was readily carried into the brain. It was probable that the infection might also travel through the lymphatics or along the sheath of the olfactory nerve through the lamina cribrosa. Dr. Freudenthal then reported in detail three cases of brain infection of nasal origin that had come under his personal observation.

Dr. Robert C. Myle showed a cross section of a skull in which the routes of infection between the accessory sinuses of the nose and the brain could be clearly demonstrated. It was astonishing, he said, that cerebral affections of nasal origin, both from disease and from operative interference, were not of much more frequent occurrence. In spite of the comparative impunity, however, with which we cut out nasal tissue and entered the frontal, sphenoidal, and various other accessory sinuses, statistics were accumulating showing that resulting brain complications were not as rare as we formerly supposed. Personally, he could recall two cases in which the brain infection occurred directly. One was that of a man with chronic frontal sinus disease, for the relief of which operation was refused. Subsequently, symptoms of meningeal irritation developed, and these persisted for many months. Finally the man consented to an operation, and on the very eve of this he suddenly developed violent intracranial symptoms and died. In the second case, following a grippal infection, and without evidence of any sinus disease, the patient developed a fistulous tract which burrowed along the outer wall of the antrum, extending inward along the inferior turbinal, and subsequently resulting in fatal meningeal symptoms. In dealing with sphenoidal sinus disease, Dr. Myles said he always exercised great care in the removal of that part of the diseased wall adjacent to the nose, while he never curetted the upper wall of the cavity on account of its proximity to the brain. With the exception of a severe hemorrhage in one instance, he had never seen

any injurious effects follow operations on the sphenoidal sinus. The comparative rarity of cerebral affections of nasal origin, the speaker said, could be partly traced to the fact that the dura mater covering the sinus walls was very resistant to the inroads of infection. In addition to the routes of infection mentioned by Dr. Frendenthal, Dr. Myles said he had seen and known of cases where the infection occurred through the posterior part of the vomer from adenoid operations. In such cases the infection usually involved the sphenoid and was associated with cavernous sinus thrombosis. Dr. Myles also presented a chisel which cuts outwardly and away from the cerebrum, and which he had found extremely useful for cleaning the several sinuses when their degenerating contents threatened to infect the meninges and the brain.

Dr. Lewis A. Coffin said the cerebral affections of nasal origin included cerebral abscess, the various types of meningitis, pachymeningitis, and the meningitis of congestion or serous, and Tobert had spoken of a septic type. The question of the modes of infection was still unsettled. Undoubtedly, infection took place from contiguity, when the inner plate of the sinus became diseased or necrotic. Indirect infection probably took place through both the lymphatic and blood channels, but of the former we had no proof. The reader of the paper spoke of the dangers attending curettage of the sphenoidal sinus. Personally, Dr. Coffin said, he would hesitate to do a radical operation on the frontal and ethmoidal cells and leave the sphenoidal infection behind. Many cases of death, he believed, had resulted from just that procedure, namely, stirring up the infective germs to greater activity and leaving behind the best possible media for their development. After a thorough Killian operation he did not see how there could be any danger of recurrence, because the frontal sinus was practically obliterated and there could be no further infection unless it took place through the cicatricial tissue. In cases that demanded a radical operation on the frontal sinus he was opposed to any preliminary operative work on the nose. He agreed with Dr. Myles that there was no more danger in going into the sphenoidal sinus than there was in going into the ethmoidal or frontal.

Dr. W. Sohier Bryant said that Dr. Frendenthal's cases indicated the great danger of deferring a radical operation in severe cases. In spite of the fact that nasal infection was more than ten times more frequent than aural infection, brain infection from ear disease was at least three or four times more frequent than from nasal disease. This was probably accounted for by the fact, as had already been suggested, of the case with which nature drained the nasal cavity and its accessory sinuses. Dr. Coffin had emphasized the importance of thorough operation and a one stage operation, and the speaker said that he heartily concurred with both of these suggestions. In acute cases, with cerebral symptoms, an operation was indicated at the earliest possible moment in order to save the life of the patient. The importance of the nasal cavities as a source of intracranial infection was now generally recognized, but the frequency of brain involvement from nasal infection in so called general diseases was not as commonly recognized. Cerebrospinal meningitis, for example, was always secondary to nasal and accessory sinus infection. We might, therefore, say that cerebrospinal meningitis was of nasal origin. In other diseases the fatal lesion might be located in the brain, and might be secondary to nasal infection. Usually in such cases the general practitioner overlooked the local significance of the cranial symptoms. Dr Bryant said he had recently observed a case which had been diagnosed as "lobar pneumonia." An autopsy revealed that the cause of death had been purulent lepto meningitis of both hemispheres, consequent on a purulent pansinusitis. The lobar pneumonia was present, but was only a minor part of the pneumococcic infection.

Dr. Frendenthal, in closing, speaking of brain complications resulting from frontal sinus disease, said that this was not always due to pressure alone, but to the virulence of the infective organism. As to the lymphatics serving as an avenue of infection from the nose and its accessory sinuses to the brain, he did not see why this should not be so here as elsewhere in the body. He thoroughly agreed with Dr. Coffin that when once a radical operation had been decided on no minor preliminary operations should be attempted. Replying to Dr. Bryant's statement that cerebrospinal meningitis was always secondary to nasal and accessory sinus infection, he said that this was not borne out by the investigations of a German writer, whose name had escaped him, who had made many autopsies during an epidemic of cerebrospinal meningitis and had found that the infection took place through the retropharynx.

Some Technical Difficulties in Operations for Hypospadias and Other Urethral Affections.—Dr. Carl Beck, preceding the reading of his paper, showed three cases of hypospadias treated by his method of forward dislocation (distention) of the urethra. One—a child of eleven months, who suffered from the penile type—underwent the operation four weeks ago and showed a perfect result. No sign of incurvation was noticeable, the urine was projected in a natural stream, and the mobility of the penis was normal. The other two patients presented were brothers who were operated upon by the same method six weeks ago. The elder brother, who was five years old, suffered from an extreme scrotal type of hypospadias, in which, as a rule, the extensibility of the urethral stump was too limited to permit of the distention method. Still, in suitable cases it was well worth trying. In this case it gave a perfect result as regarded micturition, the stream of urine now being straight, whereas previously the patient always soiled his clothing. The small size of the penis and the overhanging of the scrotal folds were defects that still remained. It was hoped, however, that greater mobility of the penis might be obtained by some future operation. The case of the other brother was unique in that it represented the youngest patient that had ever been operated on for hypospadias. At the time of operation the child was nineteen days old. The youngest child that Dr. Beck had previously operated on was five months of age. In this child of nineteen days the penis was somewhat larger in proportion than that of his brother, and his chances of further development of the organ were better. In discussing the advantages of an early operation in these cases, Dr. Beck said that, aside from the better chances of further development, the penis, during the infantile period, was less inclined to erection than later on, when excessive rigidity might produce undue tension of the sutured area. Again, there was no better protection for the wound area than the diaper, which the baby could not displace; in other words, it would not interfere with the wound with its hands which an older child was apt to do. Even tying the hands of a nervous child to the bedstead was no absolute guarantee, aside from the apparent cruelty of such a procedure. Instead of asking the question, "When to operate," one should ask "When not to operate." The operation was more delicate in infants than in older children, and with that point in view Dr Beck showed a special set of instruments which he had made for him for the purpose.

Dr. R. Pfister, after referring to the great annoyance that this condition of hypospadias caused both parents and children, said that by the method of operation described by Dr. Beck we could promise a good result almost with certainty, and without resulting fistula, because the urethra was not opened nor injured, and even if the operator was unfortunate enough to meet with such an accident in these young patients a fistula would not occur if the flap was sewn up very carefully.

Dr. Samuel Lloyd said that, while the technique of the

procedure described by Dr. Beck was excellent, he could scarcely bring himself to believe that an entirely satisfactory operation for hypospadias had been developed. In connection with this condition we had to consider the development of the penis in the future, and in extreme cases it seemed utterly impossible to remedy the defect so that the penis would be straight and that no incurvation would occur during erection. While brilliant results were occasionally obtained in operating on these patients, more frequently the results were utterly unsatisfactory. The speaker recalled one case of penile hypospadias in a ten-year-old boy upon whom he operated by the method described by Dr. Beck with a practically perfect result, while in a second case the operation proved a complete failure, due to persistent erections and the tearing out of the stitches. Referring to catheter drainage, the speaker said he had found it very difficult to keep the catheter in place, and an irritable urethra would not tolerate its presence. Personally, he was inclined to favor a perineal urethrotomy instead for drainage purposes; he had done this in several instances with satisfactory results. The main objects in view were to lengthen the penis and avoid insurvation, and to attain those ends he believed that the combined operation, distending the urethra as far as it would go, and the flap method afterward, would give the best results.

Dr. Edward W. Peterson said that in one case of hypospadias of the penile type he did the Beck dislodgment operation with excellent results. Personally, he believed that an operation to correct a penoscrotal or perineal hypospadias was one of the most difficult that fell to the lot of the surgeon—even more so than cleft palate. In the last case upon which he operated he freed the urethra and allowed it to retract, leaving a strip of skin to serve as a roof for the urethra, and forming the floor from a scrotal flap. Drainage was made through a perineal puncture.

Dr. Martin W. Ware said he thought the operation of mobilization described by Dr. Beck was the very best one we had for the treatment of hypospadias, certainly of the balanic type, but when it came to the penoscrotal type, each case had to be judged on its individual merits. In doing this operation the artificial meatus was apt to grow smaller, and the question arose whether to make the incision in an anteroposterior or lateral direction. A certain amount of redundant skin should be left surrounding the orifice, which could afterward be utilized. The great drawback to the success of all these operations were the erections, which were very apt to occur and undo the work of the surgeon, and to overcome these Dr. Ware said he was in favor of using opiates freely, particularly in the form of suppositories. The indwelling catheter he had always looked upon as a possible source of infection and of pressure on the newly formed meatus. In preference to it he favored perineal drainage, and on several occasions resorted to puncture of the bladder itself.

Dr. Beck, in closing, said he made no claim that he had cured any case of extreme perineal hypospadias in the full sense of the word, but he did claim that his method of forward dislocation of the urethra cured with absolute certainty any case of the balanic or penile type. He had never seen incurvation follow any of his operations on such cases. In the extreme perineal type the distention method should not be attempted except in combination with other plastic procedures. But even if we only gave the patients suffering from the scrotal variety the ability to pass a straight stream of urine we were doing much to add to their comfort. He was fully in accord with those who believed that the last word in regard to the ideal treatment of a case of scrotal or perineal hypospadias had not yet been spoken.

Ten Consecutive Cases Illustrating the New Point in Appendix Diagnosis.—Dr. Robert T. Morris made a brief report upon ten consecutive cases in which the relative value of the new diagnostic point, when there was a question of appendicitis, was concerned. The point consisted in an area of hyperesthesia at the site of the right group of lumbar ganglia, about an inch and a half to the right of the navel. The ten consecutive cases were the last ten seen before the meeting, and were fairly representative. They were cases in which the question was definitely decided. A number of other cases in which the point was of greatest consequence were not included, because they did not go to operation to give opportunity for examining the appendix. It was in fibroid degeneration of the appendix that the new diagnostic point was of most value, and as these cases were often not subjected to operation, none happened to be among the ten consecutive cases upon which Dr. Morris made the report. In the series there were two cases of bubonocele sent for operation for appendicitis. Absence of hyperesthesia at the site of the right group of lumbar ganglia led to the discovery of the bubonoceles. The point was of value in these two cases in a negative way. There were three cases of acute appendicitis in which the point was not necessary as an aid to diagnosis because the other signs were sufficient. In two cases of interval appendicitis the point was helpful, because tenderness at the site of the appendix was absent, but was present at the site of the right lumbar ganglia. The point was absent in one interval case, and consequently of no value. It was misleading in one case of pelvic abscess of appendix origin, as both right and left groups of lumbar ganglia were hypersensitive. Dr. Morris had previously found that when both groups of ganglia were hypersensitive we could look to some pelvic organ rather than to the appendix for the source of the disturbance.

WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held May 10, 1909.

Dr. William Linder in the Chair.

The Treatment of Ophthalmia Neonatorum.—Dr. S. J. Levitt of Brooklyn read this paper. He pointed out the great importance of prophalyxis in dealing with this condition. Every pregnant woman with a mucopurulent or purulent vaginal discharge was to be appropriately treated before delivery. When the infant was born, Credé's method of prevention was to be observed. The infant's eyes were to be cleansed with boiled water and then a drop of 2 per cent. silver nitrate solution was to be dropped into each eye and neutralized by a normal salt solution. Although ophthalmia neonatorum was produced by microorganisms, it was found that nitrate of silver surpassed the disinfectants in combating the infectious agents. Silver nitrate was especially poisonous to the gonococcus. It had also a mechanical effect, scarifying the superficial layers of the epithelium and causing their exfoliation, together with the gonococci that had penetrated into these layers. Microscopic examination of the conjunctival discharge was imperative as a necessary preliminary to the treatment. Gonococci were present on the conjunctiva even weeks after the discharge had ceased. Mild cases of nonspecific ophthalmia yielded easily to treatment, and were cured from a few days to two weeks, while gonorrheal cases ran a severe course and lasted from two to three months. The treatment was considered under three headings, as follows: Personal attention to the patient, application of cold in the first stage and frequent cleansing, and the application of silver nitrate and the after treatment. It was the physician's duty to see that his directions, which were explicitly given, were carried out faithfully by the nurse. This was a point that required particular emphasis, inasmuch as the little patient was frequently left in the hands of an irresponsible person. The eyes were to be examined daily

and the condition of the cornea particularly was to be noted. For this purpose the patient was to be placed in a good light, and the physician was to place the forefinger of his right hand on the supraorbital ridge, with the thumb of his left hand on the infraorbital ridge, care being taken not to press on the cornea. Before examination of the eye the pus was to be wiped away with a 1-10,000 bichloride or a boric acid solution. In the first forty-eight to seventy-two hours cold applications were to be applied by means of gauze pads placed on a block of ice and changed every minute. With the subsidence of the inflammation of the lids cold was to be discontinued. In mild cases the cold applications were to be applied for half an hour and then stopped for an hour, while in severe cases the applications were to be continuous. Frequent cleansing of the eye with 1-10,000 bichloride or saturated boric acid solution applied every ten or fifteen minutes, either by a pledget of absorbent cotton or an eye-dropper, was necessary. Every dressing coming in contact with the eye was to be immediately destroyed. As soon as the suppuration started, a solution of 1 per cent. silver nitrate was to be applied by the physician to the upper and lower lids. If the suppuration was very profuse, the application had to be done twice a day. In gonorrheal ophthalmia this treatment was to be continued at least six weeks. When the swelling of the lids and the secretion of pus had subsided, a tepid solution of 1-10,000 bichloride or boric acid was to be used every three hours. The silver application had to be applied every second or third day until the hypertrophy of the lids had entirely disappeared. If an infiltration or ulcer of the cornea existed, atropine 1 per cent. was to be instilled a few times a day.

Gonorrhea and Its Treatment.—Dr. VICTOR H. PENTLARGE of Brooklyn read this paper. He said that the subject was of such great scope that he would confine his paper briefly to the diagnosis and treatment of anterior urethritis, antero-posterior urethritis, and to the most common complications. The micriscope and the differential gram stain usually cleared up any doubt as to diagnosis. A so-called gonorrhea that cleared up in four or five days was frequently in reality a non-specific urethritis. There were many bacteria in the normal urethra which were identified with those found in the bladder and urethra during a cystitis. Cocci very similar to the gonococcus were found in the normal urethral excretions; but they were not decolorized by Gram's stain. Profuse urethral discharges containing many varieties of bacteria were caused by the injection of powerfully irritating solutions. There was a difference of opinion among authorities as to the differential diagnosis between acute anterior and acute antero-posterior gonorrheal urethritis. To a certain extent, the Thompson two or five glass test determined the diagnosis. If during the first few days of an acute anterior gonorrheal urethritis the patient passed five glasses of urine without interrupting the stream, and at least the last three glasses were found to be clear, then one had to deal with a characteristic case of acute anterior urethritis. In an acute antero-posterior infection all the glasses would be cloudy, at least for a time. After the subacute stage had been reached it would be found that the second and following glasses were clear. The explanation of this change was that as long as large quantities of mucus and pus were produced by the posterior urethra, just so long did this discharge pour into the bladder, making the bladder urine cloudy, but as soon as the secretion became moderate the internal sphincter muscle confined it to the posterior urethra, so that the first passage of urine swept the urethra clean, enabling the remaining urine to pass entirely clear. If at any time the patient had all of the glasses cloudy, it was necessary to treat his urethritis as a posterior urethritis to the very last. Many cases of antero-posterior urethritis ran their course without infecting the prostate and other adnexa, but the most frequent complication was the infection of the epididymis leaving the second place for the prostate. Epididymitis recurring simultaneously with an acute antero-posterior urethritis was not difficult to diagnose, but recurrent attacks of epididymitis occurring years after the original characteristic attack were frequently difficult to diagnose on account of the inability to find gonococci by ordinary means. The speaker had seen such cases in professional dancers and athletes. In such cases with no urethral discharge and with a clear urine, it was wise to make a guarded diagnosis, to be cleared up later when the subacute stage had passed. Indurations might be left in an epididymis following gonorrheal infection, which rarely simulated tuberculosis or syphilis. It was impossible to tell just how often during an acute antero-posterior urethritis the prostate was the seat of minute abscesses that gave rise to few or no subjective symptoms, but large fluctuating abscesses that gave rise to many unpleasant local symptoms were not very rare. With the diagnosis of urethral gonorrhea, and the presence of local symptoms, it remained for the examining finger to complete the diagnosis. It was characteristic that after the finger had passed the internal sphincter it came directly upon an obstruction apparently round, firm, highly sensitive, and hot, but only by means of force could fluctuation be determined. Gonorrheal rheumatism was a rare complication. The treatment of acute anterior gonorrheal urethritis was at all times to be as simple as possible, including rest and the internal administration of sandalwood oil or salol, although internal medication had no appreciable curative value. Locally 2 per cent. protargal solutions were to be given by the physician three or four times weekly throughout the entire course of the disease, while the patient himself was to make three injections daily of a ½ per cent. solution. The injections were to be made immediately after urinating, and were to be held from 5 to 15 minutes. The patient was to drink large quantities of tap water. This was frequently of curative value even when used alone. The "water-cure" did not suffice in posterior urethritis. Acids, spices, alcohol, tea, and coffee were to be avoided and constipation prevented. Injections were not to be used in acute stages when there was tenesmus. This was combated with rest, hyoscyamus, and potassium salts. The best treatment for subacute antero-posterior urethritis was by injection into the bladder of a ½ per cent. water solution three or four times weekly, with an anterior injection of 2 per cent. This effected a cure in from four to seven weeks, provided that careful treatment was carried out at home by the patient himself. For acute epididymitis the treatment was rest in bed, shaving of the scrotum and pubis, and immobilization of the testicles by means of adhesive straps. No local applications were necessary. The internal use of sedatives was called for. With the abatement of the pain, swelling, and sensitiveness the routine treatment for antero-posterior urethritis was to be begun. The treatment of prostatic abscess was somewhat similar, and in most cases the abscess ruptured into the posterior uretha if left alone. After this spontaneous evacuation the prostate rapidly regained its normal size and the treatment for antero-posterior urethritis was to be begun. The patients who did not follow orders, who indulged in coitus, alcohol, and excessive exercise, or who did not receive regular treatment, were the ones from whom were recruited the cases of chronic anterior-posterior urethritis, strictures, and periurethral lesions. For these were employed sounds, the instillation of 10 per cent. solutions of ichthyol in glycerin, 2 to 10 per cent. copper sulphate, or ½ to 2 per cent. silver nitrate solutions. The irrigation of the bladder with 1-10,000 silver nitrate, or ½ per cent. zinc sulphate, was useful after all gonococci had disappeared, and the mucous membrane remained congested or thickened.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

West Virginia State Board of Health.

April 13, 1909.

ANATOMY AND EMBRYOLOGY.

1. Give the character of a vertebra.
2. Describe the skin and its appendages.
3. Hip joint: Describe it, naming variety, giving bones and ligaments.
4. Name the regions of the abdomen and give contents of any two.
5. Describe the brachial artery and name its branches.
6. Describe the inguinal canal. Wherein does an artery differ from a vein?
7. Give origin and insertion of triceps muscle.
8. Describe the gall-bladder and bile-ducts.
9. How many bones in the human skeleton? Classify them.
10. Describe the blastoderm.

PHYSIOLOGY AND HISTOLOGY.

1. Describe the principal phenomenon that occurs when a muscle is physiologically active.
2. State with what principal functions pulmonary endothelium is endowed, and describe the origin and character of the blood which an alveolus utilizes during the physiological action.
3. Give the source and state the character of the blood supplying hepatic parenchymatous cells, and describe the two principal functions they possess.
4. State the effects of battery currents on the normal human nerves.
5. Give the process of regeneration of uterine mucous membrane following pregnancy.
6. Describe the physiological aspect of atavism.
7. Account for the contraction and dilatation of the pupil.
8. Name the circumstances influencing secretion.
9. What are structural elements? What is a typical cell?
10. Give the elements of the nervous system; the connective tissue.

CHEMISTRY.

1. Give tests for urea and uric acid, give chemical differentiation.
2. Test urine for albumin, sugar, indican, and phosphates.
3. Name antidote for phenol and treat case of poisoning.
4. Make tests differentiating the alkaloids, morphine sulphate and quinine sulphate.
5. Define medical jurisprudence.
6. Give symptoms of lead poisoning and treatment.
7. What are ptomains, and in what found? Give symptoms and treatment of ptomain poisoning.
8. What is hard water? How does it become hard? Give two ways of softening it.
9. What are the antidotes of bichloride of mercury? Give treatment for poisoning therefrom.
10. What is H_2O, H_2O_2, NaCl, H_2SO_4?

MATERIA MEDICA AND THERAPEUTICS.

1. Give origin and uses of carbolic acid.
2. Cinchona: Where found, chief alkaloids, uses, and dose.
3. Apomorphine: How obtained, use, dose.
4. Abstracts, extracts, infusions, tinctures, mixtures: define each.
5. What are hypnotics? Name three most important ones, doses, and indications.
6. What is the temperature of tepid bath, warm bath, and hot bath; indications for each.
7. Emmenagogues: When and how to be used; name three, with doses.
8. Name five mineral astringents; give dose of each.
9. Sweet spirit of niter, Hoffmann's anodyne: indications and dose of each.
10. Prepare and administer a purgative high rectal enema.

PRACTICE OF MEDICINE AND PEDIATRICS.

1. Dysentery: Etiology, complications and sequelæ, and treatment.
2. Rheumatism: Give the different forms; treat each.
3. Tonsillitis: Differentiate from diphtheria; symptoms and treatment.
4. Give etiology and treatment of hemoptysis.
5. Intussusception: Define, diagnose, and treat.
6. Cirrhosis: Etiology, symptoms, and treatment.
7. Ascites: General causes, symptoms, and treatment.
8. Intestinal catarrh of children: Symptoms and treatment.
9. Describe the lumbricoides and give origin, symptoms, and treatment.
10. What diseases does meningitis complicate in children?

OBSTETRICS AND GYNECOLOGY.

1. Differentiate pregnancy from three possible ailments that simulate it.
2. What occasions vomiting of pregnancy? When is it pernicious, and what is remedy?
3. What preliminary knowledge of the patient should the accoucheur have?
4. Describe the possible hemorrhages of pregnancy and your method of checking them.
5. How long would you work with the newborn to bring about respiration, and with what methods?
6. Fully describe the third stage of labor, giving methods and dangers of delay in delivery.
7. Milk leg: Why so called, cause, and treatment?
8. When is curettage indicated? Give your way of doing it.
9. Give nosology, symptoms, and treatment of menorrhagia.
10. Nosology, symptoms, and treatment of vaginismus.

SURGERY.

1. What is suppuration? Give causes and symptoms.
2. Describe Syme's operation for amputation at the ankle.
3. Give the indications for reopening wounds.
4. Give the differential diagnosis of hydrothorax and empyema.
5. Give in detail the treatment of a compound fracture of the tibia.
6. What are the clinical symptoms and what is the surgical treatment of a purulent effusion into the knee joint?
7. Name the different kinds of fractures, and give differential diagnosis between fracture of neck of femur and dislocation of the hip joint.
8. Give in detail treatment of a punctured wound involving the deep palmar arch.
2. Give causes, symptoms, and treatment of osteomyelitis.
10. Give causes, symptoms, and treatment of phlebitis.

SPECIAL PRACTICE.

1. Give diagnosis of ulcer of stomach.
2. What is amebic dysentery?
3. Describe and treat adenoids.
4. What would you suspect from continued hoarseness?
5. Describe enucleation.
6. Define, describe, and treat cataract.
7. Diagnose impacted cerumen and treat.
8. Test the hearing. What is the most common cause of deafness?
9. Describe locomotor ataxia.
10. Describe paresis.

BACTERIOLOGY AND HYGIENE.

1. What is the difference between parasites and saprophytes?
2. What is the bacterium concerned in septicemia? How does it enter the body?
3. Describe the bacteria found in pneumonia. How are they transmitted?
4. Give a minute description of disinfecting the hands and instruments before performing an operation.
5. What group of bacteria are most resisting to disinfectants? Why?
6. What hygienic principles should be applied to our public schools?
7. Can tuberculosis be prevented? If so, how?
8. How would you prevent the spread of diphtheria and scarlet fever?
9. Give sanitary treatment of the puerperal state.
10. Disinfect a house after the recovery of a case of diphtheria. Give details.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

West Virginia State Board of Health.

April 13, 1909.

ANATOMY AND EMBRYOLOGY.

1. The *general characters of a vertebra* are: Body or Centrum; and Neural arch. The latter consists of two pedicles, two laminæ, and seven processes (four articular, two transverse, and one spinous).
3. The *hip-joint* is an enarthrodial joint, formed by the

head of the femur and the acetabulum. The articular surfaces are covered with cartilage. Near the center of the head of the femur is attached the ligamentum teres. The *ligaments* are: (1) The capsular, which embraces the margin of the acetabulum above, and the neck of the femur below. (2) The ileo-femoral or Y ligament, which passes obliquely across the front of the joint, and is attached above to the anterior inferior spine of the ileum, and below to the anterior intertrochanteric line. (3) The ligamentum teres. (4) The cotyloid ligament, which deepens the acetabulum, and bridges over the cotyloid notch, being there called (5) the transverse ligament. The joint has a very extensive synovial membrane. It is capable of the following movements: Flexion, extension, abduction, adduction, circumduction, and rotation.

4. *Names of the regions of the abdomen:* Right hypochondriac, epigastric, left hypochondriac, right lumbar, umbilical, left lumbar, right iliac, hypogastric, and left iliac.

The *contents of any two* will vary, according to the position of the lines drawn. If the vertical lines are drawn upwards through the middle of Poupart's ligament, the superior horizontal line at the lowest part of the tenth costal cartilages, and the lower horizontal line at the level of the anterior superior spines of the ilium:—Then the *Right iliac region* will contain part of the ileum, part of the cecum, and the vermiform appendix; and the *Left lumbar region* will contain part of the left kidney; part of the descending colon, sigmoid flexure, and jejunum.

5. *The brachial artery* is the continuation of the axillary, begins at the lower margin of the insertion of the Teres major, passes down the anterior aspect of the arm, and terminates about half an inch below the bend of the elbow, where it bifurcates into the radial and ulnar arteries. It passes along the inner borders of the Coracobrachialis and Biceps muscles, it is superficial throughout its course, is accompanied by venæ comites, and at about its center is crossed by the median nerve, which passes from the outer to the inner side of the artery.

Branches: Superior profunda, inferior profunda, nutrient, anastomotica magna, and muscular.

6. The *inguinal canal* is an oblique canal situated a little above and running parallel with Poupart's ligament. It is from an inch and a half to two inches in length, runs downward and inward, and extends from the internal abdominal ring to the external abdominal ring.

Its *boundaries* are: *In front*: the skin, superficial fascia, aponeurosis of the external oblique, and (for its outer third) the internal oblique. *Behind:* the conjoined tendon, the triangular fascia, the transversalis fascia, subperitoneal fat, and peritoneum. *Above:* the fibres of the internal oblique and transversalis. *Below:* Poupart's ligament and the transversalis fascia.

Contents: the spermatic cord in the male; and the round ligament in the female.

Differences between arteries and veins:—

ARTERIES.	VEINS.
Generally carry arterial blood.	Generally carry venous blood.
Carry blood from the heart.	Carry blood to the heart.
Do not collapse when cut.	Collapse when severed.
Are found contracted and empty after death.	Are not found empty after death.
The middle coat is the thickest.	The external coat is the thickest.
Do not have valves.	The medium-sized veins have valves.

7. *Triceps muscle*: The long, or middle, head arises from a depression on the axilliary border of the scapula immediately below the glenoid cavity; the external head from the root of the great tuberosity on the posterior surface of the humerus, and the upper part of the musculospiral groove; the internal head from the posterior surface of shaft of humerus, below musculospiral groove, and the internal and external muscular septa. It is inserted into the back part of the upper surface of the oleeranon process of the ulna.

8. THE GALL-BLADDER AND BILE-DUCTS. The *gall-bladder* is a conical bag placed in a fossa on the under surface of the right lobe of the liver. Its upper surface is attached to the liver, and its fundus and posterior surfaces are invested by peritoneum reflected from the adjacent surface of the liver. The body is in relation in front with the liver, and behind with the first part of duodenum, the pylorus, and the hepatic flexure of colon. The fundus is in contact with the parietes opposite the ninth right costal cartilage.

The *hepatic duct*, formed by union of ducts from right and left lobes, issues from the liver at the bottom of the transverse fissure. It passes downwards and to the right in the layers of gastrohepatic omentum, having the vena porta behind, and the hepatic artery on the left. It joins the cystic duct, the two forming the common bile-duct.

The *cystic duct* passes from the neck of the gall-bladder downwards, backwards and to the left, to join the preceding.

The *ductus communis choledochus* or *common bile-duct* is the result of the union of the hepatic and cystic ducts. It passes behind the first part of the duodenum, in front of the venæ portæ, with the hepatic artery on the left, between the layers of the gastrohepatic omentum, and, passing between the pancreas and second part of the duodenum, enters the small intestine obliquely, a little below the middle of the descending part of the duodenum by an opening common to it and the pancreatic duct.—(From *Aids to Anatomy.*)

9. There are 206 named bones in the human skeleton.

They are *classified as*: Long, short, flat, and irregular bones.

PHYSIOLOGY.

1. When a muscle is physiologically active, the principal phenomenon is contraction.

During contraction the following changes take place in a muscle: (1) It becomes shorter and thicker, but (2) there is no change in volume; (3) there is an increased consumption of oxygen; (4) more carbon dioxide is set free; (5) sarcolactic acid is produced; and hence (6) the muscle becomes acid in reaction; (7) it becomes more extensible, and (8) less elastic; (9) there is an increase in heat production and consequently a rise of temperature (10) the electrical reaction becomes relatively negative, and (11) a sound is produced.

2. *The principal functions with which pulmonary endothelium is endowed* are: (1) To allow of the passage of oxygen into the blood, and carbon dioxide from the blood; thus acting physically as a permeable membrane. (2) To exert a selective influence on these gases; a vital process.

The *blood* comes from two sources: (1) From the branches of the *pulmonary artery;* this is venous blood for the lungs to aërate. (2) From the *bronchial arteries;* this is arterial blood to nourish the organ.

3. The *blood to the hepatic parenchymatous cells* is from two sources: (1) From the *portal vein;* this blood has circulated through the walls of the stomach, intestines, pancreas, and spleen; and is loaded with materials absorbed from the digestive tract. (2) From the *hepatic artery;* this is to nourish the organ.

The *two principal functions* are: (1) The secretion of bile; and (2) the formation of glycogen.

4. *The effects of battery currents on normal human nerves:* (1) A nerve impulse is developed at the moment the circuit is made; (2) a similar nerve impulse is developed at the moment the circuit is broken; (3) electric currents are developed on either side of the anode and cathode; (4) electrotonic alterations of nerve conductivity and excitability are observed.

6. "*Atavism* (Lat. *atavus*, ancestor) in the strict sense is a return to the peculiarity of the ancestral form of the species. As this ancestral form is generally unknown, the explanation of an unusual variation as due to atavism is in most cases merely conjectural. For example, the dark stripes that appear sometimes upon the back, shoulders, and legs of horses have been attributed to atavism by Darwin, Ewart, and others: the presence of these stripes being regarded as evidence of a striped ancestry when considered in connection with the coloring of other species of the genus *Equus*, like the zebra, quagga, etc. Another example of atavism is the occasional appearance of supernumerary mammæ and teats in women and in men. In women they have been observed to produce milk. These are regarded as atavistic because in the Lemuroidea, the lowest group of Primates, there are, in addition to the well-developed functional mammæ on the pectoral region, rudimentary teats upon the abdomen and groin. They thus approach the condition found in dogs and pigs, while in the apes and man there is normally but a single pair of mammæ."—(*Reference Handbook of the Medical Sciences.*)

7. *Contraction:* "The contraction of the pupil is caused by the action of the sphincter pupillæ. (1) If *light* falls upon the retina, the pupil contracts by reflex action. The course of the impulse starting in the retina and ending in the contraction of the sphincter is as follows: From the retina it travels through the optic nerve and optic tract to the anterior corpus quadrigeminum (probably). From there the pupil-fibers pass by Meynert's fibers to the center

of the sphincter pupillæ in the third nerve nucleus. Here the reflex is started, which passes out to the eye by the third nerve and its ciliary fibers. The contraction to light of the pupil of the eye illuminated is called the *direct action,* but the other pupil also contracts at the same time. This is called the *consensual action.* It is explained by the fact that the pupillary fibers of the optic nerve probably suffer semidecussation at the chiasm as well as the visual fibers. There is also a communication between the two corpora quadrigemina and between the third nerve nuclei. (2) The pupil contracts not only to light, but also to *convergence* and *accommodation.* It seems probable that the three centers for convergence, accommodation, and pupil-contraction, though independent, are stimulated simultaneously by the voluntary impulse for adjustment of the eyes for the near point.

Dilatation: "The presence of a dilator muscle is still in doubt. The elasticity of the posterior membrane and vasomotor action are probably in part active in dilatation. Dilatation is under the control of the sympathetic system. The center is in the medulla and the course is down the spinal cord to the seventh and eighth cervical and first dorsal roots, through the cervical sympathetic, carotid, and cavernous plexus to the eye. Physiologic dilatation is produced by irritation of sensory nerves and by psychic conditions such as fright or anger."—(From Alling & Griffin's *Epitome.*)

8. *The circumstances influencing secretion* are: (1) Blood pressure; (2) nervous influence; (3) "vital force" of the epithelial cells; (4) formerly, the physical processes of filtration, osmosis, and diffusion were supposed to be responsible for secretion.

9. *Structural elements* are the ultimate structures into which the tissues of the body may be resolved by the aid of the microscope. They are: (1) Epithelial; (2) connective (including bone, cartilage, blood, and lymph); (3) muscular; and (4) nerve cells (and fibers).

A typical cell is the ultimate element of structure; it enters into the formation of all tissues. It consists of a tiny mass of protoplasm, and contains a nucleus and an attraction sphere, but as a rule no cell wall. Cells vary in shape and size (from about 1-3000 to 1-300 of an inch in diameter); and are characterized by power of movement, assimilation, growth, excretion, and reproduction.

CHEMISTRY.

1. *Test for urea:* Evaporate a few drops of the urine (or other fluid supposed to contain urea) on a glass slide, moisten the residue with nitric acid, allow it to crystallize; crystals of urea nitrate will be recognized under the microscope.

Test for uric acid:—Moisten with nitric acid, and evaporate nearly to dryness; then cool, and add ammonium hydroxide. If uric acid is present the nitric acid residue is yellow or red, and a brilliant red is produced by the addition of the ammonium hydroxide.

Urea has the formula $CO(NH_2)_2$; it "crystallizes in transparent needles or four-sided prisms, without Aq; permanent in air; odorless, having a cooling, slightly bitter taste, resembling that of saltpeter. Soluble in an equal weight of cold water, very soluble in boiling water and in five parts of cold or one part of hot alcohol, the solutions being neutral in reaction. At 248° F. it melts, and slightly above that temperature is decomposed. It is found in the blood, chyle, lymph, humors of the eye, saliva, perspiration, bile, milk, serous fluids, amniotic and allantoic fluids, and especially in the urine."

Uric acid has the formula $C_5H_4N_4O_3$; it "crystallizes in small, colorless, rhombic, rectangular, or hexagonal plates, or in rectangular prisms. As crystallized from the urine, it is more or less colored by the urinary pigments, and the angles of the crystals are rounded to produce lozenge shapes, which are arranged in bundles, crosses, or daggers.

"It is odorless, tasteless, very sparingly soluble in H_2O, insoluble in alcohol and ether, soluble without decomposition in H_2SO_4 or HCl. Moist uric acid has an acid reaction. It is a dibasic acid."—(Witthaus' *Essentials of Chemistry.*)

2. To examine for *albumin:* "The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered.

"The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of nitric acid."

To examine for sugar: First remove any albumin that may be present, then "render the liquid strongly alkaline by addition of sodium carbonate. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color."

To examine for indicanuria: "The urine is mixed with one-fifth of its volume of 20 per cent. solution of lead acetate and filtered. The filter is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess."

To examine for phosphates: Place one inch of urine in a test-tube; add half as much nitric acid; add a few drops of ammonium molybdate, and boil. In the presence of phosphates there is a yellow crystalline precipitate.

3. The *antidote to phenol* is said to be alcohol, or solution of sodium sulphate. *Treatment* consists in administration of albumin, saccharated lime, sodium sulphate, or strong alcohol, followed by lavage.

4. *Morphine sulphate* is soluble in about 15 parts of water, 465 of alcohol, and is insoluble in ether and chloroform.

If to a neutral solution of *morphine sulphate* a solution of neutral ferric chloride is added, a blue color will be produced.

Quinine sulphate is soluble in about 720 parts of water, 85 of alcohol, and 400 of chloroform.

If to a solution of *quinine sulphate* some chlorine water and then solution of ammonia be added, a green color will be produced.

5. Medical jurisprudence is the application of the knowledge of any of the branches of medicine to the problems and requirements of the law.

6. *The symptoms of poisoning by lead* are: "Metallic taste; dryness of the throat; thirst; severe colicky abdominal pains, referred particularly to the umbilical region, and relieved by pressure; pulse very feeble and slow; great prostration; constipation; urine scanty and red; violent cramps; paralysis of the lower extremities; convulsions and tetanic spasms."

The *treatment* consists in removing the cause and administering the antidote, "magnesium sulphate, which brings about the formation of the insoluble lead sulphate, while the purgative action of the magnesia is also useful. It should be preceded by an emetic or by the use of the stomach tube."—(Witthaus' *Essentials of Chemistry.*)

7. *Ptomains* are basic, nitrogenous compounds, produced from protein material by the bacteria which cause putrefaction. They are found in proteid foods which have partly undergone decomposition.

Ptomain poisoning. Symptoms: Chilliness, headache, vertigo, muscular twitchings, hallucinations, imperfect vision, weak and rapid pulse, nausea, vomiting, diarrhea, cyanosis, early dyspnea, often subnormal temperature, and occasionally cutaneous eruptions. The prognosis is guardedly favorable.

Treatment consists in the use of emetics and cathartics, or lavage and rectal irrigation. Morphine may be indicated for the relief of pain, and collapse is to be combated by atropine, strychnine, nitroglycerin, external heat, whiskey, etc. After thorough purging, salol, naphthol, or bismuth may be given.

8. *Hard water* is water which contains an excess of calcareous salts; *temporary* hardness is due to the bicarbonates of magnesium and calcium; *permanent* hardness, to the sulphates of magnesium and calcium. Hard water can be softened by boiling, if the hardness is temporary only; permanently hard water can be softened by the addition of a little sodium carbonate.

9. The *antidote* for bichloride of mercury is: White of egg.

Treatment for poisoning by bichloride of mercury: Give white of egg in moderate quantity only, and follow with an emetic.

10. H_2O is the formula for one molecule of hydrogen monoxide (water).

H_2O_2 is the formula for one molecule of hydrogen dioxide.

NaCl is the formula for one molecule of sodium chloride.

H_2SO_4 is the formula for one molecule of sulphuric acid.

MATERIA MEDICA AND THERAPEUTICS.

1. CARBOLIC ACID. *Origin:* From coal tar oil, by fractional distillation; or, it can be made synthetically.

Uses: "As a disinfectant for surgical instruments, soiled linen, hospital apparatus, drains, privies, etc.; as an application for burns, carbuncle, endocervicitis, lupus, condylomata, and various other conditions, as an injection for leucorrhea and gonorrhea in the female; as a local anesthetic. Its antipruritic and parasiticidal qualities render it useful in many cutaneous affections; and it is employed locally in hay fever, influenza, and nasal catarrh. In the treatment of wounds it has been largely superseded by more powerful germicides. Internally: gastrointestinal irritation; malarial fever, typhoid fever, scarlet fever, and other zymotic diseases; influenza; by hypodermic injection in tetanus and bubonic plague."—(Wilcox, *Materia Medica.*)

2. CINCHONA. *Where found:* South America, on eastern slope of the Andes; also cultivated in India, Java, and elsewhere.

Chief alkaloids: Quinine, quinidine, cinchonine, and cinchonidine.

Uses: In malaria, and as a prophylactic against malaria; in neuralgias; in hay fever; in acute coryza; as a stomachic tonic; in influenza. *Dose:* Fifteen grains.

3. APOMORPHINE. *How obtained:* By heating morphine in sealed tubes with an excess of hydrochloric acid, when the morphine loses one molecule of water. *Use:* As an emetic; small doses are expectorant. *Dose:* As an emetic, gr. 1/10 of apomorphine hydrochloride, usually given subcutaneously.

4. *Abstracts* are solid, dry, powdered extracts of twice the strength of the crude drug.

Extracts are solid or semisolid preparations made by evaporating solutions of vegetable substances.

Infusions are liquid preparations made by heating a vegetable substance with hot or cold water; it is not boiled, though boiling water may be used.

Tinctures are alcoholic solutions of nonvolatile substances.

Mixtures are liquid preparations, containing one or more insoluble substances in suspension.

5. *Hypnotics* are agents which produce sleep somewhat resembling natural sleep.

Three important hypnotics: (1) Chloral hydrate; dose, gr. xv to xx. (2) Sulphonal; dose, gr. xv to xxv. (3) Trional; dose, gr. xv to xxv.

Indications: They are all used to produce sleep (when no pain is present).

6.

BATH	TEMPERATURE	INDICATIONS
Tepid.	About 85° to 95° F.	Personal cleanliness, to soothe the nerves, to allay the restlessness of fever, to lower the body temperature, to alleviate fatigue, both muscular and mental, and to relieve inflammatory conditions.
Warm.	About 95° to 100° F.	Much the same as above, but also to promote sleep and to relieve internal congestion and spasm; to dilate local bloodvessels, to stimulate secretions and evaporation; also as a diaphoretic in fever or uremia, and an anodyne.
Hot.	About 100° to 106° F.	The same as for *Warm*, but more powerful; also in renal diseases, uremia, and beginning colds.

7. *Emmenagogues* are agents used to stimulate the nonpregnant uterus or to restore the menstrual function.

Three emmenagogues: (1) Tincture of cantharides; dose, ♏j. (2) Oil of savin; dose, ♏j. (3) Oil of tansy; dose, ♏ij.

Indications: Amenorrhea, not due to pregnancy.

8. *Five mineral astringents, with dose:* Solutions of silver nitrate, lead acetate, zinc sulphate, alum, and ferric salts. Being used as astringents they are applied locally; hence, there is no dosage.

SURGERY.

1. *Suppuration* is a special form of inflammation, in which the exudate is unusually prolific in cells, and in which pus is found.

The *cause* of suppuration is the invasion of the tissues by pus-producing bacteria, when the said tissues are in a state of lowered vitality or are not capable of withstanding and disposing of the bacteria and their products.

Symptoms: Shivering or rigor, rise of body temperature, increase of leucocytes, the ordinary symptoms and signs of inflammation, throbbing pain, and sometimes fluctuation.

7. Fractures are variously classified:

I. Simple, compound, and complicated.

II. Complete (transverse, oblique, spiral, longitudinal), and incomplete (fissured, greenstick).

III. Single, and multiple.

IV. Comminuted, impacted, etc.

V. Intra- and extraarticular; intra- and extracapsular.

In fracture of the neck of the femur, the head of the femur will be found in the acetabulum; in dislocation, the acetabulum will be empty, and the head of the femur will be found elsewhere, *e.g.* on the dorsum of the ilium. In the fracture, crepitus *may* be elicited; in the dislocation, never. In the dislocation, there is inversion and a fixed position of the limb, both of which are absent in fracture.

9. *Osteomyelitis* is inflammation of the bone and marrow; the term is often used now for inflammation of bone.

It is *caused* by infection, the bacteria gaining entrance either through a wound or by extension from neighboring tissues, or they may be brought by the blood.

Symptoms: Sudden onset; pain, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; septicemia or pyemia, may be present.

It is to be *diagnosed* from (1) *Rheumatism*, in which more than one joint is affected and the tenderness is *in* the joint, and not *near* it. (2) *Tubercular arthritis*, in which the onset is slow and the trouble starts in the epiphysis rather than in the diaphysis. (3) *Cellulitis*, in which the bone and periosteum are not affected, and in which there is always a wound.

In *osteomyelitis*, the *treatment* consists in relieving the constitutional symptoms and preventing the bone from necrosing. An incision down to the bone is made; if pus is beneath the periosteum, the latter is also incised; a piece of bone is removed by chisel or trephine, pus is removed, the endosteum is hurt as little as possible, the wound is irrigated with hot bichloride solution and packed with gauze; the soft parts are closed and the wound well drained. In case this fails, amputation may be necessary.

SPECIAL PRACTICE.

2. *Amebic dysentery* is dysentery caused by the *Ameba dysenteriae or Ameba coli*, an ameboid body, three or four times as large as a red blood corpuscle, granular in the center and clear at the margin, nucleated, and containing vacuoles, sometimes also containing pigment, bacteria, or other foreign matter. Abscess of the liver is often associated with this condition.

3. *Adenoids* are hypertrophied adenoid tissue in the nasopharynx.

Causes: The real cause is unknown, but the condition is generally observed in childhood; heredity is also supposed to be a factor; males are more frequently affected than females; malnutrition and scrofula seem to be causative factors; the condition is often associated with enlarged tonsils, enlarged cervical glands, hypertrophy of the nasal mucous membrane, deviations of the septum, spurs; it often follows some of the acute infectious diseases.

Symptoms: Mouth-breathing; snoring; open mouth; a vacant, dull expression of the face; modification of the voice (nasal twang), with inability to pronounce certain letters.

Effects: Earache and other ear affections; mental deficiency; frequent attacks of coryza; nosebleed; stunted growth; convulsions, laryngismus stridulus, and various other neuroses may also be noticed.

Treatment: Complete removal, by curette.

4. *Continued hoarseness* might indicate: Laryngeal ulceration or exudation (simple, or tuberculous, or diphtheritic, or syphilitic); tumors; or disease or pressure upon the recurrent laryngeal nerve.

5. *Enucleation of the eyeball* is performed as follows: "A general anesthetic is generally given. After introduction of the speculum, the conjunctiva is divided all around the cornea, as close to its border as possible, and dissected back as far as the insertions of the recti muscles. A squint hook is passed beneath the tendon of the internal rectus, and the latter is divided with the strabismus scissors close to its insertion; then the other straight muscles are cut in the same way, together with the subconjunctival connective tissue for some distance beyond the equator. The points of the scissors must always be directed toward the eyeball and the latter stripped as clean as possible to avoid any unnecessary removal of orbital tissue. Instead of commencing with a circumcorneal division of the con-

junctiva, we may begin with a tenotomy of the internal rectus and then divide the conjunctiva as we pass from tendon to tendon. The hook is passed around the globe to make sure that the attachments of the muscles have been completely divided. The eyeball is then dislocated forward by pressing the speculum backward, and thus the optic nerve is put on the stretch. A pair of enucleation scissors, closed, are passed between sclera and conjunctiva, feeling for the optic nerve; they are withdrawn, slightly opened, and the nerve is divided close to the sclera. The eyeball is held between the thumb and index finger of the left hand, and the oblique muscles and other unsevered attachments are divided. The orbit is plugged for a few minutes to control hemorrhage, and the conjunctiva is usually closed with a single suture, which is passed through its edge at intervals and tied like the string of a pouch. The eye is bandaged and the patient kept in bed for a day."—(May, *Diseases of the Eye.*)

9. Locomotor Ataxia. *Etiology:* It is a disease of adult life; is more common in men than in women; is more common in cities than in the country; syphilis is believed to be the most frequent direct cause; alcoholism, injury, exposure to cold and wet, have all been urged as causes, but they are not now assigned so important a place as etiological factors as was formerly the case.

Symptoms: Loss of coordination; characteristic and unsteady gait; tendency to stagger when standing up with feet together and eyes closed; sharp and paroxysmal pain, called *crises;* girdle sensation; loss of knee-jerk and other reflexes; Argyll-Robertson pupil.

Pathology: Tabes dorsalis is a condition in which the posterior columns and nerve roots of the spinal cord are degenerated, and which is characterized by incoordination, loss of deep reflexes, and various disturbances of sensation and nutrition.

The posterior columns of the cord are gray and shrunken and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upward from the lumbosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent. Some of the cranial nerves may also atrophy, notably the optic, but also the motor oculi and vagus.

The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion; the spinal ganglia may be affected.

BACTERIOLOGY AND HYGIENE.

1. A *Parasite* is an organism which lives upon or within another (living) organism.

A *Saprophyte* is an organism which lives upon dead organic matter.

2. The bacterium most often found in septicemia is the *Streptococcus pyogenes.* This is a micrococcus, of spherical shape, arranged in chains of thirty or forty cocci (in liquid media), but fewer in solid media. Each coccus is about one-half to two microns in diameter. It is not motile, does not form spores, does not liquefy gelatin, and stains readily with the ordinary anilin dyes, and by Gram's method.

7. Tuberculosis is largely preventable. "The preventive measures which may be taken to reduce tuberculosis may be summarized as follows: (1) The compulsory notification of phthisis. (2) The removal of those conditions of domicile and of occupation which are known to promote the incidence of the disease, including the regulation of certain dusty trades. (3) The diffusion of knowledge (by medical men, leaflets, etc.) regarding the nature and modes of spread of the disease, and the precautions which should be taken in order to prevent its extension. (4) The testing of sputum and other suspected discharges, and of milk, meat, etc., supposed to be tuberculous—reports to be furnished free of charge. (5) Local authorities to undertake, without charge, the disinfection of houses recently occupied by phthisical persons. (6) The establishment of sanatoria and isolation accommodation for the cure of phthisical patients, and the isolation of those who are a distinct source of danger to fellow lodgers or workers. (7) The enforcement of measures against spitting in public conveyances and in places of public resort. (8) The efficient sanitary supervision of dairy farms, dairies, and milkshops. The periodical veterinary inspection and testing (by tuberculin) of milch cows, and the slaughter of tuberculous animals. The prohibition of the sale of milk of cows affected with tuberculosis. (9) The proper inspection of meat in public abattoirs, and the adoption of due precautions for the control of imported meat and milk."—(Parkes' *Practical Hygiene.*)

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending July 10, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	492	142
Diphtheria	215	27
Measles	718	31
Scarlet Fever	108	14
Smallpox	—	—
Varicella	39	—
Typhoid Fever	31	12
Whooping Cough	40	8
Cerebrospinal Meningitis	8	7
Malarial Fever	..	..
Totals	1,651	241

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending July 9, 1909:

		Cases.	Deaths.
SMALLPOX—UNITED STATES.			
Georgia, Macon	June 20–27	2	..
Illinois, Chicago	June 19–26	2	..
Danville	June 20–27	3	..
Indiana, Indianapolis	June 13–20	1	..
Muncie	June 19–26	1	..
South Bend	June 19–26	2	..
Kansas, Kansas City	June 19–26	5	..
Kentucky, Covington	June 19–26	2	..
Lexington	June 19–26	5	..
Paducah	June 19–26	2	..
Louisiana, New Orleans	June 19–26	1	..
Michigan, Grand Rapids	June 19–26	1	..
Minnesota, Duluth	June 18–25	2	..
Missouri, Kansas City	June 19–26	1	..
St. Joseph	May 29–June 5	3	..
"	June 7–14	1	..
Montana, Butte	June 18–24	2	..
Tennessee, Knoxville	June 19–26	4	..
Texas, Galveston	June 18–25	1	..
Virginia, Lynchburg	June 19–26	1	Imported
Washington, Spokane	June 12–19	3	..
Tacoma	June 13–20	2	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	May 8–22	9	2
Canada, Halifax	June 12–19	2	..
Chile, Santiago	June 7	..	Present
China, Amoy	May 1–15	..	"
Hankau	May 1–8	..	"
Shanghai	May 8–15	..	1
Tientsin	Apr. 24–May 1	1	..
Egypt, Cairo	May 21–27	2	1
France, Paris	June 5–12	5	..
India, Bombay	May 25–June 1	..	15
Madras	May 22–28	..	1
Rangoon	May 15–22	..	4
Italy	June 6–13	8	..
Naples	June 6–13	25	4
Japan, Yokohama	June 1–7	1	..
Java, Batavia	May 8–22	4	..
Mexico, Veracruz	June 15	1	..
Portugal, Lisbon	June 5–19	9	..
Russia, Moscow	May 29–June 5	29	13
Odessa	June 5–12	4	..
Riga	June 5–12	7	..
St. Petersburg	May 22–19	19	3
Switzerland, Geneva	May 29–June 5	10	..
Turkey, Constantinople	May 30–June 6	..	4
YELLOW FEVER.			
Barbados, St. Joseph Parish	June 5–20	3	..
Brazil, Manaos	May 22–29	..	2
Para	May 29–June 12	..	5
Ecuador, Guayaquil	May 22–29	..	7
CHOLERA—INSULAR.			
Philippine Islands, Provinces	May 8–22	49	32
CHOLERA—FOREIGN.			
India, Bombay	May 25–June 1	..	3
Rangoon	May 15–22	1	..
Russia, St. Petersburg	June 14–17	106	24
Straits Settlements, Singapore	May 8–15	..	6
PLAGUE.			
Chile, Antefogasta	May 29	5	In the lazaretto
Iquique	May 30	10	Ditto
China, Amoy	May 1–22	..	Present
Chinchew	May 22	..	Epidemic
Equador, Guayaquil	May 22–29	..	3
Egypt	May 28–June 3	19	18
Alexandria	May 29–June 5	1	..
Port Said	June 9	1	..
India, General	May 15–29	6,920	6,033
Bombay	May 25–June 1	..	125
Rangoon	May 15–22	..	6
Japan, Kobe	May 28–June 5	3	1
Yokohama	June 1–7	5	4
Peru	May 22–June 5	13	7
Callao	May 22–June 5	1	1
Venezuela, Caracas	To June 13	10	4
"	June 14–21	3	1

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Original Articles.

SCLEROMA OF THE UPPER RESPIRATORY TRACT.*

WITH A REPORT OF TWO CASES: RHINOPHARYNGO-LARYNGO-, AND RHINOPHARYNGOSCLEROMA. (VACCINE TREATMENT.)

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WHILE reports of scleroma cases and articles under the various headings of etiology, pathology, treatment, etc., are scattered throughout the medical literature in many languages, in English there is no account covering the subject *in extenso* and for this reason the writer has endeavored to correlate all the collected facts regarding scleroma of the upper respiratory tract which came to his notice during an extended search bearing upon this title.

At first met with in the clinics of the dermatologist, now the majority of cases are seen by the rhinologist, owing to the distressing symptoms mostly referable to the nose and pharynx, less frequently to the larynx. In 1870, Hebra[1] described rhinoscleroma, a tumor form (geschwulst form), as observed by him in nine cases (four males and five females), which he thought from the beginning to be syphilis but upon whom antisyphilitic treatment had no effect. Kaposi[2] in the same year gave the first histological description, finding a small round-celled infiltration of the corium and papillæ and likened it nearest to a glio or granulation sarcoma (Billroth, Virchow). Hebra remembers having seen a case in Paris in 1852 and thinks it likely to have been this disease. Weinlecher in discussing this paper remarked that in 1860 he had observed this disease in seven cases in Vienna in the clinic of Prof. Schu and thought them to be either syphilis or carcinoma. At this time nothing was known of the etiogenesis of this disease, Gerber,[3] however, in 1872, asserting it was due to some chronic inflammatory irritation, a view which has since been substantiated.

Scleroma has neither a geographical boundary, nor an ethnical limit. Cases have been reported from most European countries, from Egypt, India, Australia, Japan, Hawaii, South, Central, and North America. Endemic in Russia, Austria, Eastern Prussia, and Central America, in all other countries the cases are met with in the foreign born, although Kornfeld[4] reports two cases from Egypt in natives who had never left the country. Sporadic cases are very rare in the scleroma-free countries. This disease respects no climate, thriving as well in the rigorous north as in the tropical south. Among the sexes it is about equally divided. Up to 1903, about six hundred and fifty cases have been reported, the endemic regions in Russia, Austria, and Eastern Prussia furnishing the greatest number.

Scleroma of the upper respiratory tract may be defined as a chronic infectious granuloma pursuing a slow, progressive course and characterized by a nodular, compact infiltration of the nasal vestibule which steadily increases, growing outward and inward to complete closure of both nostrils and marked narrowing of the choanæ; this nodular infiltration later on changes the surface contour of the nose, and may invade the pharynx, larynx, trachea and bronchi, bringing about changes which will be discussed under the respective headings.

Location and Extension.—Always regional and of a distinct type, it may extend from the nasal mucous membrane to the lips and the cheeks, to the gums, antrum of Highmore, lacrymal ducts, eustachian tubes, nasopharynx, soft and hard palate, tonsils, pharynx, larynx, trachea, and even to the bronchi of the second and third order. In the nose the inferior meatus in both the turbinal and septal regions is most affected. The sense of smell being preserved in all cases, the upper part of the middle meatus as well as the superior meatus (olfactory distribution) are very likely not affected at all or else to a minimum degree only. It is found in the nasal vestibule, the ala, floor of the nose and on the lips. In the nasopharynx the most affected region is the plicæ salpingo-palatine, then the tubal promontory, the plicæ salpingo-pharyngeales, posterior surface of the soft palate and its free border, the uvula and the boundary of the posterior alveolar arches. The pharynx is oftenest affected at the posterior alveolar arches, the free borders, post pharyngeal wall, tonsils, and pillars. In the larynx the disease is found mostly in the subglottic space, then in the region of the petiolus epiglottidis on the posterior surface, the anterior wall is seldom affected. The rarest location is the mucous membrane of the mouth. Out of Baurowicz's[5] one hundred cases, only one had the tongue diseased, and only once did he see the hard palate alone affected. The outer nose was implicated in only thirteen cases. Zeissl[6] states that "the scleroma process occurs not only about the skin of the face or body, but may appear primarily in the laryngeal mucous membrane, trachea, or bronchi, and cause stenosis without any external appearance." One case was found where the scleroma showed on the skin of the arm and on the pharynx. He cites the following: Elzina and Pawlow saw the scleroma extend through the fissure orbitalis into the orbital cavity and cause an exophthalmus; Pick found a scleromal tumor in the external auditory canal. The scleroma process can extend from the nose through the lacrymal canal to the lacrymal sac and conjunctiva. A very rare case was that of v. Schrötter with great contraction of the pharynx and ankylosis of the jaw bones.

*Read in part and cases presented before the New York Academy of Medicine, Section on Laryngology and Rhinology, March 24, 1909.

Mikulicz[7] observed the disease extend around the mouth and almost obliterate the oral opening; he also points out the fact that "rhinoscleroma does not affect bone by either caries or necrosis," although Koschier[8] found soft bone on the removal of scleromatous tissue from the nose with the nasal bones

Fig. 1.—Case I—Showing the nasal occlusion by the infiltrated mass and the nodular deformity of the nose, most marked across the bridge on the left side.

and part of the superior maxilla. It is also doubtful if the process includes the nasal cartilages. In one of Streit's[9] cases the septum was soft and easily broken through without much pressure.

Infection Atrium.—The precise point of origin of this disease, whether from the nasal wings, or the mucous membrane of the septum, floor of the nose, turbinates (anteriorly or posteriorly) the pharynx, larynx, trachea, or bronchi has never been positively demonstrated. Bojew[10] states that it does not necessarily begin in the nose; its origin may be from any part of the respiratory tract. While the disease is nearly always symmetrically divided, affecting both sides, it may seldom happen to be unilateral. Pawlowsky[11] reported three cases, where one nasal chamber alone was diseased in the form of a polypus, which in each case was diagnosed microscopically as rhinoscleroma. Another atypical case is mentioned by Zwillinger[12] in which the growth extended from the left vestibule to the lips, right nostril free, the uvula gone, and the pharynx affected, with a histological diagnosis of rhinoscleroma. Freudenthal[13] reported a similar case with involvement of one side of the nose and lips only, each growth being isolated from the other, although in this case the pharynx and larynx were also implicated. Another case of unilateral rhinoscleroma was treated by Schein.[14]

Whereas primary laryngeal cases are generally admitted to be very rare, Paltauf[15] out of fifteen cases found the disease limited seven times to the larynx and trachea, a rather high percentage when compared to the eighty-seven cases of Wolkowitsch[16] with five limited to the larynx and Juffinger's thirty-eight cases with also five limited to the larynx as quoted by Streit.[9] Baurowicz, among his one hundred cases had only six of primary laryngeal and two cases of primary bronchial scleroma; according to this author Catti, Pieniazek, Lumin, and Kobler have seen primary laryngeal scleroma, the case of Kobler never extending any further than the larynx, and extension to the bronchi has been found upon necropsy by Straganow in two instances and in one instance by v. Schrötter. Baurowicz thinks the infection atrium is on the floor of the nasal chamber and from here the disease extends backward and forward. Lustgarten[17] also reports a case of primary laryngeal scleroma. E. Mayer[18] presented the history of a case of laryngeal scleroma in 1907 and a further report of the same case in February of this year in the same journal. Rydygier, Jr.,[19] also had a case of laryngeal scleroma.

Age of Onset.—Its slow and insidious growth, its chronicity, and its unknown focus of origin, make it extremely difficult to say at what age the scleroma process begins. Gottheil[20] in a recent article asserts "he knows of no case in childhood. All cases occur in the third decennium or later." This view may have been tenable some years ago when only adult cases presented themselves to the dermatologist for their cutaneous lesion and the external nasal deformity, phases of the disease which manifest themselves at a late stage. Yet in more recent years so many cases occur during adolescence which come to the rhinologist with the disease in the same well-advanced stage, that, considering its slow, progressive growth and its usual extension from within outward, the contention is strong that scleroma may begin in childhood, at least some years before these adolescence cases come under observation.

A goodly number of the cases reported occurred in young adults under twenty-one years of age, in whom presumably the disease was in progress long before any of the symptoms which attracted their attention displayed themselves and prompted measures for relief. Streit[9] found the disease at the age of fourteen and twenty, respectively; one of my

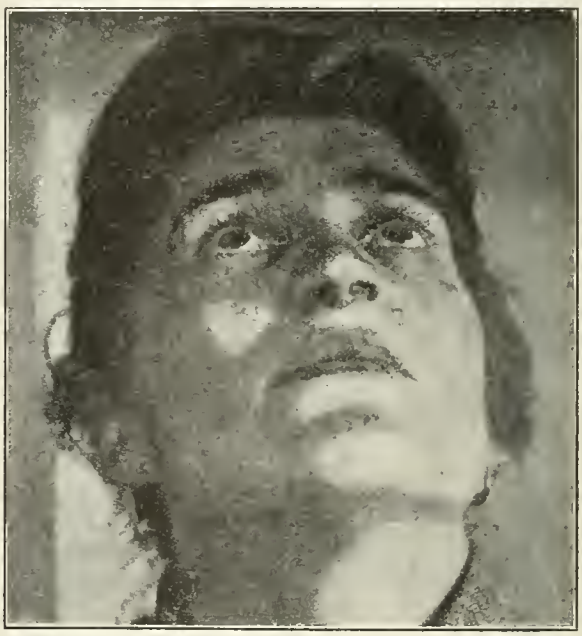

Fig. 2.—Case II—Showing the nodular deformity of the nose; the nasal occlusion by the infiltrated mass, and the cutaneous lesion on the right upper lip extending downward from the right nasal wing and vestibule.

cases came under observation when nineteen years old and he claims to have had the disease since his seventh year. Dr. W. Freudenthal, of this city, who has had experience in this class of cases and to whom reference has been made above, informed me about a year ago that he then had under treat-

ment a rhinoscleromatous child nine years old. Wolkwitsch in his tabulated cases mentions No. 49, boy twelve years old, native of Central America, who had the disease more than eleven years. Rydygier, Jr., out of fourteen cases, had thirteen range in age from seven to twenty years, all girls. Baurowicz reports a girl eleven years old who had been suffering for one year and an eighteen-year-old boy who had the disease for an indefinite time since childhood. O. Mayer[21] claims most cases are afflicted between the ages of fifteen and twenty-five. It may be admitted that the majority of cases probably occur in adults, yet of the reported cases enough are afflicted early in adolescence to augment my contention that some of these cases do occur in childhood and for which the cases herewith abstracted seem ample proof.

In agreement with some of the foreign authors who contend that the prevalence of this disease is underestimated it may be added, that when it is more generally recognized, its rarity will give place to frequency, and then, too, the minimum age of onset will be greatly reduced.

Etiology.—Scleroma has no racial predilection, its occurrence rather depending upon the cultural, economic, or material condition of the people. With only two or three exceptions in the literature it is a disease confined to the poorer classes. Streit[22] maintains the disease was brought over the border into Eastern Prussia from Russia, by the poor people going back and forth to buy cheaper meat. Lax hygienic surroundings are the chief predisposing factors. In the endemic rural districts, especially of Galicia and Russia, where the disease prevails among the farm laboring class, the reported conditions are miserable. In close contact with the live stock, it was at one time believed that man contracted the disease in this way. Lissauer[23] quotes "Dierkshoff, Pathologie u. Therapie für Thierärzte" that horses and swine have rhinoscleroma. He raises the question whether or not domestic animals have rhinoscleroma. Up till now, no animal cases have been found. Trauma likewise was in some instances thought to be a predisposing factor in the causation of this disease; cases were reported by Hrach,[24] Barth,[25] and Lang[26] in which rhinoscleroma developed shortly after a traumatism to the nose, none of the patients having had any catarrhal symptoms before. Barth's case was interesting, the patient developing the disease after a horse bite, but the horse was well and remained well. Wolkowitsch speaks of a case developing after the application of leeches to the nasal vestibule, and the disease was most marked at the point of attachment. These patients very likely had scleroma before the trauma.

It remained for Frisch[27], in 1882, to demonstrate a more definite factor for the etiology of this disease. He described a peculiar bacillus in the rhinoscleromatous tissue examining twelve cases, finding it in the cells, between them and in the interfibrillary spaces of the connective tissue.

Morphology of the Frisch Bacillus.—The Frisch bacillus is a short rounded rod about 0.8 u broad, the length slightly variable and was best seen in the tissue with the haematoxylin—eosin stain. In culture smear they show a large, regular, sharply defined, sparsely colored capsule as first described in 1885 by Cornil and Alvarez[28]. The bacillus is lengthwise homogeneous, often in pairs, or else is seen as a diplo-bacterium not unlike that of the Friedländer bacillus. But in the tissue it is distinguished particularly by its larger capsule and that often a few bacteria are found parallel or in an irregular form surrounded by one capsule. The capsule is compact and is less colored about the sides of the bacillus than at the periphery. Sometimes the capsule colors deeply and at times is wanting. The Frisch bacillus is easily grown on agar-agar, agar gelatine, and potato. Bouillon and pepton water are both made turbid by this bacillus. Gelatin stabs produced nail growths without liquifaction after some weeks. After 24 or 48 hours, on slant agar-agar, the culture can be seen as a broad, uneven, thin, whitish-opaque, shining and irregular layer. The water of condensation is clouded, viscid and has a whitish bottom precipitate. Old cultures show the capsule formation better. In still older cultures it was noticed that the bacilli become distinctly shorter and thinner. With glucose agar there is no gas formation. It does not coagulate milk.

The Frisch bacillus forms no spores. In culture smear it is Gram negative and in the tissue it varies according to the hardening fluid used, when hardened in alcohol it shows a Gram negative reaction

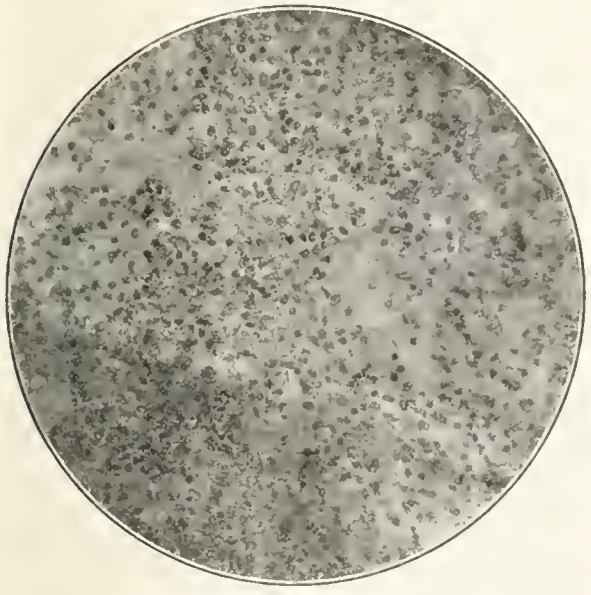

Fig. 3.—Photomicrograph with projection eyepiece No. IV. and DD objective; showing the so-called Frisch bacilli in the Rhinoscleroma tissue; in the vacuole (Mikulicz) cells and the tissue proper.

but hardened in Osmic acid, Müller or Zenker fluid it shows Gram positive. (Perkins[29].) The writer has also found the Frisch bacillus Gram positive in the tissue when hardened in a 5 per cent formalin solution. Many investigators claim that the Frisch, the ozena and Friedländer bacilli are only different forms of the one group. The Frisch bacilli were observed by me in the hanging drop and were noticed to possess a lively motility, lasting almost three days. An agglutination test, like that of Widal for typhoid, was also tried for the first time and the Frisch bacillus was found to have no clumping tendency. It would be further interesting to try this agglutination test, with other scleroma patients, whose immunity has not been influenced by bacillary or vaccine injections. The morphological and biological difference between the Frisch bacillus and the Friedländer bacillus will not be gone into here, reference can be made to the work of Kolle and Wassermann[30] which in part was followed in this bacteriological work.

de Simoni[31] questions whether or not these bacilli to which the eteogenesis of rhinoscleroma is

ascribed may not be accidental guests of the nasal mucous membrane. He claims that he found an identical capsule bacillus like that of Frisch in ozena and considers all like bacilli only a form of the Friedländer Pneumo-bacillus. With strict obedience to the rules of technique he found a Frisch-like bacillus 7 times in 58 individuals and in 18 animal tests once in the mucous membrane of a rabbit and once in a dog. All told, 9 times out of 76 examinations, in all morphologically and biologically the same bacilli and identical in their nutritive development. Perkins, in a study of the *Bacillus mucosus capsulatus* group to the rhinoscleroma bacillus, found bacilli of this group in an ordinary case of polypus somewhat inflamed, also in two cases of marked turbinate hypertrophy, and concluded "that the endemic quality of the disease, the apparent absence of transmission by contact in spite of the number of organisms in the nasal exudate and the sporadic type of the disease outside of its narrow endemic limits, are all against the rhinoscleroma bacillus as a causative factor, and its presence in the cells is due to secondary invasion or ingestion rather than to infection."

V. Babes, in Kolle and Wassermann's work, asserts "that there have been no conclusive grounds found upon which to assign for the Frisch bacillus a primitive rôle in the tumor formation. In fact, a mucous forming capsule bacillus is found in the majority of the cases of rhinoscleroma that coincides with many of the strains of the ozena, the Friedländer and the capsule bacilli of the nose and bronchi, and it must be remembered further that up to date there has been no positive differentiation made between the "rhinoscleroma bacillus" and certain other capsule bacilli found in the nose. Therefore there is at this time no strong scientific foundation, upon which to base a differentiation of the Frisch bacillus from the other capsule bacilli and to assert that it is the specific virus for rhinoscleroma.

Dittrich[32] considers the disease due to a mixed infection. Lissauer cites Klemperer and Scheier "that the rhinoscleroma bacillus and the ozena bacillus are identical with the Friedländer bacillus, and that they are largely increased in scleroma and ozena. Wolkowitsch does not believe the Frisch bacillus stands in any causative relation to the disease but does so stand to the cell degeneration.

Biological Experiments.—Various biological experiments with the Frisch bacillus have been tried by investigators upon the different laboratory animals with a few positive results, but usually they proved negative. Stepanow[33], by inoculating with a pure culture (2d generation) into the anterior chamber of the eye of a guinea pig, and in another by implanting a piece of tissue into the anterior chamber of the eye had positive results, finding on examination the pathological characteristics of the rhinoscleroma of man; he concludes that "the reason the experimental granuloma did not arise in the mucous membrane of the respiratory tract is, that with the origin of the scleroma a certain anatomical territory does not play the chief rôle, but that a peculiar microorganism decidedly does, for whose development just this territory is favorable and mayhap in the human organism (the respiratory tract) is alone the one to offer favorable conditions." Pawlowsky also claims success with inoculation. He injects a pure culture of rhinoscleroma bacilli together with warm agar-agar into the abdominal cavity of a few guinea pigs; after 24 to 48 hours the animals usually die. Out of the exudate of the peritoneal cavity one gets pure cultures of the rhinoscleroma bacillus with capsules; from the heart, liver, spleen, kidney, blood, and bone marrow pure cultures of the rhinoscleroma bacilli can be grown. He claims, too, that the intraperitoneal injections into guinea pigs of the ozena and Friedländer bacillus with agar-agar do not cause death, as the rhinoscleroma bacilli injection do, and that this test is a sure diagnostic method. Kraus[34] inoculated a white mouse subcutaneously with the rhinoscleroma bacilli and found the bacilli burrowed quite deeply in the tissue after 24 hours, and after three days could demonstrate the typical Mikulicz cells. With the Friedländer bacillus he had a similar experience, it, too, gave an analogous histological result, finding in the granulation tissue the Friedländer bacillus and the Mikulicz cells. In the liver, spleen, and kidneys, in both the Friedländer and rhinoscleroma mice upon autopsy, he also found the bacilli intra- and extracellular. v. Frisch, in his animal inoculation had no result even after eight months' observation. Rydygier mentioned in Lissauer's report, injected into monkeys without result. My own experiment with a monkey proved negative after five months' observation. de Simoni applied the bacilli to the nasal mucous membrane of a tubercular subject intact and traumatically with negative result. (Such a procedure is to be vehemently condemned at any time.) Lissauer also cites v. Schrötter, who put pieces of rhinoscleroma tissue under his own skin, which caused a phlegmon and swelling of the lymph glands, in the pus of which were found bacilli of the rhinoscleroma type, but there was no further infection. The time factor has probably been overlooked in a good many of these experiments and, as Marschalko[35] so aptly states, "after inoculation, a few weeks or a few months may not be long enough to cause rhinoscleroma, since it is a very chronic disease and the infection goes on a long while before it shows any symptoms." Although most attempts to propagate this disease by inoculation have been futile, and though dissenting from some of the opinions noted above, in view of the fact that the so-called Frisch bacillus is constantly found in certain parts of the scleroma tissue, and a pure culture of the bacillus is always obtainable from the tissue or the exudate, and since local immunity and improvement was obtained by me with a vaccine of the Frisch bacilli, it may be accepted that the Frisch bacillus plays an important rôle in the causation of scleroma.

Infection and Contagion.—From the time that Frisch demonstrated the bacillus which is always present in the tissue of scleroma, excepting the few dissenting voices already noted, it is admitted, by most writers on this subject, to be an infectious disease. In both of my cases 10 cc. of blood drawn from the median basillic vein and cultured in bouillon for 72 hours, showed sterile smears, hence the infection is probably only a local one and not systemic. Some admit its bacterial pathogenesis but class it with the symbiotic infections. Instances that bespeak the contagious nature of scleroma have been published by Streit[22]; reporting 18 cases with positive diagnosis, he found other members of the same family afflicted with the disease in four instances, respectively, as follows: two sisters, two brothers, two brothers, and two sisters, also two instances in which from the history it was shown that others in the family had very likely died from scleroma. In another communication[9] he mentions ten cases

within a radius of three square miles, in which three members were afflicted in one family, two in another and two cases lived in the same village. Baurowicz admits that, even if its degree of contagion is slight, still a number of cases are observed in the same place and where more than one member of the same family have been diseased; he saw two sisters, and at another time two brothers affected. In consequence of its situation in the upper respiratory tract he is led to believe that it is an "air borne" disease. O. Mayer, in his work, with reference to the question of contagion, says "in favor of contagion are the cases in the same place and those in the same family, citing where a mother and daughter were afflicted in one family and where the mother's sister and this sister's husband and their daughter were also afflicted. (This is the only phylogenetic history, if I may use the term, of possible contagion that came to my notice.) In another instance he mentions a husband and wife as subjects of scleroma. He makes the point that its contagiousness is probably mild, since patients have been utilized as nurses in some hospitals, with no enforced isolation, yet in this close relation, no case of contagion has come to notice. Fomites may play some rôle in its extension, and the writer believes that coughing, expectorating and sneezing may be disseminating agents and that an insect or parasite may be responsible for its transmission from one individual to another. Liuck[36] considers scleroma contagious and finds an added danger in the fact that these patients do not feel sick and so freely mingle with others. Intimate and prolonged association may have something to do with infection or contagion.

This disease being of doubtful progeny, its incubation period unknown, and its means of transmission still obscure, little can be said as to its positive contagion, however, from the gathered observation of the different authors, as noted above, and rhinoscleroma being generally accepted as an infectious disease, we may assume its possible contagiousness, mild if you please, until the mooted factors enumerated are decided. For social as well as scientific consideration, it has been recommended by various authors abroad to register scleroma under the communicable diseases and to isolate and even segregate these patients as is done with leprosy.

Though far away from the endemic centers, some time in the future, near or remote, perhaps the emigration or national health authorities in the United States may have to reckon with this disease, and, for cogent reasons, may possibly have to consider deportation or some other appropriate, if less harsh, but not less stringent regulation to limit this horrible and pitiable disease.

Histopathology.—Hebra, in his first microscopical examination of rhinoscleroma tissue, noticed that the cells in the new formation nowhere show the faint, finely granular and poorly defined contour and indistinct nucleated appearance (so-called disintegration) of the cells, as in syphilis and lupus. On the contrary, they were well preserved with sharp contour and clear nuclei with good imbibition. Kaposi found a small-celled, dense infiltration and compared to it the small-celled sarcoma (granulation sarcoma). Tanturri[37] coincides with Hebra, except as to the histological character of rhinoscleroma. He found the epithelium greatly prolonged and the whole tissue largely intersected by epithelial masses which contained numerous epithelial pearls and came to the conclusion that rhinoscleroma was an epithelioma or an adenoma. Mikulicz admits that in some places one will find large epithelial masses and if such a one is examined a false diagnosis of an epithelial new formation is made. He was convinced from his study that rhinoscleroma is an extraordinarily slow progressing inflammatory process, which begins in the tissue as a small cell infiltration that causes the gradual disappearance of the normal tissue elements and without leading to any disintegration of the infiltrated tissue is finally formed into a more or less dense, shrinking connective tissue, and while the process comes to an end at the place first invaded it strides onward at the periphery. He first described the hydropsical cells of rhinoscleroma tissue, which are now known as the Mikulicz cells, or "Schaum Zellen" (foam cells) as Unna calls them. Mikulicz describes these cells as follows: The adventia and its neighborhood is filled with small cells; their form and size vary, we find some round, others longer, from the size of a red blood corpuscle to that of a white corpuscle, in all degrees of size. All have a well-colored nucleus and a scarcity of the distinct granulated protoplasm; the farther away from the vessels however, the more they loose their regular form and now one sees cells, larger in the protoplasm and more irregular in form but otherwise the same; others change their character entirely but not all in the same way. We find two distinct changes; in the one they swell up, the protoplasm and their contour are less visible, the nucleus either disappears entirely or else is also swollen and hardly to be recognized, sometimes it is entirely wanting and then shows a vacuole. The size of the cell becomes so large that its diameter is three and four times the size of the smaller ones. The other group of cells grows, too, but not so excessively and not at the expense of their vitality; their nucleus is sharp and well colored, the protoplasm distinctly granular, and by longer or shorter prolongations extends in different directions; such prolongations from one to five in number to a cell, often reach far between other cells and can be seen united to the prolongations of other cells. They do not always grow in an indefinite direction or with irregular prolongations, but a time comes when they have the prolongations limited to two, one at either end, and form the spindle-shaped cells.

These Mikulicz cells are not pathognomonic for rhinoscleroma but are also found in lepra, glanders and bubonic plague as cited by Dittrich[38], and in the granulation tissue of wounds, malignant edema and other inflammatory edemas and in acute inflammation of the sweat glands, as reported by Mibelli[39]. Marschalko claims "the Mikulicz cells are degenerated connective tissue cells, the degeneration being due to the invasion of the rhinoscleroma bacteria, which are contained in the 5 or 6 gloea of the Mikulicz cell, whose body slowly enlarges, becomes bloated and the protoplasm assumes a reticulated appearance. The cell nucleus in the beginning is well preserved, later shrunken and degenerated, either in the middle of the cell or pressed to the cell wall." The epithelial layer of rhinoscleroma tissue is little changed or not at all. It has been observed to be thickened at times and infiltrated with leucocytes.

Another pathological entity of rhinoscleroma are said to be hyaline cells or globules, also known as "Russel bodies." Pellizzari,[40] in 1883, was the first to demonstrate hyaline degenerated cells in this disease. According to Unna[41] the hyaline globules in the plasma cells appear faceted and do not resemble

any organism; freed from the cell membrane they take the globular form or if they had the seldom-prism form, they take a cylindrical form and then resemble certain organisms, especially bacteria (encapsulated) as the rhinoscleroma bacilli. For this reason the hyaline globules and bacilli were often mistaken one for the other in the examination of rhinoscleroma tissue, since the hyaline globules and the capsule of the bacteria take the same stain in most cases. Hyaline degeneration of the connective tissue cells, as recorded by Kanstantinowitsch[42] is also found in tuberculosis, syphilis, lepra, chronic granulating processes, in epithelial (in the interstitial tissue) and mesodermal tumors, in the mucous membrane of the stomach, intestines, etc., in all malignant new formations, Marschalko having found them in carcinoma, sarcoma and in a case of ulcus ventriculi. So that according to Unna[43] one cannot attribute them as a characteristic of any particular one of these diseased processes, nevertheless a richness of hyaline cells is only found in rhinoscleroma, actinomycosis and Madurafuss, and therefore hyaline cells as well as the Mikulicz cells can be considered characteristic of rhinoscleroma; the Mikulicz (hydropsical) cells appear colonized in certain parts of the rhinoscleroma swelling and impart the soft feel, whereas the hyaline cells are more evenly distributed over the whole tissue, in the soft as well as the hard parts.

The hydropsical cells are a good culture media for the bacilli which to a certain extent invade the interior of these cells. The hyaline bodies or globules have no relation to the bacteria, although they may be a by-product of the invading parasite, yet they are never found in the hyaline cells. The hydropsical cells are derived from the spindle cells (Mikulicz held the reverse view) as well as from the plasma cells. The hyaline globules are derived from the plasma cells only.

Mibelli makes an interesting distinction for the Mikulicz cell and the hyaline cells of rhinoscleroma: "The characteristic cell for rhinoscleroma is the hydropsical cell of Mikulicz, which is a much larger cell than the ordinary 'foam cell,' it is irregular in outline, rather long, and contains in its interior a hollow cavity, sometimes two or more cavities, embracing a colony of bacilli. These cavities are decidedly larger than those of the ordinary foam cells. The refraction and reaction of these embedded bacillary colonies within these large endoprotoplasmic cell cavities show that they contain a half fluid homogeneous substance probably formed from the cell protoplasm. This seems probable when one considers that these bacilli on artificial media cause a clouded, viscid fluid much as one observes oozing from the nose of these patients. Hence the cell degeneration caused by the rhinoscleroma bacilli is an hydro-picmucin degeneration brought about by physicochemical changes due to these same bacilli. The hyaline cells found in rhinoscleroma seem to differ from the others, they have a vitreous appearance and always color red, whereas in the gentian, iod-eosin method, the ordinary or globiferous hyaline cells color violet. These vitreous hyaline cells are constantly found in rhinoscleroma but not in the other pathological processes. Mibelli finds the bacilli only in or near these Mikulicz foam cells.

We come now to the acknowledged instigator of the above-described cell degenerating in this tissue —the Frisch bacillus, whose bio-morphological character has already been pointed out. Frisch found his bacillus in the protoplasm of the large Mikulicz cells, between them and in the interfibrillary spaces of the connective tissue, using 1/20 Reichert's ol. immers., with the low power the bacilli appeared as cocci; he concludes that most likely through these bacilli the retrogressive metamorphosis of the cells, which manifests itself by the loss of the cell nuclei, gradual enlargement of the cells at the same time that the protoplasmic nuclei disappear and the final transformation of the cell protoplasm into a liquid substance takes place, and since this infiltrated connective tissue never comes to necrosis, this condition must be taken as a chronic inflammation. Wolkowitsch[44] is the only one who reports having seen the bacilli in the hyaline masses themselves, using the Gram stain. Marschalko agrees with Unna that the lymph vessels are primarily diseased and that the bacilli invade from these the intercellular spaces and the tissue cells. He noticed the bacilli in the Mikulicz cells embedded in the glœa of the protoplasm and in more recent diseased tissue in the lymph vessels; he never saw the bacilli in the blood vessels nor in the hyaline bodies; neither could Schridde[45] find any bacilli in the hyaline bodies. Streit in some specimens could trace the bacilli from the superficial layers of the mucosa to the interepithelial bacilli clumps, showing that the bacilli enter from without. Baurowicz also claims to have found bacilli in the epithelial cells. Various staining methods have been advocated, the different procedures can be learned by referring to the works of Unna, Frisch, Mibelli, Noyes[46], Streit and Marschalko.

We have then this triad of histopathological conditions that make up the microscopical picture of rhinoscleroma, viz., the bacilli, and these mostly in their generally accepted distinctive habitat—the Mikulicz cells—and the hyaline bodies. But the warning must be heeded and a large enough piece of the diseased tissue for a proper examination utilized, otherwise, as already pointed out, a false histological diagnosis will result.

Symptoms and Clinical Courses.—In most cases there are no changes in the contour of the nose externally, which would cause suspicion, except in the later stages. When these changes occur the nose may become greatly enlarged, especially broad over the bridge, or there may be nodal enlargements, flat or raised, over the lateral nasal cartilages, on top of the nose, at the ala, septum, and at the junction of the vestibule and lips. These nodes are sometimes sharply defined. The adjoining skin has a normal appearance but at times is reddened. Hard nodular excrescences are seen on the upper lip, at the junction of the nasal vestibule and ala, and of the septum and lips in color light or brown red, sometimes crossed by dilated vessels, smooth, shining, without hair and covered by a dry, cracked epidermis, which at times is bathed in moisture or else covered by crusts. These nodes and excrescences are painless, except on pressure. From the upper lip they may extend to the lower lip, encircling the mouth.

Premonitory symptoms are wanting unless the chronic catarrhal symptoms "rhinitis skleromatosa" of Streit can be considered as such. Usually repeated epistaxis is noticed, with later crusting and foul smelling nasal secretion. A mousey and garlic-like odor, which some claim as characteristic, and which is realized by the patients themselves since their smell sense is intact, was observed in these cases. Rarely cases with wide nasal chambers and the peculiar odor may resemble ozena as

cited by Streit. With the thickening of the interior soft parts of the nose, sometimes to entire occlusion, and with the advance of the disease to the eustachian tube, deafness and tinnitus may be complained of. Loss of taste or difficulty in protruding the tongue occurs when that organ is affected. Pain on swallowing is due to extension to the palate and fauces. Ankylosis of the jaw due to adhesions has been observed as well as almost an entire obliteration of the oral opening. Dryness of the mouth and pharynx, hoarseness, difficult nasal breathing, and nasal intonation of the voice are common. In consequence of the disease extending to the fauces and mouth, causing pain and contractions, the nutrition of the patient may suffer; usually they are robust and show no cachexia, at least during the early stages. Later loss of weight ensues. In the train of the disease as it advances, follow frontal headache and pains radiating to the ears, jaws, mouth, and throat.

In the nose and pharynx, the nodular infiltration appears at first, soft, dark red, circumscribed, and uneven; later it takes on a grayish-white color, becomes hard, diffuse and reaches deep into the submucous tissue, but so far as known does not affect the cartilages of the nose. Seldom it appears in a polypoid form (Baurowicz, Pawlowsky.) Still later it is covered by vessels and may lay in folds as shrinking goes on, becomes paler, and is transformed into scar-like tissue causing contractions and the pulling together of the soft parts in the pharynx and fauces. In the nose we may have synechia. The infiltration of the mucous membrane does not ulcerate, but the epithelium desquamates, and this gives it the appearance of ulceration, especially in the pharnyx and the soft and hard palate. When it affects the skin we have true ulceration, with discharge and crust formation. Entire occlusion of the anterior vestibular opening of the nose frequently occurs, but entire occlusion of the choane is probably never found. Baurowicz never met it in his 100 cases. Adhesions in the nasopharnyx are rare, but the soft palate may contract and be raised upward and backward, taking the uvula with it, and to such an extent as to make an examination of the nasopharnyx impossible. The thickening of the tonsils and pillars greatly narrow the fauces, and they have the same studded or mottled-red and white appearance as the surrounding tissues.

With the advent of the disease to the larynx, hoarseness, cough, expectoration, and dyspnea manifest themselves. The process here is subcordal, beginning anteriorly and gradually grows backward below the processus vocales; it may seldom grow in a reversed way. It appears in the form of a "chorditis vocalis inferioris hypertrophica," adherent to the surface of the cords, and, as seen above in the pharynx and nasopharynx, is at first red and later becomes paler, reaching the same shrinking stage, thus bringing the vocal cords closer together and so encroaches on the glottic opening. Sometimes the true and false cords become thickened as well as the aryepiglottic fold, the inner surface of the arytenoids and the epiglottis, thereby causing stenosis and disfiguring the anatomical landmarks. Any of these parts may be affected singly or collectively, this of course hampering the motility of the cords and arytenoids. An edematous infiltration may likewise be noticed. Choking spells occur. Extension to the trachea and bronchi have much to do with the irritable and metallic cough of some patients. Pulmonary symptoms are usually wanting, excepting where laryngeal and bronchial involvement takes place, when the physical signs and symptoms of air hunger are in evidence. The affection of the larynx in this disease has often been said to resemble "Störks blenorrhea," with which it has much in common, symptomatically. The laryngeal cartilages are probably never affected.

Metastasis.—Metastasis in rhinoscleroma is admitted by only a few of the many foreign writers and Wolkowitsch and Lang are emphatic in their statement that metastasis does not take place in rhinoscleroma. Róna[47] first mentioned metastasis as occurring in this disease. He records one of his own cases and cites four others. In his case the disease had progressed for 24 years. The glands below the chin and angle of the jaw, and of the neck were enlarged to the size of a large bean; the axillary and inguinal glands were also enlarged. From a section of the submaxillary glands he cultivated, on agar and bouillon, the pure rhinoscleroma bacillus. Blood from a vein in the arm gave no culture and from a cut in the cheek the culture was likewise negative. Glands showed hyaline degeneration.

de Simoni quotes Wilde (Inaug. Diss. Bonn. 1896), who found the Frisch bacillus in two individuals who had rhinoscleroma; in one in a varicose vein abscess, and in the other in an arm injury.

Diagnosis.—For the clinical diagnosis of rhinoscleroma, little would be gained by any addenda to the eight points for diagnosis as compiled by Gerber,[48] which are repeated here in full.

1. Changes of the nose externally which would cause suspicion are wanting in most cases.

2. The occlusion of the nose, which is often the beginning of the disease, shows on rhinoscopic examination to be due to the thick, rigid, at the beginning soft, later very hard, more or less nodular swellings of the mucous membrane of both the septum and turbinates, and which sooner or later fill up the entire nose.

3. These typical changes are not always found anteriorly but are seen first, with posterior rhinoscopy, as a narrowing of the choanae from thickening of the septum, the eustachian prominences and the lateral folds of the mucous membrane.

4. Often the pharynx is found normal on direct examination, but here, too, in some cases, we see scleromal infiltration, which reminds one of syphilis and tuberculosis, hypertrophies, contractions and tumefactions of the soft palate and the posterior pharyngeal wall.

5. Sooner or later, mostly in the very chronic course of the disease, the larynx becomes affected by stenosis, due to subglottic swelling; the swelling may be above the chink. In some cases the larynx is primarily affected and the disease extends upward.

6. The secretions may be normal, in other cases may show a picture of ozena and "ozena trachealis."

7. It is characteristic of these thickenings, excepting in the very beginning, that they are hard, tough and rigid, and do not ulcerate, although a superficial secondary erosion is seen now and then.

8. Finally the microscopical examination will show the Mikulicz cells and the bacilli of Frisch.

Gerber "thinks a good many of the scleroma patients have brothers and sisters die from the disease in their county districts, whose deaths are supposedly due to consumption. This is not astonishing if an examination of the nose, pharynx

or throat is not made or the excretions from the nose and the swollen tissue are not examined, since the patient becomes hoarse, coughs, has expectoration of tough mucus, is dyspneic and slowly becomes cachectic, loses weight and finally succumbs. What could it be if not consumption?"

It may be that here too, in the United States, some of the scleroma cases are accepted for treatment as either syphilis or tuberculosis, the clinical symptoms and the objective appearance of scleroma at certain stages lending semblance to either of these diseases. During the trend of emigration from Russia and Austria, probably including the endemic regions, there was a large influx into the United States from these countries, myriads coming in monthly, among whom it is likely to assume not a few arrived from the endemic districts, infected with scleroma, and therefore it is surprising, that up to 1908 only 16 cases in all have been recognized and reported in the United States, according to Emil Mayer's[49] tabulated cases, and this during a period of 14 years.

In view of this, it is more than likely that the diagnosis of scleroma of the upper respiratory tract is not as readily made as some of the authors so confidently assert, and this is borne out also, aside from the symptoms and appearances, when we recall that the histopathological findings are not pathognomonic for this disease alone, but are found as concomitants of many diseases; and while it is true that some or even most of these diseases are foreign to the upper respiratory tract, yet a few in which similar pathological conditions are found, are frequently met with in the nose and throat to wit, malignant disease, and the two mentioned above. Further, to find bacilli in the tissue may be deceptive, in malignant disease, syphilis and tuberculosis, where a small or superficial piece is examined in the early inflammatory state, either may show hyaline bodies, and foam cells, the stained nuclei of the epithelial or the connective tissue cells may closely resemble bacilli and this easily leads into fallacy. And it must be remembered that the picture varies according to the particular layer of tissue examined. This deception was experienced lately in Dr. Jonathan Wright's clinic on my service; a male, native of Eastern Prussia (scleroma region), aged 34, presented himself with marked huskiness of voice and slight cough, with the arytenoids, edematous, mostly on the inner aspect and above, in color somewhat pale with thickening of the false cords; throat symptoms dating back about one year. Examination of the chest was negative. A small piece excised showed foam cells, hyaline bodies and what appeared to be bacilli. A tentative diagnosis of possible laryngeal scleroma was made; one week later, a larger piece was taken off from the swollen arytenoids and this showed tubercle and giant cells and in a subsequent examination of the sputum tubercle bacilli were found.

The bacteriology of this disease must be proven by growing the Frisch bacillus in a pure culture, from the infected regions, in order to assure a correct diagnosis; yet that this alone is also insufficient is exemplified in Schilling's[50] case: clinically the case looked like scleroma and the histological examination of the tissue proved it as such, but a bacteriological examination from the nose and larynx repeatedly showed pure culture of the diphtheria bacillus and the blood serum of this patient was proved to have immunizing antitoxic properties; ½ c.c. of the patient's blood serum neutralized a fifty-times fatal dose of diphtheria emulsion. Here we had bacteriologically and biologically diphtheria, which we may assume was the secondary process and histologically we had the scleroma as the primary process. Whether the secondary process influenced the course of the scleroma, or whether the Frisch bacillus could have been cultivated from the excised tissue, is not stated.

It is then probably true, that for diagnosis too much reliance cannot be placed upon either the histopathology or the bacteriology, but that these must be combined, with the addition of a consideration of the clinical course or history of the disease, an important factor often given too little attention or at times overlooked. With this triple combination, and by elimination, distinguishing scleroma from the like appearing diseases, a correct diagnosis will be attained.

Differential diagnosis need not be further expounded; anything more than what has been applied here may seem superfluous. Complications are frequent in scleroma; many other infections have become secondary processes as the exanthemata, erysipelas, cancer, etc. A most interesting complication is reported by Wolkowitsch where a carcinoma developed on the nose after it had been afflicted with rhinoscleroma for twenty-six years.

Treatment.—From the time that rhinoscleroma was identified as a special disease, nearly forty years ago, many efforts have been made to alleviate the harassing symptoms as well as to cure this terrible affliction. At first surgery was given full play, but even when exercised in a most radical manner, was soon followed by recurrences. Injections were made of bichloride of mercury, carbolic acid, Fowler's solution of arsenic, and malate of iron, in most cases without effect. To relate all the resorbents and resolvents which were found useless would have only a passing interest. In the following modes of treatment, some authors claim retrogressive results and some even cures. Lang[51] by fairly saturating his patient with the salicylates, using a one and two per cent. hypodermic injection every second day, douching and pencilling, using it as a snuff and as a 5 per cent ointment externally, and clogging the nose with it, and giving internally two grams daily for one and a half months, had reduction and involution take place; prolonging this same treatment, he claimed further good results. Wolkowitsch in early cases derived good results after three months' treatment from the hypodermic injections of 1 per cent. bichloride of mercury solutions as well as with 1 per cent. carbolic solution and a 1 per cent. sublimate ointment used twice daily. Pawlowsky[52] in 1894 published his results with "Rhinosklerin" after an experience of nearly two years, during this time treating two patients. His "Rhinosklerin" consisted of a combination of the toxins extracted by boiling from the agar-agar nutrient material, after washing off the cultures of the Frisch bacillus and a desiccated extract of the bouillon cultured bacilli dissolved in 50 per cent. glycerine and filtering after standing 24 hours. In other portions he used alcohol and ether as solvents and by animal experiments found the cold filtered aqueous glycerinated extract the more potent. By graduating the dose from 0.1 to 3.5 g., using in all 70 injections in the first case, he injected every second or third day, and after the twentieth injection used it daily. He found a reduction of the infiltration without any further spreading—local immunity. This result was also achieved in his

second case. In the beginning the injections created a reaction similar to tuberculin, but milder. His theory is that the rhinoscleroma bacillus causes toxins, which are partly free and partly combined with the circulating albumenous substances which irritate the neighboring cells. The "Rhinosklerin" produces with the albumenous substances of the blood an antitoxin which combines with the toxin of the Frisch bacillus by chemotaxis (*sic*) and so brings about phagocytosis. Zimmerman in 1902 as quoted by Schein made a serum from the sheep and ass but no report of any case so treated could be found. In 1903 Glas[53] recommended thiosinamin, a 15 per cent. alcoholic solution, by injections into the neck and back muscles, giving four injections during a fortnight and one week later the fifth injection, and also gave it by the mouth. He used it in six cases and claims cures; it makes the tissue softer and more plastic so that the Schrötter tubes can be inserted into the larynx with ease; he advises preliminary tracheotomy in all laryngeal cases since a dangerous subglottic swelling takes place as a result of drug reaction. He recommends it only as an adjuvant to the mechanical treatment, without which it probably would not improve the conditions. Freudenthal recently tried radium and a culture of lactic acid bacilli without result, as cited by Emil Mayer.

According to favorable reports in latter years the *x*-ray treatment seems to give the best results in this disease. In their chronological order Fittig[54] in 1903, Schein[55] in 1905, E. Mayer[56] of Berlin in 1906, Politzer[57] in 1906, Emil Meyer of New York, Ballin[58] and Lustgarten in 1907, Gottheil in 1908 and Rydygier, Jr., 1909 have reported cases treated with the *x*-ray. Fittig *x*-rayed his case daily for nearly five months, for fifteen minutes, covering the face with sheet lead and leaving the lower part of the nose free, using a soft tube at a distance of 3-5 cm, current intensity 7 amperes with 2 to 3 interruptions per second, with good results.

In both of Schein's cases the good effect of this treatment was seen in the nose but did not affect the pharynx; he says the *x*-ray has an elective influence. In discussion Baumgarten asserted "that it affects the nearby process but not the deep seated one." It seems to be the concensus of opinion to use a soft tube, covering with sheet lead with a window cut out, large enough to have the rays act on the diseased parts. In discussing Ballin's paper, Stern recommends short exposures with high frequency rather than long exposures with low frequency, exposing from 3 to 5 minutes at a distance of 3 to 4 inches, three times a week. Politzer's and Ballin's cases were mostly external. E. Mayer of Berlin treated two cases, externally and internally (by oral opening) with the *x*-ray averaging about 12 minutes for each seance, without any local reaction but with disappearance of the growths.

Lustgarten in 1907 reports a case of primary laryngeal scleroma in a girl 18 years old, in which after one exposure to the *x*-ray the dyspnoea became so great that the larynx and trachea had to be opened by an incision 2½ to 3 inches in length; the wound was retracted and the *x*-ray applied to the larynx direct. The first two exposures were made under an anaesthetic, the other applications without it; the tumor disappeared almost entirely after only 6 or 7 exposures. Emil Mayer of New York in 1909 also reported a case with laryngeal involvement, exposing by incision the larynx and trachea and applying the *x*-ray in about the same manner with apparent cure, and no recurrence after more than a year. Rydygier, Jr., recently reported fourteen cases treated by Röntgen rays, remarking that he reported an *x*-rayed case in 1902 before the Congress of Polish Surgeons; he states that he has effected complete cures, having observed no recurrence, even for as long a period as six years. He used a medium soft tube, two or three amperes with a 32-volt primary current. Exposures were made daily, for 2 minutes, kept up for 16 days and resumed after 16 days for 12 days more, followed by another interval of 16 days and again resuming, keeping this cycle up in all three or four times. Treatment may take months, one of his cases being rayed for seven months; he urges not to desist too soon.

Surgery proper may be indicated to relieve the distress of the nasal occlusion and pharyngeal narrowing, and is imperative in the laryngeal cases with danger of suffocation, as well as a means for directing the *x*-ray treatment; here tracheotomy or laryngo-tracheal fissure are elective.

Some authors cite cases of spontaneous recovery after attacks of other infections. Toeplitz and Kreuder[59] say, cases are on record where the scleroma disappeared after fever of long duration, exanthematic typhus and erysipelas. In Lubiner's[60] case it vanished after an attack of typhus. In this connection it would be interesting to know, what effect would be had with an erysipelatous antitoxin serum in scleroma.

Before the writer was conversant with much of the literature here cited, he determined to attempt an autogenous vaccine treatment, since the *x*-ray had failed to improve the patient's condition and the Frisch bacillus was so easily cultivated. The positively good result in the first case, at least for nearly a year, can only be ascribed to the vaccine treatment; a slight recurrence in one nostril only occurring after the patient had left the hospital and become irregular in attendance for inoculations. Upon the second case the vaccine treatment had less effect, causing no regressive action but seemed to stem further invasion. Why so great a difference in result is observed in these two cases under the same treatment is difficult to say unless a certain personal equation comes into play along with a variation in the degree of virulence of the scleroma infection, as is often known to be the case with infectious diseases. With so limited an experience it is not intended to bring the vaccine treatment forward as a positive cure for this disease, although there seems reason to deduce, that continued for a long period and frequently applied a cure would be effected by the vaccine treatment alone. Preference should be given the *x*-ray treatment on account of its easy, painless administration and its more rapid effect; vaccine injections are somewhat painful and would have to be used frequently and for a longer time aside from the consideration that the preparation of a vaccine requires much time, many tedious and exacting laboratory steps; however, where the *x*-ray is unavailable, vaccine could be used or it might be useful as an adjuvant to the *x*-ray, the ultimate improvement in either mode of treatment being probably due to a local leucocytosis this bringing about phagocytosis and local immunity.

Duration and Prognosis.—The duration of scleroma is variable, cases having been diseased for as long a period as thirty years; the prognosis in regard to life, up to a short time ago, has been a relative one depending upon the parts affected, hav-

ing been particularly bad when the larynx was involved. Since the *x*-ray treatment has been advanced and proven an efficient therapeutic measure in this disease, and with the added local immunity, if no more, that can be brought about with vaccine therapy, as instanced in the two cases here recorded, much of the horror of scleroma is relegated to the past.

Report of Cases. Case I.—Harris Saltzmann, single, aged 19 years, native of Minsk, in Western Russia; in United States 3 years, came to Dr. Jonathan Wright's clinic at the Manhattan Eye, Ear and Throat Hospital, December 5, 1907; two months previously he was treated at the Mt. Sinai Hospital for rhinoscleroma, *x*-rayed for four weeks with slight improvement in breathing. Tissue from his nose presented the usual appearance noted in scleroma, and bacilli were isolated from the exudate, having cultural characteristics of the Frisch bacillus. Diagnosis confirmed. Physical condition: healthy appearance, well developed, the nose deformed and enlarged, tissues of the upper respiratory tract showed a general thickening, abdomen and chest negative, hands cold and cyanotic. Family history negative. Personal history: had the common diseases of childhood; when seven years old he was under treatment for some nasal condition and from that time had nasal swelling, which became worse in snowy weather; gradually the pharynx and larynx became involved, and at times he had great difficulty in breathing and swallowing; slight exertion caused dyspnea. No specific history, no trauma. Nose has been enlarged for ten years across the bridge but has not increased during the past two years. For the past six months the patient is hoarse and coughs. The sense of smell is intact. Local examination: aside from the external enlargement, both nostrils were almost entirely occluded with a pale, fibrous-looking mass; the pharynx was thickened and dark red, the nasopharynx narrowed, the tonsils and pillars enlarged; the cords and ventricles of the larynx were thickened and red, with a marked subglottic growth appearing about like the ventricular bands above, but thicker and denser, leaving a small narrow slit. The glottis has been partly covered with a gray and tenacious membranous secretion which, from time to time, was thrown off by coughing. Treatment: He was *x*-rayed for two months tri-weekly with no improvement. Laryngeal stenosis becoming greater with alarming dyspnea, the patient was admitted to the ward and a low tracheotomy performed on March 10; the trachea as observed through the wound was normal; after 24 hours the steam tent was removed and on the third day the patient was up and comfortable. April 19, outdoor recreation for two hours. April 21, complained of ear ache (left) and the next day a paracentesis was done. April 23, the ear showed a foul, yellowish discharge; the usual treatment was instituted and the discharge ceased on April 28. It may be mentioned that a culture from the discharge was negative for Frisch bacilli. On May 26, '08, the patient received his first injection of 1 c.c. = 250,000,000 dead bacilli, in the subscapular region, without any reaction, opsonic index before injection 0.6. In the beginning the injections were made in the morning in order better to observe any reaction, either local or subjective. May 30, index 0.6+, and a second injection of 1 c.c. was made with a decided reaction following—temp. 99.4° F., pulse 106, respiration 24, with profuse perspiration; dizziness, insomnia, general nervousness, and pains and stiffness of the muscles lasting through the night, the patient remaining in bed the next day of his own volition. June 1 he complained of pain in back and nose; June 8, index 0.7, he received the third injection, having the same reaction, with bloody discharge from nose; June 9, index 0.9; June 17, index 0.8; June 18, 1½ c.c. = 375,000,000 dead bacilli, was injected without any reaction. On June 27, index 0.8+, 2 c.c. = 500,000,000 bacilli, were injected with some reaction, perspiration, and general malaise; June 28, has expectorated a blood stained, thick discharge for past twenty-four hours, with bloody nasal discharge; June 30, index unsatisfactory; July 4, index 0.9+; within this recorded time the patient gradually felt better in a general way, had improved nasal breathing and a decided shrinking of the nasal mass and that of the larynx, a view of the cords being now possible, the voice became stronger, and the breathing easy with a finger over the tracheotomy tube; July 5 the tube was removed permanently. It was interesting to note about this time that the Frisch bacillus could not be cultivated from the nose after repeated trials; it, however, being necessary to get a culture to replenish the old supply of vaccine, on July 14 the tonsils were removed with a cold snare and from this fresh surface a culture was obtained from the exuding blood. The opsonic indices were now omitted but the injections were kept up, increasing the dose now and then to 4 c.c. = 1,000,000,000 dead bacilli, and, with each a reaction was noticeable, but not so marked as in the beginning. During August the patient showed further improvement in the local condition. On September 14 another index was taken and found to be up to 1.12. October 2, '08, the patient was discharged from the hospital by his own request. After leaving the hospital the patient's visits to the clinic became irregular, once a week, rarely twice, but on each occasion he received a vaccine injection, now for convenience selecting the arm for these inoculations. In the pursuit of my reading on scleroma it was seen that many writers reported excellent results from the *x*-ray, and in justice to the patient, after November 19, '08, this was added as a weekly seance. This, however, up to date has not shown as flattering a result as it was reasonable to believe it should. On the contrary, early in February of this year a slight recurrence was noticed in the right nostril. This was ablated on February 23, '09, and the condition of the patient is as you see him to-night, with a good deal of retrogression of the infiltration, no dyspnea on exertion, and he is able to earn a livelihood. He has had in all forty-three injections, no abscess formation at point of injection, and no untoward effect other than the reactionary disturbances.

The technique for the opsonic index and vaccine treatment has been described in full in many journals and is included in all recent works on bacteriology and hematology, and is in full exposition in Allen's[61] text book.

It suffices to mention here that the vaccine was prepared from cultures of the Frisch bacillus grown in tubes on slant agar-agar for twenty-four hours, cultures flooded off with normal salt solution, standardized as to the number of bacilli per c.c., and diluted with normal saline. The cultures were killed by exposure to a temp. 65° C. for one hour and with the addition of 0.5 per cent. lysol as a preservative, the vaccine was ready for use. The vaccine in these two cases was standardized to 250,-

000,000 bacteria per c.c. An autogenous one, being the most potent, was used in each case.

The opsonic indices were carried out for about six weeks, but often were found unsatisfactory, and thereafter the injections were made without this exacting calculation. It is now a common understanding among workers in this field that one can be guided entirely by the clinical symptoms. Numerous blood counts were made, and in both cases, showed a marked increase in the number of leucocytes after a few weeks' treatment (over 3,000 in both cases). Urinary examinations showed nothing of interest.

Case II.—This case came to my service in the clinic, by the courtesy of the chairman of this section of the Academy, Dr. Harmon Smith. The patient was first seen by him at the Manhattan Eye, Ear and Throat Hospital on July 9, 1908; she was transferred by Dr. Smith with a diagnosis of rhinoscleroma and put at my disposal for the vaccine treatment. The patient, Helen Bialonovszka, is married, aged 25 years, native of Seedeltz, Russian Poland, in United States one year. Physical condition: frail, anemic, cachectic woman; some nodular deformity of nose, with the nostrils anteriorly almost closed and a raised, moist infiltration on the upper lip, extending about one-half inch downward from the right nasal wing. Abdomen and chest negative, the hands cold. Family history negative. Personal history: she lived in her country town for sixteen years, was married at seventeen, and has had five full term pregnancies, two children living and well, three died in infancy; eight years ago she had diphtheria for two weeks, and two years after this, in Warsaw, polypoid growths were snared out of both nostrils on account of difficult breathing; one year later the nose again became clogged and another operation was performed but the clogging soon returned. Thereafter the nasal breathing became more difficult and two years after the nasal trouble began the cutaneous lesion appeared. The nose at times is painful and often bleeds, but olfactory sense has been preserved. Local examination shows nodular deformity of the right side of the nose; the right nostril has a pin opening surrounded by a pale infiltrated mass, with a round, raised, cracked, red infiltration extending from the nasal wing one-half inch downward on the lip. The left nostril has a slit opening about one-eighth inch long, the rest is filled up with the infiltrated mass. The tonsils and pillars are grown into one compact mass, dark red in color, extending back to the pharyngeal wall and coming together to within about three-quarters of an inch; a cicatrical adhesion of posterior pillar and pharyngeal wall is to be seen on the left. The nasopharynx is almost entirely obliterated making it impossible to examine the post nasal fossa; the uvula is absent and the soft palate is raised upward and backward; a granulated nodular mass, mottled red and white in color, covers the hard palate, extending forward to a line drawn across the second molar teeth. The larynx is free. The right ear has an O. M. P. C. of some years standing, with little discharge but at times is painful.

Treatment.—The patient was admitted to the ward and during the next month it was attempted to improve her general condition by good nourishment, rest and tonics, but she could not be persuaded to stay more than three or four days at a time. On August 3, index 0.5+, she received an injection of 1 c.c. = 250,000,000 dead bacteria, with practically no general reaction, but a marked local reaction, very profuse blood-stained nasal discharge, sore throat, pain over bridge of the nose and clear nasal bleeding, and some malaise. August 13 she received the second injection of 1 c.c. = 250,000,000 dead bacteria; the temperature rose 1° within two hours; general malaise, marked frontal headache, soreness of all muscles, especially on the left side (injection); locally pain over the nose, sore throat, blood-stained nasal discharge, and marked diaphoresis with weakness. On August 20, index 0.67, an injection of 1 c.c. = 250,000,000 dead bacilli was given. Some local reaction was present. General reaction was more marked, and the patient quite prostrated. On August 22, index 0.6+ (unsatisfactory), the patient became very restless and at times was moaning; had frontal headache and pain in the ears; the area of nasal disease was more inflamed and painful. On August 31 the general condition was better, but the local condition unimproved. Index 0.75 and an injection of 1½ c.c. = 375,000,000 dead bacteria was made, and within a few hours the patient complained of severe pain in the head and neck, had general malaise and profuse sweating. September 14, index 0.9, an injection of 2 c.c. = 500,000,000 dead bacteria was given and the patient went home. On her next visit to the clinic, she said she had intense headache and dizziness the day after the injection. September 22, the patient did not report. From thence on she appeared at the clinic regularly two or three times a week. This woman received in all thirty-two injections, with no abscess formation. As in the former case the indices were now omitted, and the injections made about once a week, rarely twice, and now and then the dose increased up to 4 c.c.; though it cannot be said that the disease has in any way decreased, yet it has not advanced and the patient's general condition is greatly improved. During these eight months she has taken the Elix. ferri, quiniæ et strychinæ cit., t.i.d. In this case too, from about the middle of November on, the disease was exposed to the *x*-ray twice or thrice weekly in the usual manner, without any appreciable benefit up to date. One month ago the left nostril was freed from the infiltrated mass with the knife and the curette, and at this time a septal perforation came to view extending well back, but whether it antedates the scleroma disease cannot be determined. The nasal caliber was held patulous for a while with rubber tubing, but on its removal it has again almost entirely closed up. The cutaneous lesion was ablated and recurrence was also rapid. Excepting her general improvement, her local condition to-night is about as it was when first seen at the clinic.

Conclusions.—From what has been presented in this paper, the following conclusions may be drawn:

1. That scleroma is an infectious disease, whose onset has occurred even in infancy, but usually begins in childhood or adolescence and it is not limited to adult life, as some still believe.

2. That the so-called Frisch bacillus plays an important rôle in the causation of scleroma, being found in the exudate and in the tissue proper, and my work, proving that a vaccine prepared from the Frisch bacillus can create at least a local immunity, is a further point favorable for the aetiogenesis of the Frisch bacillus is this disease.

3. That the Frisch bacillus in the tissue is also Gram positive, when hardened in a 5 per cent. formalin solution as observed by the writer.

4. That the Frisch bacillus has a lively and

lasting motility when examined in the hanging drop, and that the Frisch bacillus grows smaller and thinner as the age of the culture increases, as observed by the writer. From the agglutination test, also applied here for the first time, with the Frisch bacillus, no conclusion can be drawn. Further tests on patients whose immunity has not been influenced by inoculations, might prove valuable.

5. That in the biological experiments the time factor has been overlooked, and, in the future, in so chronic an affection as scleroma, a long time for observation must be allowed.

6. That, as the writer believes, a parasite or insect may be the means of transmission for this disease and when discovered will supply the missing links for the infectious etiology of scleroma.

7. That even allowing its contagion to be mild, at some time the emigration or health authorities in the United States may have to adopt means to limit the increase in scleroma cases.

8. That the examination of a small piece of tissue leads into fallacy in histopathological diagnosis; therefore examine as large a piece of tissue as possible.

9. That a deformed contour of the external nose is only found in a small percentage of cases.

10. That metastasis does rarely occur in scleroma.

11. That the diagnosis of scleroma, at least in the early stages, is not easily made, and that the clinical course must be taken into consideration along with the bacteriology and histopathology in order to arrive at a correct diagnosis.

12. That scleroma does not render a patient immune to other infections, but that other infections may favorably antagonize the scleromal process.

13. That the *x*-ray treatment, at this time, holds out the best prospects of a possible cure for scleroma: that the vaccine treatment has at least caused a local immunity, and may be a means of possible cure if used for a long time, and, as to frequency and quantity, in proper dosage: and that with no criteria to guide my original work in this disease, these points in the vaccine treatment still need to be worked out; and that surgery has only an elective place in the treatment of scleroma and is useful only as an auxiliary.

Grateful acknowledgment is herewith tendered to Dr. Jonathan Wright and to Dr. Harmon Smith for their kind encouragement; to Dr. Edwin C. Zabriskie for the accompanying photographs and the photomicrograph; to Dr. James C. Dwyer, late house surgeon, for his valuable laboratory assistance; to Dr. F. M. Law for his patient *x*-ray treatment of these cases and to Mr. Samuel Richardson, laboratory assistant, for his frendly cooperation in the pathological work.

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BRAIN ARCHES.

FOUR GRAND ARCHES OF THE CEREBRUM.

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The cerebrosphere presents parallels of latitude and parallels of longitude. Here is the grand verity. The parallels of latitude have already been published. We take to-day the parallels of longitude. Working for the last fourteen years upon the cortex of the brains of men and animals by the special method of painting homologous lobules and gyri, either upon the dry mummy or upon the plaster cast, I sought to generalize the various types or to arrive at a truth which might be of utility in the study of the morphology of the cerebrospheres of man.

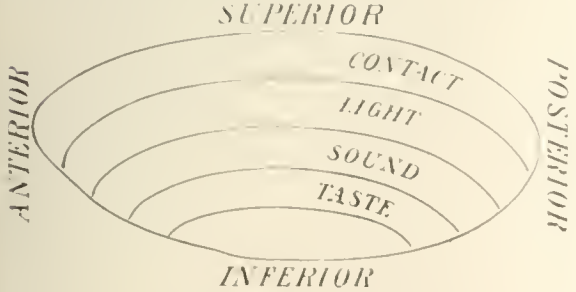

Fig. 1.—Primary arches of impress.

The truth I have been able to demonstrate, as I believe, is that in final analysis the human cerebrum in form consists of four grand rings or arches surrounding the limbus, limbic lobe, or rhinencephalon.

Comparative anatomy is a new science. Comparative gyrology or the comparison of the convolutions of the brain in man and the other gyrencephala is yet unborn, since there is no text book, and the usual bibliography beyond Leuret and Gratiolet, Meynert, Broca, Krueg and Andrew Parker is not voluminous. The four types of cerebrum, say ox, dog, bear, man, look at first unlike. Compared carefully, however, by taking the dry specimens or casts and painting homologous gyri, it will be found that they are reducible to one general form, and that form one of great simplicity. It is nothing more or less than a hemisphere surrounded by four rings or arches.

It is easy to demonstrate this type in the dog, and felines follow. Man at first seems not at all to conform to this longitudinal type. The link which unites the two is the brain of the ox.

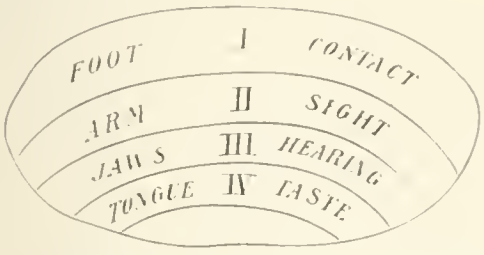

Fig. 2.—Generalized scheme for cerebrum of dog and ox. The cerebrum consists of four grand rings, arches, or zones around the limbus or rhinencephalon.

Compare bovine with canine brains and one will find each to consist of four great rings surrounding the limbus or rhinencephalon. Bovine conforms to canine.

At the posterior pole then, four rings, counting from inferior to superior, are zones of taste, hearing, sight and contact.

What are these arches in front? They appear to be, counting from inferior to superior, centers for tongue, jaws, arms, legs.

Hearing is in line with the jaw, *maxilla*.

Sight in line with the arms, *manus*.

Contact in line with the hip or foot, the *pes*.

Next compare the ox and man and you will be astonished to find how much these two best of all the creatures have in common when we arrive at the pith and nucleus, the soul and center, that is to say, the cerebrum.

Compare the cerebrum of the dog with man and you can not find the four arches in man. Compare the cerebrum of man with the ox and you have in the ruminant an interpreter.

Can the human cerebrum be reduced to four grand longitudinal arches? Dissection of the brains of fifty cattle and examination of the brains of two hundred men answer the question in the affirmative.

FOLLOWING IS THE DEMONSTRATION.

Arch No. I, the marginal gyrus, is comparatively easy. The metopic, paracentral, precuneus and cuneus lobules are all demonstrable in the bovine, the proportions strangely altered.

Arch No. II in man comprises the second frontal gyrus, the medicentral lobule, the angular gyrus, and the occiput. The angular gyrus is the stem of the occiput. The angular gyrus is the stem of the occipital eye-bulb, apparently crowded out of its connection with the manus lobule and has joined the ear lobule, thus uniting auditory and visual areas.

Arch No. III is the third frontal with the infracentral and the first and second temporal. Here the ox gives us the clue; we should not have guessed that the first and second temporal were one arch, one long gyrus, without his help.

Arch No. IV comprises the gyrus rectus apparently, the insula and the third temporal. The human cerebrum is thus straightened out and greatly simplified.

If this four-arch scheme is constantly borne in mind, I think it will be of help both in the study of form and function.

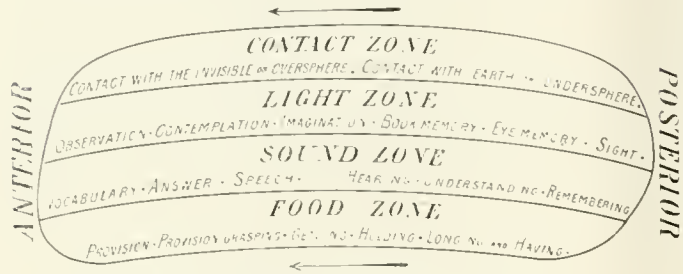
CONTACT ZONE
CONTACT WITH THE INVISIBLE OVERSPHERE. CONTACT WITH EARTH UNDERSPHERE.
LIGHT ZONE
OBSERVATION · CONTEMPLATION · IMAGINATION · SOUL MEMORY · EYE MEMORY · SIGHT.
SOUND ZONE
VOCABULARY · ANSWER · SPEECH · HEARING · UNDERSTANDING · REMEMBERING
FOOD ZONE
PROVISION · PROVISION GRASPING · GETTING · HOLDING · LONGING AND HAVING.
ANTERIOR
POSTERIOR

Fig. 3.—Diagram of the four cardinal brain arches, indicating the progression from posterior to anterior and from impress to express.

Comparative gyrology I believe to be good. The most interesting work I have ever done is to take the brains of ovines, bovines, chevelines, canines, felines, oursines, and primates, and straighten out the kinks and coils until I arrived at uniformity. Amid all the variety and complexity there runs the silver thread of divine simplicity. Noble, dignified, sublime, supernal, celestial; it is worth more than all our epithets.

The human brain is a simple, noble, accurate, symmetrical, intelligible sphere. Grand, indeed, is its simplicity and perfection. You draw a half oval and you divide it into five rings or arches—that is, four upon one. This is the cerebrum simplified.

Nothing more beautiful, these are the rivers of sense flowing into the restless sea.

The river of scent is the lowest ring; the river of sap, sapidity or flavor is the second ring; the river of sound is the third; the river of light and imagery is the fourth; the stream of tactility and mobility which we call the outer world is outermost and uppermost.

These parallels of longitude are to be borne in mind as related to each other.

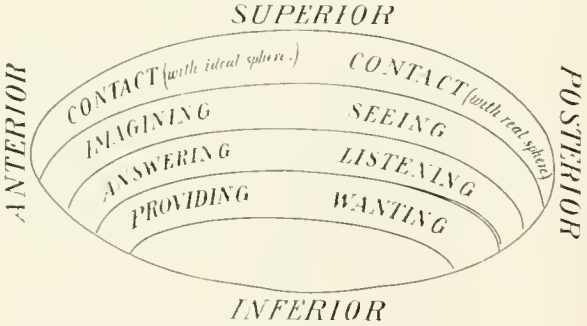

Fig. 4.—Cerebral arches of impress and express.

The inferior arches mean food, inwardness; the superior arches mean contact, work, outwardness, light; sight is a spiritual outwardness. Thus the sphere is divided into an inwardness and an outwardness.

The sphenoidal pole, the temporal lobe, is the orecticon, the spirit of food longing and food having.

Further toward the front must be the lobule of food getting, and still further front the lobule of sagacity or the wisdom of food getting.

Want and desire, longing and having, getting and keeping, grasping and holding, provision and previsions. This is the chain. Food and drink are material. Houses and lands and cattle and heaps of gold and silver are not spiritual. The sciences of medicine, agriculture, engineering, commerce, are material, not spiritual.

The next arch is the line of the inner spiritual, for sound is intimate, and sound is spiritual.

Food and music make a wedded pair; eating and drinking, music and conversation go well together.

The zone of sound presents two or more lobules posterior and two or more lobules anterior.

Posterior are the ear of hearing, the ear of understanding, and the ear of memory. Anterior are the answering tongue and the head or cap that frames the answer, and doubtless the personal vocabulary out of which the words are selected.

The arch of light is above that of sound. It is long and varied. We find in it three posterior centers—the center of sight, the center of visual memory, the center of compound memory, memory of written words, eye of sight, eye of memory, eye of book memory in men, and at the anterior extremity the center for writing, the eye of imagination, the eye of contemplation, the eye of observation.

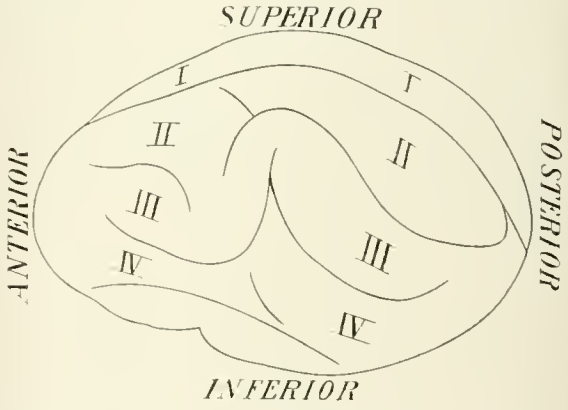

Fig. 5.—Four arches in the brain of an ox.

Posterior are:	Anterior are:
I. Contact.	I. The pes.
II. Sight.	II. The manus.
III. Hearing.	III. The maxilla.
IV. Taste.	IV. Tongue or larynx.

Just as the outer eye and ear form the acme of the face, so the sound zone and light zone make the acme of the cerebral sphere.

The crown area consists mainly of four lobules—two posterior, two anterior—and by the posterior

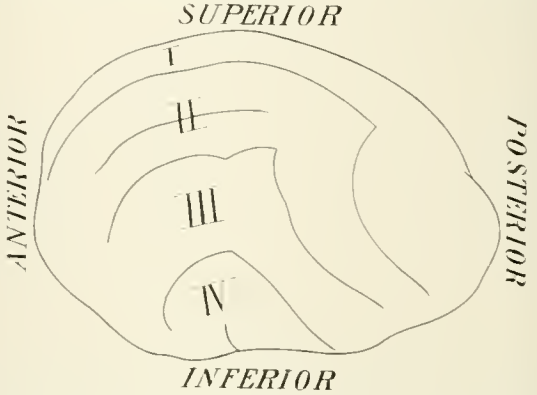

Fig. 6.—The four grand arches on the brain of a dog. All cerebrums of the gyrencephala are reducible to this general form.

two we appear to have contact with the earth, and by the anterior two we appear to have contact with heaven.

Having demonstrated the brain segments and the

brain arches the following question arises: If the cerebrum is a sphere formed by a spherical intelligence, if these strangely beautiful, strangely intelligible parallels of latitude and parallels of longitude are formed by the laws of nature or the laws of God or the laws of the gods, then have we not a sure foundation for something above sense as astronomy is above "sunrise?"

Have we groundwork or framework for an encephalonomy?

THE RARE FORMS OF CYANOSIS: POLYCYTHEMIA, METHEMOGLOBINEMIA, AND SULPH-HEMOGLOBINEMIA.*

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NEW YORK.

Cyanosis is, of course, not in itself a disease, but a symptom which occurs in many and various diseases. With the common conditions in which it appears, all are familiar. On the first sight of a patient with lips, face, and fingers blue, the mind at once jumps to the question: Is it heart or lungs? In the vast majority of cases this immediate narrowing of the possibilities is justified, and a physical examination will reveal heart disease, pneumonia, pleurisy, emphysema, asthma, or tuberculosis. In these cases the color is due to improper circulation or imperfect aeration of the blood, and is always accompanied by a weak or irregular pulse and a rapid or labored breathing.

Occasionally, however, cases are met in which the patient, while apparently fairly comfortable, with a regular pulse of 70 to 80, and an easy respiration of 18 to 20, presents an appearance of cyanosis of a most startling degree, a blueness, almost black, of the mucous membranes, and a color of the skin suggesting gun metal. In these cases one is surprised to find that a physical examination shows the organs to be healthy and acting in a normal manner. In such cases the question arises what to do to clear up the cause of the patient's extraordinary appearance. The immediate cause of all cyanosis lying in the blood, the first step should be to make a blood count. This will, in certain instances, give valuable information, especially if the red blood count is above normal.

In 1903, Dr. Osler[1] called attention to a disease, which he called polycythemia, reported three cases, and collected a few more from the literature, in which there were four striking characteristics—marked obstinate constipation, an enlarged spleen, a very high red blood count, and cyanosis. This has now become recognized as a definite clinical entity, and last year, Professor Anders[2] was able to collect from the literature fifty-three such cases. It occurs especially frequently among Hebrews of middle age. The red blood count varies from seven to twelve millions, while the hemoglobin is estimated from 110 to 200 per cent. The leucocytes are usually not above normal. The condition persists for years, and treatment seems to do little for it. The patients go regularly about their work, and, though somewhat weak and tiring easily, feel no especial effects other than those ordinarily accompanying chronic constipation.

When the ordinary blood count fails to reveal the cause of the patient's cyanosis, we have still one further diagnostic aid in solving the puzzle, an aid which is sadly neglected in the teaching of even the best medical schools. I refer to the spectroscope. This instrument, though simple in its use, and, in its smaller forms, inexpensive in cost, is to the vast majority of the medical profession a mystery. In our courses in physiology the student is shown the various blood pigments as produced in the laboratory, and probably for a day takes a fleeting interest in the pretty colors shown him. There, however, his education ends, and by the time he has reached the stage of diagnosing disease he may have a hazy idea that oxyhemoglobin and reduced hemoglobin can be told apart, and that methemoglobin and carbon-monoxide-hemoglobin do exist, but I should be greatly surprised if twenty-five per cent. of the senior students of even our best medical schools could tell how to distinguish between them, and even fewer be able to recognize them at sight. Still it is the use of the spectroscope which gives the easy and the only means of diagnosing the class of diseases which I will now describe.

I have spoken of the cyanosis produced by faulty aeration of the blood, and of that occurring in conjunction with a high red blood count. I now wish to take up the rarest of all forms of cyanosis—those produced by alteration of the blood pigment itself. You know that the red color of the arterial blood is caused by oxyhemoglobin, and the blue color of the venous blood by reduced hemoglobin, the reduction consisting of a displacement of an atom of oxygen by carbon dioxide. On rare occasions, however, other pigments may appear, which, changing the color of the blood, alter the patient's appearance. The most common of these is methemoglobin, a brown pigment probably formed by a rearrangement of the oxygen atom in the molecule. It has long been known that certain drugs given in poisonous doses will cause this change, and produce a pronounced cyanosis. The most common of these is acetanilid, the basis of most of the headache powders on the market. The other similar products, as phenacetin, sulphonal, and trional, and also potassium chlorate, nitrites, and many other poisons will produce the same results. These forms of poisoning, either acute or chronic, are characterized by marked cyanosis, with, unless the dose has been sufficient to cause coma or death, few constitutional symptoms other than headache and prostration. The heart and lungs are usually quite normal, and though the temperature may be subnormal, the illness is often first noticed by the patient's friends. When, therefore, one meets such a case, he must inquire thoroughly into the history of the taking of drugs, especially of headache powders, and of the patient's occupation, for workers with the drugs, as well as artisans in the analin factories, are very prone to the poisoning. He should then confirm his diagnosis by taking a little of the patient's blood and finding the methemoglobin by use of the spectroscope. The treatment in chronic cases consists in stopping the drug, and in acute cases in lavage, or emetics, fresh air, warmth, and cardiac stimulants.

This was practically the extent of my knowledge of cyanosis two years ago, when I was asked by Dr. Garrod, Lecturer on Chemical Pathology at St. Bartholomew's Hospital, in London, to undertake some investigations of a case that was puzzling the physicians of that institution. The patient was an unmarried woman of thirty-seven, who had been ill for eighteen months with marked cyanosis, debility, and constipation. Early in the attack a diagnosis of thoracic aneurysm had been made and a hopeless

*Read before the Passaic County Medical Society, Paterson, N. J., Feb. 9, 1909.

prognosis given. She had not died, however, and in the fall of 1906 was sent to St. Bartholomew's Hospital and put under the care of Dr. Samuel West. The examination showed a woman extremely cyanosed, but with heart and lungs normal, pulse and respiration quiet. The blood count showed 4,800,000 red cells, 3,800 leucocytes, and 90 per cent. hemoglobin. Though the taking of drugs was absolutely excluded Dr. West had a spectroscopic examination of the patient's blood made by the professor of physiology, who reported that methemoglobin was demonstrated. The entire visiting staff of the hospital was consulted, but no satisfactory explanation of the patient's striking condition could be offered. At this point Dr. Garrod was appealed to to undertake some chemical investigations, but as he could not give it the time, he kindly offered me the opportunity.

A search of the library of the Royal College of Surgeons revealed a small literature on the subject, emanating mostly from Holland. The first case of idiopathic or enterogenous cyanosis due to methemoglobinemia was reported in 1902 by Stokvis,[3] of Rotterdam, and much investigation was done on this and seven subsequent cases. The patients had all suffered from chronic diarrhea, and had been markedly cyanosed. The methemoglobin was found by Talma[4] of Utrecht to occur in the corpuscles only, the serum being clear. It remained for Hijman van der Bergh[5] and Gutterink[6] of Rotterdam to prove the presence of nitrites in their patients' blood. As this chemical is a powerful methemoglobin-forming poison, they believed that the absorption of nitrites from the intestines was the cause of the disease. Gibson and Douglas[7] of Edinburgh, however, in one case reported by them under the title, "Microbic Cyanosis," believe the condition to be due to a blood infection by the colon bacillus.

Besides these eight cases of methemoglobinemia, four closely allied cases were reported by Van der Bergh. In these the cyanosis was the same as that in the other eight cases, but the patients differed in that they were constipated. In the first case of this series, the author thought that he was dealing with a case of methemoglobinemia until he noticed that the characteristic absorption band in the red part of the spectrum was slightly nearer the yellow than it should be. Extensive researches demonstrated that the spectrum was not that of methemoglobin, but corresponded in every way with that of sulph-hemoglobin, a purple pigment obtained by treating blood with sulphureted hydrogen. He therefore called his case one of sulph-hemoglobinemia. The two spectra are very similar, but can be distinguished instantly by treating the blood with ammonia or ammonium sulphide, which causes the methemoglobin band to vanish, while that of sulph-hemoglobin is not affected. A further distinction between the two diseases lies in the fact that if a methemoglobinemia patient is put on a pure milk diet the cyanosis clears up in forty-eight hours, and the methemoglobin disappears completely from the blood, the whole symptom complex, however, reappearing within four hours after a full meal. This temporary improvement does not occur with sulph-hemoglobinemia.

In beginning our work on this case we at first familiarized ourselves thoroughly with the spectra of the various blood pigments, especially those of methemoglobin and sulph-hemoglobin made from ox blood. During these preliminary experiments it was found that if sulph-hemoglobin were treated with carbon monoxide, a new compound with a new spectrum was formed which it seemed well to call carboxy-sulph-hemoglobin. Methemoglobin was not affected by carbon monoxide. This observation supplied us not only with a new confirmatory test for illuminating-gas poisoning, but also with a new method for differentiating between the two pigments. An examination of the patient's blood on two occasions showed the absorption band to be in the position of the sulph-hemoglobin band, to be stable when treated with ammonium sulphide, and to act characteristically with carbon monoxide. We therefore decided that we were dealing with Van der Bergh's disease, sulph-hemoglobinemia and not with methemoglobinemia.

This being determined, we directed our attention to the source of the sulphureted hydrogen. A very delicate test for H_2S tried on the patient's blood was negative. The stools, fermented for twenty-four hours, showed but a bare trace of the gas; while on bacteriological examination they showed no increase in the H_2S forming organisms. The

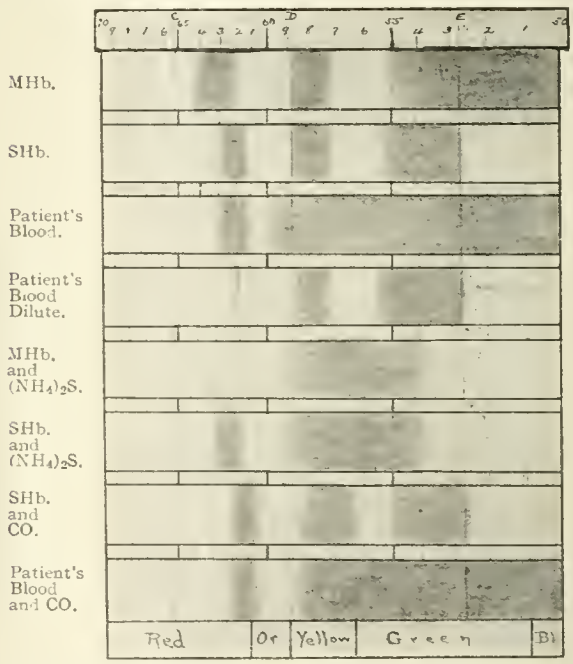

Chart of the absorption spectra mentioned in this article. (From West & Clarke, Medico Chirurgical Transactions, London, Vol 90.)

urine was in every way normal, and showed no increased intestinal putrefaction. A blood culture was sterile. In short, we were quite unable to find any source for the H_2S which had caused such a marked change in the patient's blood.[8] Our later researches into the chemistry of sulph-hemoglobin, however, showed that this compound could be formed by an extremely minute trace of H_2S, acting in the presence of a reducing agent,[9] and it was mentioned as a possibility that the occurrence of sulph-hemoglobin in the blood of the patient was due not to an excessive formation of H_2S in the intestines, but to the absorption of an abnormal poison of the nature of a reducing agent, which, acting in the presence of a minute trace of H_2S, produced the pigment in question. This is purely a theory, and is based on no physiological observations.

The technique of a clinical spectroscopic blood examination consists in the following steps: The blood is obtained, preferably directly from the vein, several cubic centimeters being drawn off. If this is not possible a fairly thorough examination can be

made with a few drops from the ear or finger. The blood must be drawn directly into about twice its volume of distilled water. This lakes the blood and gives a watery solution of the blood pigment. The solution is then filtered several times through one filter paper to remove the corpuscles and fibrin. A few drops of the clear solution are placed in a test tube, or preferably a glass dish or bottle with parallel sides, and examined with the spectroscope by transmitted light. To the specimen distilled water is added drop by drop until the dilution is obtained which allows a good transmission of the red light only. If a black band is seen in the red, the blood contains either methemoglobin or sulph-hemoglobin. If the band persists on the addition of a few drops of ammonium sulphide, the pigment is sulph-hemoglobin; if it vanishes it is methemoglobin. The addition of a reducing agent, as hydrazene or phenylhydrazene, may intensify a sulph-hemoglobin band too faint to be seen otherwise.

To summarize: A case of cyanosis without lesion of the heart or lungs may be due to some change in the blood. This may be an abnormally high red cell content, or polycythemia, in which case it is probably associated with an enlarged spleen and chronic constipation. It may be due to a change in the blood pigment itself. If the abnormal pigment is methemoglobin, the condition may be due to drug poisoning, or autointoxication by the absorbtion of nitrites from the intestines in cases of chronic diarrhea. If the pigment is sulph-hemoglobin, it is probably associated with chronic constipation, and is the result of the hyperformation or hyperabsorption of H_2S, or of the presence in the blood of an abnormal reducing agent acting with a small trace of H_2S. The methemoglobin cases improve as the enteritis is cured, and the sulph-hemoglobin cases recover if the bowels are kept well open.

It may appear at first sight to be a waste of time to discuss classes of cases which must as yet be considered as medical curiosities. It must be remembered, however, that whereas six years ago polycythemia was so considered, now that attention has been drawn to it, it has become a well-recognized disease, appearing more and more frequently in literature. It seems probable, too, that these two diseases, idiopathic methemoglobinemia and sulph-hemoglobinemia, are not quite so rare as they now appear. Within a week after the publication of the article in the *Lancet*, I was invited to see a case at the West London Hospital which had puzzled the staffs of various hospitals for six years. This was easily shown to be another case of sulph-hemoglobinemia, and was reported as such by Dr. A. E. Russell before the Pathological Society of London.[10] Furthermore, since returning to America, three physicians who had received reprints of our article have told me that they have had under their care cases which clinically belonged to one or other of these types, but that lack of familiarity with the technique of spectroscopic blood examination had prevented a definite diagnosis. This paper is therefore presented in the hope that wider publicity will lead to a more general recognition of the conditions and to further study of their etiology and treatment.

Since writing the above my attention has been attracted by an article by Dr. Emil G. Beck[11] of Chicago to the subject of poisoning by bismuth subnitrate. Since the increased use of this drug in large quantities for *x*-ray diagnosis and in tuberculous cavities, there have been reported a number of instances of severe and even fatal intoxications, a characteristic symptom of which has been cyanosis with methemoglobinemia. It has been shown that bismuth subnitrate even in distilled water will give a test for the free nitrate ion, and it is known that certain of the intestinal flora will change nitrates into nitrites. It is probably the nitrite formed in some such manner from the bismuth compound which is absorbed and has the toxic effect on the blood in these cases. A review of the literature of the idiopathic methemoglobinemia cases fails to reveal any mention in the histories of the administration of bismuth subnitrate. As, however, in each case there was a history of dysentery or long standing diarrhea, it is reasonable to suppose that these patients had been receiving the medicament most commonly given for such conditions, and it is quite within the range of possibility that the so-called enterogenous or idiopathic methemoglobinemias were in fact cases of chronic bismuth subnitrate poisoning, possibly resulting from a diseased condition of the intestines or some idiosyncrasy on the part of the patient against the drug. In future cases of this obscure disease the question of the prolonged use of bismuth subnitrate should be given careful consideration in diagnosis and therapeutics.

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SECONDARY CARCINOMA OF THE LUNG.

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"It is well known that the lung is the frequent seat of the secondary manifestations of this disease (cancer), that it is generally more or less distinctly implicated by the far from uncommon mediastinal tumors, and that it is occasionally also attacked primarily by cancer; it is well known, too, that its cancerous formations may present all varieties between the densest scirrhus and the softest encephaloid, that they may form tumors from the size of the lung itself, down to the smallest miliary granulations, that they may degenerate in various degrees and ways, and simulate tuberculosis and inflammatory deposits, both in the formation of vomicae, and in other important features." These remarks were made in 1860 by Bristowe on the occasion of the presentation of several specimens before the London Pathological Society.

Primary cancer of the lung is a comparatively rare disease, and the diagnosis of the condition presents almost insuperable difficulties. Only rarely is the diagnosis made during life when, as was reported by Demarest, a piece of tissue was expectorated which, on microscopical examination, proved to be a squamous celled carcinoma. The most complete analysis of primary cancer of the lung which I have been

able to find is that made by Pässler in 1896. He collected 70 cases reported up to that time and added 4 personal observations. Since then about 75 more have been reported. In none of his cases was the condition recognized during life. Among 8,716 autopsies in Dresden, there were 545 cases of carcinoma. Five of these were primary and 74 secondary cancers of the lung. He went over the records of 9,246 bodies in the pathological department at Breslau and found four sarcomas and 16 primary carcinomas of the lung. He does not state how many malignant tumors were among the material analyzed.—My case is as follows:

On Sept. 26, 1907, Mrs. A. L. S., aged 51 years, was referred to me on account of a persistent cough. She stated that her sister had died of diabetes and rodent ulcer at the age of 62 years. Otherwise the family history was negative.

At the age of 14 years she had a severe attack of bronchopneumonia which left her lungs susceptible to attacks of acute bronchitis. Of these she had had several. She has had four living children, the youngest of whom is now 14 years old. Following miscarriage, 17 years ago, she had an attack of nervous prostration which lasted almost a year, and left her nervous and easily excited. About the latter part of 1904, a surgeon removed, with an elliptical incision, a small nodule from the right breast, which was diagnosed microscopically an adenofibroma. Within a few months another nodule appeared in the right breast, and on May 15th, 1905, the right breast was removed *in toto*, together with some of the pectoral fascia, and a portion of the pectoral muscles. The axillary glands were also removed. No large area of skin was removed. On microscopical examination the tumor was found to be scirrhus carcinoma. The wound healed rapidly, leaving a clean scar in which there has always been a sore spot. About 18 months ago the uterus was curetted. At times she had attacks that resembled asthma and she occasionally waked up at night with sinking spells. She has been attending to a home as housekeeper, and has had many worries.

She dated her present illness from January, 1907, when she had sore throat, fever, and dry cough, which latter became loose and she raised much sputum. Since then she had been troubled with a dry cough which was worse during the day, was much increased when she became excited, and was worse as a rule after meals. Occasionally she was so nervous that she could not keep still. She had had frequent attacks of hoarseness, which might come on while she was talking, but soon passed away. She had also had fluttering of the heart. During the past summer she had had occasional chilly spells followed, she thinks, by fever. She thought she now had some fever at night and she felt tired and good-for-nothing. Appetite and digestion had been good. She had lost some weight. For some time, whenever she was worried or excited, the right foot felt numb. During the past summer she had had now and again attacks of sudden blindness, "like moving pictures," before her eyes. She said that she was highly nervous, she was subject to fits of depression and had considerable insomnia. Her eyes had been examined and were said to be normal except for hypermetropia, which was corrected by glasses.

The patient had an anxious expression. Her talk was constantly interrupted by a slight dry cough. Her appearance was highly neurotic. Now and then she would lose her voice. The pupils were normal, mucous membranes good color, tongue slightly coated and moist. Her temperature was 99.2 F., pulse 100, good volume and tension, respiration 26 to the minute, jerky in character. No glands were palpable in the neck, groin, or right axilla. There was one gland about the size of a small marble in the left axilla. Running across the right chest from the second costal cartilage to the axilla was a scar curved with the convexity downwards. The scar was smooth and free from nodules. None were felt around the skin. The whole mammary gland had been removed. The chest was slightly rounded, seemed to expand equally. There was slight impairment of the note beneath the right clavicle, but posteriorly the note was hyperresonant. The left side seemed clear except for occasional scattered sibilant râles. The whole right back was hyperresonant on percussion. At the apex posteriorly the breath sounds were scarcely audible, but on deep inspiration a few piping and sibilant râles were heard. Over the right upper front the breath sounds were prolonged and along with the sibilant râles were also a few crepitant râles.

The heart was normal in position and in the quality of its sounds except for the possible slight accentuation of the pulmonic second sound. The abdomen was soft, and no masses were felt. The abdominal organs were not palpable. There was slight tenderness in the right iliac fossa. All the reflexes were markedly exaggerated. The larynx was examined with the laryngoscope. Except for slight redness of the vocal cords, there was nothing abnormal seen. Examination of the urine was negative. A stained blood specimen appeared normal. The cutaneous tuberculin reaction (25 per cent.) was absolutely negative.

Two subsequent examinations showed no further features of interest. The patient then went to Arizona and was not seen until May, 1908, at which time she entered hospital. About February she noticed weakness of the left fingers with itching and tingling of the hand. The left foot soon became weak. This gradually increased until she dragged her foot. There was headache on the right side of the head. Her cough had been persistent. She had had paroxysms during which she gagged and felt as if she could not get her breath. There had been no spitting of blood; the sputum was always scanty and glairy.

Examination of the chest revealed signs of asthma, that is, hyperresonance, harsh respiration and piping râles. The heart was hypertrophied, beating powerfully, and the superficial arteries were palpable. The urine contained a trace of albumen; no casts were found. The left arm was atrophied and partially paralyzed, especially below the elbow. There was weakness of the left leg with flabby calf muscles. The reflexes in both arm and leg were markedly exaggerated. Her mental condition was obtuse; she was forgetful and melancholic. From that time to her death on August 13th, she suffered with distressing attacks of dyspnea. There was a little fever towards the last month, the pulse was always 96 to 108, full and of increased tension. The dyspneic attacks came on irregularly, at times four to eight during the twenty-four hours. Any effort to talk would bring on a coughing spell during which there was asthmatic dyspnea, followed by the expectoration of a slight mucoid sputum. These attacks were exhausting. Numerous examinations for tubercle bacilli were made, but none were found. There was no vocal cord paralysis. About one week before death she complained of pain in the

right side. A dry pleurisy was discovered at the right back. Over the front in the third and fourth interspaces there was very harsh bronchial breathing, and the percussion note was almost tympanitic. Elsewhere no definite signs could be made out. The patient kept her weight fairly well up to several days before her death, when she rapidly lost flesh and strength, the pulse became weak and rapid. She died on August 13th.

An autopsy was done by me at an undertaker's office about four hours after death. Unfortunately, a lack of instruments with which to open the cranium prevented an examination of the brain.

The pathological diagnosis was carcinoma of both lungs and of the right lobe of the liver, chronic passive congestion of the liver, and cloudy swelling of the kidneys. There was no fluid in the peritoneum, in the pleural cavity, or in the pericardial cavity. There were no adhesions on the surface of the left lung, but a few on the pleural and diaphragmatic surfaces of the right lung were fairly firm, but peeled off readily. The lungs were studded throughout with whitish nodules, firm in consistency, varying in size from a bird shot to 5-6 cm. in diameter. From the cut surface of the largest of these a milky fluid could be scraped. The lung was emphysematous along the margins. The inter-lobar fissures were obliterated. The liver was enlarged and firm, and scattered over the right lobe were a number of dense, white nodules, the largest being 4 cm. in diameter. There were none in the left lobe or in the interior of the liver. The lobus Spigelii was almost replaced by a cancer mass. There were no nodules elsewhere. The mediastinal glands were not involved, but the glands at the root of the lung showed metastases. Sections were studied from the lungs and liver; these showed masses of large round cells with oval or round nuclei, and in the lung there was much degeneration of the cancer nodules. In places there was an enormous increase in the fibrinous tissue looking not unlike a scirrhus carcinoma of the breast. This might be interpreted as a process of healing. Where the tumor was rapidly growing, the alveoli of the lungs were full of the tumor cells, there was some congestion in the other parts of the lung, but no area of pneumonia.

Secondary carcinoma of the lung is not an infrequent condition. Judging from the articles in many text-books, the impression is certainly conveyed that it is relatively uncommon. The fact is that it occurs in about one-third of the cases of cancer of the breast, in which the patients die actually of cancer. In the Middlesex Hospital, including the year 1907, there have been 516 post-mortems on cancer of the breast. The lungs were the seat of metastatic deposits in 178 cases. Naturally these figures do not represent the incidence of lung cancer following operations on breast cancers, but they show in how large a proportion of cases the lungs are involved. No other organ is so prone to be the seat of metastatic deposits. I have been unable to obtain any figures showing the frequency of carcinoma of the lung after removal of the primary breast tumor.

It has always been maintained that carcinoma spreads along the lymph channels, while sarcoma produces its metastases by way of the blood stream. Although this may be true in general, there can be no doubt that not infrequently cancer cells are swept by the blood stream to parts remote from the primary growth. This question of the spread of cancer has been most interestingly discussed by Handley.*

*Arch. Middlesex Hosp., 3d Rpt. Cancer Research Lab., Vol. III., 1904.

He speaks of the centrifugal spread of mammary carcinoma. His contention is, that the cancer cells, instead of being swept along by the lymph actually grow along the lymph channels in radii of a circle having the tumor as a center. These lymph channels are to be found in the tissue covering the muscles, the deep fasciæ. It is only here and there that a nodule, for some reason yet unexplained, grows towards the skin. If, therefore, cancer spreads in such manner, it is not sufficient to dissect out the axilla, but one must also remove the deep fascia within the circle having the distance of the center of the growth to the farthest axillary dissection as a radius. This would include tissue on the opposite side of the sternum as well as that over the upper part of the abdomen.

"Though the area of disease extend from cranium to knee, breast cancer in the broad sense is a local affection, and there comes to the surgeon an encouragement to greater endeavor with the cognition that the metastases to bone, to pleura, to liver, are probably parts of the whole, and that the involvements are almost invariably by process of lymphatic permeation and not embolic by way of the blood. Extension, the most rapid taking place beneath the skin along the facial planes, we must remove not only a very large amount of skin and a much larger area of subcutaneous fat and fascia, but also strip the sheaths from the upper part of the rectus, the serratus magnus, the subscapularis, and at times from parts of the latissimus dorsi and the teres major. Both pectoral muscles are, of course, removed."*

Handley maintains that it is not essential to remove a wide skin area. He gives some suggestive statistics from the operating results of Cheyne and Halsted, the former removing widely the fascia, the latter removing the fascia only beneath an enormous skin dissection. Cheyne's after results seem better than Halsted's.

In a recent study of primary operation for breast cancers, reported in the *Annals of Surgery*, July, 1907, there are some interesting statistics, a few of which will here be given. Halsted traced 210 cases, of which there were 89 cured cases, *i.e.* they were alive and well three years after operation. Sixty cases were dead of internal metastases although it is not stated what organs were involved. The following table of these cases is instructive: Glands of neck and axilla negative, 5 cases; glands of the axilla positive, neck negative, 39 cases; glands of the axilla positive, neck positive, 16 cases.

This seems to show that when the glands of the axilla are involved, metastases to the internal organs take place more frequently than when both glands of the axilla and neck are involved. This is not explained by Halsted, and it is impossible to gather from his statistics any satisfactory explanation.

Greenough, Simmons, and Barney traced 376 cases out of 410 primary operations performed at the Massachusetts General Hospital. In 126 cases there was local recurrence in the scar, in 136 cases there was no recurrence. Some of their cases were operated on in the period before the removal of both pectoral muscles. They do not believe that it is necessary to dissect away the pectoralis minor. They state that metastasis to the lung was found occasionally, but they do not say in what proportion of cases. They do say, however, that the medullary breast cancer is the most malignant. The scirrhus is only slightly less so, while the adenocarcinoma is the least malignant of the three.

*W. S. Halsted, Annals of Surgery, 1907. Vol XLVI.

In my patient there were probably metastases to the brain. They could scarcely have been in the spinal cord without causing much pain and disturbance of sensation. Peabody reported a case which had pains and aches all over the body. There was no paralysis until one week before death when partial ptosis of the left eyelid, partial paralysis of the muscles of the right side of the face, weakness of the right palate muscles, and partial deafness in the right ear were discovered. There was no paralysis in the limbs or disturbance of sensation. The patient had had a cancer of the breast, which was removed four years before. At autopsy a nodule was found in the apex of the lower lobe of the left lung and in this nodule were seen several blood-vessels occluded with cancer tissue. There were no nodules in the liver but they were found in the kidneys and suprarenal bodies. There was a swelling in the cauda equina which on microscopical examination revealed cancer. Only on microscopical examination was cancer tissue found in the pia mater and in several peripheral nerves.

Effusion into the pleura that is bloody is found in only about 12 per cent. of the cases. This sort of fluid is not infrequent in tuberculosis of the pleura and in chronic nephritis. Only rarely are pieces of tissue coughed up, although there is frequently softening of the centers of the masses with actual cavity formation. A prune juice expectoration is said to be suggestive, but it occurs seldom. Emaciation is, strange to say, not marked. Persons, who at autopsy are found to have large lung cancer, do not show the cachexia so characteristic of malignant disease. The only symptoms always present are the intense dyspnea and paroxysms of cough which are out of proportion to the extent of the lesion. The air hunger reminds one of aneurysm, mediastinal tumor compressing the trachea, or of some tumor occluding the right or left bronchus. There is no pain. It seems strange that in such a massive tumor, secondary to a breast tumor, there should have been no pleural metastasis, no mediastinal metastasis, and and only surface metastasis in the right lobe of the liver. The last is remarkable in view of the fact that tumor cells were found in what was most likely a branch of the portal vein.

Judging from the cases of primary lung cancer reported, it seems quite impossible to differentiate this condition from pulmonary tuberculosis. It would likewise be difficult to diagnose secondary cancer were it not for the history of the case, for aside from the intense paroxysms of dyspnea there are no signs that enable one to say that cancer is present. Cavities may occur in cancer; bloody fluid may occur in tuberculosis. The examination of the pleural fluid is notoriously uncertain when there is question of the cancerous or noncancerous origin of a cell found in the exudate. Hemoptysis also may occur in cancer of the lung and complicate the picture. An interesting feature in this tumor is the apparent tendency to heal. This may be seen both macroscopically and microscopically.

Zinn remarked on this condition when reporting a case of chorion epithelioma which had metastasized widely through the lungs; his patient had had cyanosis, dyspnea, fever and numerous crepitant râles throughout the lungs, so that the diagnosis of acute miliary tuberculosis was made. In a review of the literature he collected 230 cases in 95 (41 per cent.) of which there were metastases to the lungs.

Cancer of the breast is generally considered cured when, after a period of three years, no metastasis has taken place. Some have lengthened this period to five or seven years. Yet when secondary cancer occurs in the mediastinum with nodules as well over the head and trunk ten years after removal of the breast for cancer, as in a case reported by McKendrick, it almost makes one hesitate to say that cancer is ever cured.

Ochsner, after reviewing the results of 98 cases, from which he had heard, says: "The review of this series of cases, although incomplete, seems to show that if the very complete operation which is now generally practised is employed in these cases reasonably early there is much reason for expecting a fair per cent. of permanent cures."

Halsted remarks that it may then be advisable in involvement of the humerus to amputate at the shoulder joint and remove much of the soft parts, and, in involvement of the trochanter of the femur, to amputate at the hip.

In summarizing the interesting features of this case, the points to be noted particularly are, in the first place, no recurrence in the scar of operation or in the tissue beneath the skin. And, although there was widespread metastasis to both lungs, there were no superficial glands enlarged except the one in the left axilla, and there were no nodules on the pleura. Moreover, the mediastinal glands were not implicated in the growth. From the standpoint of diagnosis, it would seem that the most characteristic symptom in these cases is the intense dyspnea, which comes on in paroxysms and is out of all proportion to the physical signs. Scanty sputum is also rather characteristic and occurred in this case.

Another interesting feature that it seems well to emphasize is the retention of the patient's flesh and weight, almost until the end. There was very little emaciation, quite in contrast to what one usually sees in those dying of cancer. From the objective standpoint, the failure to find in the thorax any tumor masses, the freedom of the larynx and trachea from stenosis, and the discovery of signs in the lungs pointing to emphysema and chronic bronchitis, would arouse suspicion of tumor in the lung.

110 East Gaston Street.

PERCUSSION OF THE LUNGS.

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Recognition of the value of symmetrical percussion of the lungs has led to its employment to the almost complete exclusion of other useful methods. In the customary directions for percussing the chest walls, great emphasis is laid upon the necessity for striking, with equal force and immediate withdrawal of the percussing finger, over corresponding points upon the two sides of the chest, in order to elicit differences of note dependent upon changes in the underlying lungs and pleuræ. Some authors go more into detail and recommend comparison of symmetrical points on the two sides down to the third rib anteriorly and percussion from above downward from this level on each side separately, on account of the asymmetry of the thoracic viscera.

So nearly universal has the acceptance of symmetrical comparative percussion of the lungs become, and so much has it been emphasized to the exclusion of other methods that only ten writers among all the authors whose works on physical diagnosis, practice of medicine, and diseases of the

lungs, published since 1896 and found on the shelves of the New York Academy of Medicine, even hint at the advisability of any other technique. Even these few writers often merely indicate the use of other methods without explanation. For instance, Sahli,[1] A. M. Corwin,[2] and G. H. Roger,[3] simply advise percussion of each chest separately from above downward as well as comparison of homologous points in the same order. Butler[4] particularly emphasizes the comparison of symmetrical points, and merely adds that subsequently any areas of dullness or hyperresonance which have been found on the front of the thorax may be more carefully mapped out. In "Interne Medicin und Kinderkrankheiten"[5] it is stated that if the note differs on the two sides, one may compare the newly heard tone with that of a selected adjacent space if the note over the latter is normal, and bearing in mind the normal regional variations.

With unilateral pulmonary lesions, comparative percussion of symmetrical points is of unquestionable value. In cases of bilateral lesions, however, such as a slight consolidation of the apices so equal in degree and extent as to yield the same note on the two sides, this lack of difference in tone may lead an observer to overlook the lesions entirely. So also in a case with distinct signs of consolidation at one apex and simple impairment of resonance at the other, the latter may be completely overshadowed by the intensity of the dullness with which it is contrasted. Symmetrical dullness at the bases of the lungs posteriorly is also not infrequently overlooked. This is recognized by F. J. Smith,[6] who speaks of the "importance of comparing the two sides of the chest for detecting mischief on one side only," and by O. Vierordt,[7] who says: "If comparison with the other side is impossible, as when both sides are diseased, one should compare with adjacent areas on the same side, bearing in mind the normal regional differences of intensity of tone." The same idea is suggested by P. Guttmann,[8] who states that if one "finds an equal, very slightly weakened note in each half of the chest, for example, above each clavicle, a determination whether this is to be considered normal or dull is difficult and at times impossible."

The frequency with which symmetrical lesions or those in the less involved lung and areas of impaired resonance adjoining actual dulness are overlooked by students has convinced me that two additional methods must nearly always be employed. After percussing the chest in the usual way, comparing homologous areas, it is fully as important to percuss each side independently in order to eliminate the chance of overlooking symmetrical variations. A still more important point is that the lung should be percussed not only from above downward, but also from below upward. The reason for this is that, with the majority of observers, the ear apparently recognizes the changes in resonance more quickly and surely in passing from a resonant to a dull note, than in the opposite order. If the percussion is not performed in this way, the tendency is to overlook an intermediate area of impaired resonance, between the normal and the dull areas, and thus to underestimate the extent of the abnormal area. Musser[9] recognizes the difficulty, but suggests no remedy. He says: "Absolute dulness is readily elicited, and all observers will usually obtain the same area of cardiac dullness. Relative dullness however, depends so much upon the method of percussion, whether light or strong, and upon the examiner's ear, that its extent will be determined differently by each observer, the personal equation being a disturbing factor." By percussing from the normal toward the less resonant area, the personal equation is partially eliminated by rendering the differentiation less difficult.

The principle of percussing toward the less resonant area holds good in percussion of the areas of cardiac, hepatic, and splenic dulness and of that due to such intrathoracic lesions as aortic aneurysm, and its application is of even greater importance in these cases, since the size of the heart, for example, is of more significance than that of an area of pulmonary consolidation. This is usually recognized, most writers advising percussion along a line running at right angles to the border of the organ to be outlined until a change of note is perceived.

The best rule of procedure in cases with complicated bilateral lesions is to percuss the chest until some portion is found which gives what may be considered a standard pulmonary resonance for the individual case, and then to percuss from this point upward and downward toward the doubtful areas. Only two works express this idea in any way, those of P. Spillman, P. Haushalter, and L. Spillman,[10] and F. O. Mayet,[11] who advise percussing always from healthy toward diseased areas.

Summary.—1. There is no fixed note corresponding with the term pulmonary resonance; but each individual chest has its own standard tone which should be determined before drawing conclusions as to the existence of pathological conditions.

2. In comparing two tones, the ear more readily recognizes a change from normal pulmonary to impaired resonance than a corresponding increase of resonance from impaired to pulmonary.

3. In simply comparing the notes over symmetrical points on the two sides of the chest, an observer may easily overlook symmetrical impairment of resonance or slight impairment on one side as contrasted with more marked dulness on the other.

4. It is, therefore, important also to percuss each lung independently, especially in cases in which one lung is obviously abnormal.

5. It is of particular value, in order to determine the limits of a pulmonary lesion, to find some portion of the lung over which the tone may be considered the standard pulmonary resonance for the individual chest, and then to percuss the chest both upward and downward from the site of such a normal resonance, so as to approach the dull areas from the normal, whether the former are at the apices or at the bases.

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MEDICAL RECORD.

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THE FOMITES THEORY OF DISEASE TRANSMISSION.

LESS than ten years ago it was universally held that the most common mode of the spread of yellow fever, at least of its importation into a country separated by water from an infected region, was by means of fomites—the cargoes of ships and the baggage of returning travelers. Many, indeed, were the trunkfuls of finery ruined by disinfection on the arrival of their fair owners at New Orleans or New York from some fever-infected Mexican or Central American or Cuban port—unnecessarily ruined, as we now know since the overthrow of this theory by Major Reed's convincing experiment in the little hut at Marianao. But the popular and professional belief in the infection-carrying power of inanimate objects is too firmly rooted to be shaken by disproof in the case of a single disease, and the stories of diphtheria and scarlet fever carried half way across the continent in the fur of woolly lambs and in other toys are too numerous and apparently too circumstantial to permit of denial. It gives one, therefore, something like a shock to be told by an official, upon whom rests the responsibility of safeguarding the city of New York, and in a measure the entire country, from epidemic disease, that the belief in fomites as a carrier of infection is a baseless superstition, that there are no infected cargoes, that dirty Egyptian rags may be handled with impunity, that filthy lucre is only a figure of speech and the greasy dollar can bring but contentment of mind and never disease to the happy recipient, and that infection is a purely personal matter, unrelated to clothes or books or toys or money or any article of commerce. This is not literally what Dr. Doty, the health officer of the port of New York, says in an article on the means by which infectious diseases are transmitted, in the *American Journal of the Medical Sciences* for July, but it is in substance the impression that his article conveys, and evidently that which he wishes it to convey.

While many, if not yet all, are willing to concede that the infected mosquito is the only agent in the transmission of yellow fever and of malaria, and that we can ignore fomites in the case of these diseases, it is still claimed, Doty says, that "clothing, rags, etc., constitute an active agent in the transmission of smallpox, typhus fever, measles, and scarlet fever, although there is an abundance of reliable evidence to show that this is not true." In support of his contention he recalls an experience in the autumn of 1892 when there were simultaneous outbreaks of smallpox and typhus fever in this city. At this time there were about eighty persons connected with the Bureau of Infectious Diseases of the Health Department, all of whom were brought into intimate relation with the subjects of those two diseases, some fifteen hundred all told. Although these officials went freely to and from their homes, taking no precautions in the way of wearing gowns or changing their clothing, not one of their friends or members of their families suffered from either disease. In the case of smallpox, we can hardly regard this as a convincing experiment, since it may be assumed that the families of health officials would be protected by vaccination; typhus fever also is a crowd disease, the aggregation of many individuals in badly ventilated apartments being an essential to its spread, and open air being inimical to it, as was demonstrated sixty years ago by Alonzo Clark in his shacks in the Bellevue Hospital grounds.

Doty's testimony in the case of rags is, however, more striking. His researches have failed to bring to light any cases of infectious disease in paper warehouses among the sorters of domestic or foreign rags, occurring as a result of their occupation. He also personally investigated the subject in Egypt in the rag depots at Alexandria, and says that the carefully prepared statistics of the English sanitary authorities there afforded not the shadow of evidence that the persons in contact with these rags in the sorting rooms were more prone to infectious disease than those in other pursuits. The handlers of our nasty paper money in banks and at the Treasury Department in Washington are also, he claims, no more subject to infectious disease than others who come in daily contact with much less of this stuff. In connection with this, he quotes the statement of Hilditch, of the Sheffield Bacteriological Laboratory at Yale, who says that "the bacteria present in paper money are nonvirulent, and that the forms most present are the air forms," and reaches the reassuring conclusion that "money constitutes an unimportant factor in the transmission of disease."

The practical conclusion which Doty formulates as a result of his researches and observations is that infectious diseases are usually transmitted directly from the sick to the well or by apparently healthy bacilli-carriers, or by insects. He admits, of course, the transmission of infection by the discharges from the sick, as in the case of typhoid fever and cholera, and he does not deny the possibility of infection by clothing and bedding recently in contact with the sick. But he contends that the fomites theory of the epidemic spread of disease is inconsistent with the modern theories of disease transmission, and that the control of epidemics of infectious disease consists in the detection of the sick and their prompt and thorough isolation. Applying this principle to quarantine, he would not, as a rule, submit the cargo of vessels or the clothing of well persons who have been exposed to the sick, or who have come from infected regions, to the expensive and annoying process of disinfection.

The writer's long experience as a sanitary official gives weight to his opinions so far as quarantine regulations are concerned, and one may safely accept his conclusions as regards the clothing of those who have been several days or weeks at sea since exposure to infection, but we are not ready to admit the application of his conclusions to city quarantine. He thinks it a hardship, which it undoubtedly is, and unnecessary, which is not yet proven, to detain at home those who have been exposed to infection or in whose home some infectious disease exists. The necessity for such detention, based of course on the belief that the clothing of the well may carry infection, depends largely upon the disease in question. If the disease is smallpox, there is no obligation for quarantine. The protective power of vaccination is absolute, it has been preached for practically a century, the proof of it is known to all, and those who deny it are sinners against the light. It is manifestly unjust to imprison innocent persons in order to protect those who refuse to protect themselves. In the case of scarlet fever and certain other diseases, the contagion of which is unknown and against which there is no certain means of protection except isolation, the question is different. That the contagion may reside in fomites, for a time at least, is not yet disproven, and how long infected clothing may retain its power of transmitting the disease to others is not yet determined. A physician who went directly from a scarlet fever patient to a case of confinement would be justly blamed if the parturient woman died of puerperal fever. It may be that there is no relation between the two diseases, and it may be that disease cannot in any case be conveyed through the medium of clothing or fomites. The contrary is, however, the general belief, and until it is disproved, as it has been disproved in the case of yellow fever, a member of a household where scarlet fever prevails is not a desirable person in a schoolroom. There is nothing more interesting and more indicative of progress than iconoclasm, but conservatism has its uses, and until the old theory is definitely demolished action on the new one should be very slow.

HEROES OF DEFEAT.

There used to be a pretty phrase much in favor with semi-occasional orators of the Fourth-of-July variety, to the effect that "Great are the victories of war, but greater still are the victories of peace." This bit of fine sentiment never failed to call forth a burst of applause; and, although it is now trite and rather infrequently finds its way into print, it still holds a certain ring not displeasing to the ear that does not quickly tire of good thoughts well groomed. However it may be with the victories, certain it is that the defeats of war are quite prone to outlive for many generations all remembrance of the defeats of peace. It must ever be that the positive element, the *fait accompli*, shall receive acclaim, while the negative effort, however noble, shall soon be forgotten. These abstractions come to us upon hearing that the efforts made by Major Ireland and his colleagues for the completion of the Carroll Fund have met with success. This is gratifying news, and we all have great reason to rejoice thereat. But let us suppose that Major Carroll's life had been sacrificed in vain. Let us suppose that through some blunder in technique, or other adventitious circumstance the transmission of yellow fever was still a mystery. How then would the daring pioneer, whose courageous initiative fills us with admiration, have fared at the hands of posterity?

To the unselfish devotee of science there is, of course, no thought of fame for fame's sake; but it does seem a pity that the work of so many of our ablest and most zealous investigators, whose lives of sacrifice have been spent so heroically, should so seldom hear or see any reward of their labor. Doubtless it is better to have striven and lost than never to have striven at all, yet can we always be quite sure that the particular kind of strife was quite worth while? In the case of Dr. Carroll and his associates, the experiments were successful and sufficient to prove the guilt of the mosquito as the transmitter of yellow fever; but one almost shudders to think that the outcome might have been quite otherwise because of some unprovable hypothesis or false reasoning that would have led only to defeat. Many are called to do great and helpful things for mankind, but few are really chosen to do them. The history of medical science, if written from the beginning and in full detail, would show the pathway of progress in etiological and therapeutical knowledge widely strewn with the corpses of theories and theorists long since fallen to decay and likewise forgotten. "Men live in deeds, not years;" and yet so few of their most strenuous and soul-trying efforts work out consummate good for the human race. The Jenners and the Harveys can be numbered on a very few digits, but hosts of men quite as worthy and zealous and indefatigable have tried their souls and wasted their flesh to little or no purpose in the cause of science and humanity.

No disparagement of honest endeavor need be read into this portrayal of things as they are. It simply represents a side of the matter which is seldom thought of and never dwelt upon, wisely, perhaps, and yet in the midst of our enthusiasms and celebrations of the points we are occasionally winning in the battle with disease, old age, and death, it can do no harm to remind ourselves that there are unmentioned heroes whose praises will never be sung, who have passed onward with the ever-moving caravan. Their work was trivial, perhaps, but it may have brought forth just the atom which some day will be found to satisfy the bond in the formula of some great therapeutic event, and then the hero of defeat becomes surely enough the hero of success. That should be the spirit in which every investigator, great and small, enters and leaves his laboratory in his fatiguing daily round.

Diphtheritic Septicemia.

It is the general belief among physicians that diphtheria, at least in so far as the distribution of the organism is concerned, is purely a local disease of

the mucous membranes, the constitutional symptoms being due to the absorption of toxins only. This is undoubtedly the case in the vast majority of instances, and it accounts for the curative results obtained from Behring's serum, which, being a true antitoxin, neutralizes the poison, but has little or no effect upon the life of the organism itself. That this localization is not always the case is evident, however, from the occasional instances in which the bacillus has been cultivated from the internal organs, a fact first pointed out by Loeffler in his original communication. In a few instances, also, the diphtheria bacillus has been isolated from the blood during life, usually in a mixed infection, and a few years ago Howard obtained a pure culture from vegetations on the valves of the heart. In the *Deutsche medizinische Wochenschrift* for June 24, Franze Hesse reports a case in which he obtained *B. diphtheriæ* in pure culture from the blood *in vivo*, and so was able to establish a puzzling diagnosis. A young man, previously healthy, a few days after recovery from a sore throat, so mild in character that he had not consulted a physician, was taken ill suddenly, with a fever of 104°, chills, and sweating. The throat was but slightly reddened, and on one tonsil there were a few pinhead-sized white patches. These promptly healed while the constitutional symptoms continued. The Widal reaction was negative. An injection of antistreptococcus serum was without effect. By blood culture, however, a pure strain of the diphtheria bacillus was obtained, and the diagnosis of diphtheritic septicemia was made. Two injections of 3000 units each of diphtheria antitoxin were without result. In the fifth week an endocarditis developed, and later a splenic tumor, probably due to an infarction, appeared. Pulmonary infarction, acute nephritis, and cerebral embolism caused the patient's death. This report is of especial interest, as showing that in even a mild case of pharyngeal diphtheria, the bacillus may enter the blood, and that when it does antitoxin appears to have little influence on it. Such a bacillemia may account for some of the severe cases of diphtheria which end fatally despite the early use of large quantities of antitoxin, and for those cases with profound constitutional symptoms accompanying mild local manifestations. It suggests the advisability of the more frequent making of blood cultures in cases of acute febrile attacks following mild anginas.

Desensitizing the Skin to the Roentgen and Radium Rays.

Owing to the sensitiveness of the skin to Roentgen and radium rays, and the liability to burns if they are applied for a prolonged time, the use of these two therapeutic agents has been confined chiefly to the treatment of superficial lesions. Various devices have been tried to facilitate the use of the rays for deep-seated tumors, usually with discouraging results. A new effort to overcome these difficulties, which for simplicity commends itself, is reported by Gottwald Schwarz in the *Münchener medizinische Wochenschrift* for June 15, 1909. Working on seeds he found that their sensitiveness to the *x*-ray was in direct proportion to their metabolic activity. If he exposed dry seeds to the *x*-ray even over long periods, they were not affected by it and developed into normal plants, whereas, if sprouting seeds were so treated, even for a short time, marked changes, as dwarfism and pigmentations, appeared in the resulting plants. This difference he considered to be due to the differences in metabolic activity, and drew the conclusion that if by any method the metabolism of the skin could be reduced during exposure to the *x*-rays, the effect on the skin might be diminished. The method he used to reduce the metabolism was pressure. He placed two capsules containing radium side by side on the skin, one lying loosely, the other held firmly by means of a rubber band. The difference between the resulting dermatitides was striking. Where the pressure was employed a slight blush appeared after some days, disappearing in three or four days, whereas, where there was no pressure a severe dermatitis occurred and lasted for more than a month. The same effect was produced by the *x*-ray, the rays being applied through thin blocks of wood. Where the blocks rested lightly on the skin the effects were severe and lasting; where they were submitted to pressure, slight and transient. The author concludes that the differences are due to the different metabolic activities of the free skin and of that under compression, and he believes that by pressure on the skin during radiation deep tissues may be treated without danger of superficial burns.

News of the Week.

Second International Opium Conference.—The State Department has requested all the countries which participated in the meeting of the International Opium Commission at Shanghai, China, last February to send delegates to a second conference, to be held at The Hague in the near future, at which means will be considered for the international control of the production, manufacture, and traffic in opium, with a view to the complete suppression of the use of opium except for medicinal purposes. Dr. Hamilton Wright, who was one of the American delagates to the conference at Shanghai, is preparing a programme to govern the discussion of the conference. It is hoped by the Department that the conference will also take up the question of the use of cocaine and other narcotics and habit-forming drugs. Dr. Wright is preparing legislation for submission to Congress which if enacted will place the manufacture and interstate traffic in habit-forming drugs under the supervision of the Bureau of Internal Revenue.

Child Life Exhibit.—Preparations are being made for an immense exhibit in New York City next winter, similar in scope and purpose to the recent Congestion of Population and Tuberculosis Exhibits, which will set forth the results of a widespread study of the influence of city life upon the development of children, which is to be undertaken before the exhibit opens. The mental, moral, and physical welfare of the city children will be thoroughly studied and demonstrated. The investigators will gather information about the health and education of the children, about influences of the home, the school, the churches and Sunday schools, the settlements, and the streets. Child labor will take an important place in the investigations, as will also recreation and amusement. They will also make a study of the printed matter that goes to the child. Infant mortality, the milk question, and underfeeding will be presented.

The Summer Care for Babies.—The Committee on Finance of the City Council of Chicago recently sanctioned the expenditure of $10,000 by the Department of Health for the care of infants during the summer. The city has been divided into districts, each having one or more doctors or nurses, and house to house visiting is to be carried on, the aim being to instruct mothers, and supply medical aid and actual nursing when absolutely necessary.

Low Death Rate in New York.—The lowest death rate ever recorded for the hot months in New York City was reported for the week ending July 10. It was 14.37 per thousand of population, as compared to 17.88 for the corresponding week last year. In the week in 1908 there were 1,516 deaths; this year the number dropped to 1,257. There were 303 deaths this year among infants under one year, as compared to 508 in the corresponding week last year. Seven persons died of sunstroke this year, as compared to 58 in 1908. There is also a marked decrease in infant mortality during the first six months of the present year, only 414 babies under one year of age dying of intestinal diseases during that period, while during the same period in 1908 there were 773.

Anthrax Epidemic in New York State.—A localized anthrax epidemic has appeared in Middletown, Orange County, New York. During the ten days ending July 16, forty cows, four horses, and one man died of the disease. The man died as a result of an act of bravado. Having been warned of the danger of contagion and instructed as to the necessary precautions, he placed an infected hide, which he had just skinned, around his neck. In two days the disease appeared, and the patient died in five days. The State Commissioner of Agriculture reports the epidemic to be well under control.

Pellagra in Nashville.—There are fourteen cases of pellagra among the children of the Baptist Orphanage of Nashville, Tenn. The State Board of Health has appealed to the Federal Government for an expert to aid in stamping out the epidemic.

Typhoid Fever and Malaria in Jacksonville.—The Half Million Club of Jacksonville, Florida, has issued a circular calling attention to the sanitary condition of the city. This quotes the United States Census Office mortality statistics as saying that Jacksonville ranks third "among the very large number of municipalities in which typhoid fever is continuously, or nearly continuously, prevalent with high mortality." The typhoid death rate is given as 155, per 100,000 of population. Jacksonville is also placed second in the list of highest death rates from malaria among the minor cities, with a rate of 78. In a list of total death rates the name of Jacksonville appears at the top with a rate of 28 per 1,000. The circular then states that "every resident should demand of the public authorities that every swamp, marsh, and creek of Greater Jacksonville be placed under one Health Board, and that long time bonds be issued for all sanitary improvements necessary to reduce the high local death rate to the average of civilized communities."

Russian Asylums Raided.—The St. Petersburg police recently raided five Johannite Orphanages and removed 140 children suffering from scurvy and various infectious diseases.

Coal-tar Antipyretics.—The United States Department of Agriculture has issued a bulletin prepared by Dr. L. F. Kebler, Chief of the Division of Drugs, on "The Harmful Effects of Acetanilid, Antipyrin, and Phenacetin." This gathers from medical literature, 1884 to 1907, 885 cases of poisoning by these drugs, 26 deaths, and 33 cases of habitual use. In reply to 925 letters sent to physicians asking their experience, 400 answers were received in which were recorded 814 cases of poisoning, 28 deaths, and 136 cases of habitual use.

Drinking Cups on Trains.—The State Board of Health of Kansas have had a controversy with the Board of Railroad Commissioners as to the use of the common drinking cup on trains. The Board of Health maintaining that it was a common source of contagion ordered its removal. The Board of Railroad Commissioners saying that its removal would be an impairment of the service refused to have the order carried out. The Attorney-General has recently decided the case in favor of the Board of Health.

The "Annals of Surgery" has published its July issue as a special American Surgical Association number. This makes a volume of nearly 350 pages, almost two and a half times the size of the regular issue, containing 26 articles presented at the meeting of the American Surgical Association, held at Philadelphia June 1 to 3 of this year.

Famous Typhoid Carrier.—The typhoid carrier who attracted so much attention in 1907 as the supposed cause of twenty cases of typhoid fever in seven families in which she worked as cook, and has since been confined in the Riverside Hospital, North Brothers Island, New York, recently appealed to the courts for release. In Justice Erlanger's decision refusing the petition, he said: "While the court deeply sympathizes with this unfortunate woman, it must protect the community against a recurrence of spreading the disease. Every opportunity should, however, be afforded her to establish, if she can, that she has been fully cured, and she may after further examination renew the application."

Carroll Fund.—The city of New Orleans has raised $1,800 for the Carroll Fund to pay for the house of Dr. Carroll's widow. The work of collecting was in the hands of a committee of the Orleans Parish Medical Society.

Medical Unity in Western Canada.—An effort is being made to obtain more unity in the medical requirements in Western Canada. A committee from the various provinces has been studying the situation and presented the result of their negotiations to the meeting of the British Columbia Medical Associaion at Seattle on July 22.

Catawba Sanatorium.—The new sanatorium of the State Department of Health of Virginia for the care of tuberculosis was opened on July 15. The institution is situated at the old Roanoke Red Sulphur Springs, in Roanoke County. Dr. Truman A. Parker of Richmond is in temporary charge, and will remain at Catawba until a permanent superintendent can be chosen.

New Floating Sanatorium.—The Brooklyn Bureau of Charities, a private institution, has placed in commission the old Erie ferryboat *Susquehanna* as a floating sanatorium for persons under treatment for tuberculosis. The boat is anchored in the Erie Basin. Miss Mary Harriman, daugh-

ter of E. H. Harriman, contributed part of the funds for fitting up the boat, the remainder having been raised by a sale of Red Cross stamps at Christmas time.

Sunnyside Association to Incorporate.—Application has been made to the Supreme Court of New York for the incorporation of the Sunnyside Association, the object being to establish and maintain a Summer home and to provide for Summer outings for children and mothers.

Babies' Dispensary for South Bend, Ind.—The Children's Dispensary Association of South Bend, Ind., has opened a new dispensary for the care of sick babies. Milk and medicines are distributed free to those who cannot afford to pay. Dr. C. E. Hansel is in charge.

New Building for Canadian Hospital.—Work has begun on the erection of new buildings in connection with the Western Hospital of Toronto, Canada, to cost in the neighborhood of $75,000. All the buildings will be absolutely fireproof and modern in every respect. The largest building is a pavilion 126 feet in length, with a verandah of twelve feet.

Hospital Moved.—The National Railroad Hospital of Laredo, Texas, has been moved to Monterey.

Huron Street Hospital Reopened.—The Homeopathic Hospital situated on Huron street in Cleveland, Ohio, has reopened after being closed for a year. An effort to change the name of the institution and admit physicians of the regular school to the staff has so far been prevented by the courts. The case has been appealed to the Circuit Court. The officers of the new staff under which the hospital reopened are: *President*, Dr. Harland Pomeroy; *Vice-President*, Dr. H. L. Frost; *Secretary*, Dr. C. S. Cutter.

Hospital Bequests.—The Eleanor Moore Hospital of Boone, Iowa, has received a bequest of $3,000 from Mrs. Mary Burwell, and the Mayville Hospital of Mayville, Ky., $1,000 from Mrs. Mary V. Wilson.

Insane Asylum to be Abandoned.—The hospital for the insane in South Orange Avenue, Newark, N. J., owing to overcrowding and lack of space for additions, is to be abandoned shortly and its 700 patients removed to the Overbrook Asylum, near Caldwell, N. J.

The American Hospital Association has issued a preliminary program for its eleventh annual conference, to be held at the New Willard Hotel, Washington, D. C., September 21 to 24, 1909. The program at present contains, besides the address of welcome and the President's address, eighteen articles and reports. The feature of the conference is to be the report of the Special Training School Committee, which will recommend curricula apparently suited to the needs of the different classes of hospitals, and make various other recommendations of importance to training schools. Copies of this report will be distributed to the members of the Association about two weeks prior to the meeting.

Wisconsin State Medical Board.—The following physicians have been appointed members of the board: Dr. John M. Beffel of Milwaukee, Dr. W. L. Thompson of Sheboygan, Dr. C. W. Rodecker of Wonewoc, and Dr. H. A. Brandt of Milwaukee.

New Hospital for Chicago.—The Board of Directors of the Norwegian Lutheran Deaconess' Home met recently and completed arrangements for a new $75,000 hospital, which is to be built adjoining the old Home at Haddon Avenue and Leavitt Street. The architect submitted the plans for the building, and they were accepted.

Obituary Notes.—Dr. R. C. Reed of Los Angeles died at the home of his son, at Stockton, Ohio, on July 1, 1909, aged 84 years. Dr. Reed was a graduate of the College of Medicine and Surgery of Cincinnati, in the class of 1860. For twenty-five years he held a professorship in this school, and for many years was the dean. He was a member of the Butler County Medical Society, the Ohio State, and the American Medical associations. He retired from active practice twenty years ago, and since then he has lived in Los Angeles.

Dr. William H. Powers of Ocala, Fla., died at his home on July 4, aged 33 years. He was graduated from the Medical Department of Vanderbilt University in 1900. Dr. Powers was a member of the Marion County Medical Society and the Florida State Medical Association. He was considered one of the leading young physicians in that part of Florida.

Dr. Edward Z. Cole of Baltimore died at his home on June 29, 1909, of heart disease following heat exhaustion, aged 55 years. He was a graduate of the Hahnemann Medical College of Chicago. Dr. Cole was the founder and president of St. Luke's Hospital in Baltimore, professor of gynecology of the Atlantic Medical College, and a member of the Institute of Homeopathy, and many other societies.

Dr. Frederick Richard Loeber of New Orleans died at his home July 1, 1909. He was a graduate of the Medical Department of Tulane University in 1899, and a member of Orleans Parish Medical Society, and the Louisiana State and American Medical associations.

Dr. Edwin H. Van Dusen of Kalamazoo, Mich., died on July 9, at his home, at the age of 81 years. He was a graduate of the College of Physicians and Surgeons of New York in 1851. Dr. Van Dusen was for thirty years the superintendent of the State Insane Asylum at Kalamazoo. He was also well known for his philanthropic work.

Obituary.

EDGAR HOLDEN, M.D.

NEWARK, N. J.

Dr. Edgar Holden of Newark, N. J., medical director of the Mutual Benefit Life Insurance Company, and President of the Association of Medical Directors of Life Insurance Companies, died Sunday night at his summer home, Chatham, N. J., from angina pectoris. Dr. Holden was born at Hingham, Mass., November 3, 1838, and was graduated from Princeton College in 1859. He received his medical degree from the College of Physicians and Surgeons in this city in 1861, and entered the United States Navy in the autumn of that year, serving throughout the Civil War. Dr. Holden was a member of the New Jersey State Medical Society, of the American Laryngological Society, the Essex County Medical Society, the Newark Medical and Surgical Society, the New Jersey Academy of Medicine, and the New Jersey Microscopical Society.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

EFFUSION INTO THE BOWEL-WALL—RED DEGENERATION OF FIBROIDS—TYPHOID CARRIERS—HUNTERIAN MUSEUM—R. C. S. ELECTION—CAVENDISH LECTURE—INSPECTION OF SCHOOL CHILDREN—TUBERCULOSIS EXHIBITION—LORD STRATHCONA AND THE MEDICAL FACULTY—A HOSPITAL CARNIVAL—OBITUARY.

London, July 2, 1909.

At the last meeting of the Medical Section (R.S.M.) Dr. Sutherland explained at considerable length his views on gastrointestinal crises determined by effusion into the bowel wall and criticised the diagnosis of a number of recorded cases. Not that he assumed any superior diagnostic insight, for he modestly said he had apparently made more mistakes than any one, and put that forward as his only claim to discuss the subject. It is certainly refreshing to meet such readiness to admit errors. Henoch's purpura is the type of disease of which he treated, differing only from other forms of purpura hæmorrhagica by severe abdominal symptoms —pain, vomiting, and passage of blood and mucus, often simulating intussusception, which may be associated with it. Hemorrhages into the bowel wall have been found during life on operation, and also after death at post mortem, and explain the clinical symptoms. The ileocecal region was the site of election, but the lower end of the ileum, the cecum, more rarely the appendix, may also be affected. It should be remembered, too, that over 70 per cent. of cases of intussusception in infants occur in the ileocecal region. The diagnosis between this and effusion is almost impossible. Dr. Sutherland did not pretend from study of recorded cases to find one point to distinguish them. Invagination may, in fact, be either an early or a late complication. Some of the cases he related prove this important point, and should suggest the danger of overlooking its probability. It seems easy to understand why this should be and why intussusception should have been considered as sometimes terminating in spontaneous reduction. Dr. Sutherland once accepted this occurrence, but now hesitates to admit it. So cases described as chronic or recurrent intussusception might just as well be explained as due simply to effusion into the bowel wall, which may also simulate the several forms of colitis. In the discussion that followed this interesting paper Mr. Arthur Edmunds showed colored pictures and drawings illustrating the case of a boy, aged 3, who had a sudden attack of acute pain, vomiting, and an indefinite swelling. Intussusception was diagnosed, and on operating the appendix was seen to be hemorrhagic and amputated—no intussusception. The wall of the appendix was infiltrated with blood. Mr. Edmunds further showed that in spontaneous recovery from intussusception its site was marked by a pale, edematous area. Mr. Hugh Lett said he was chiefly guided as to operation by the presence or absence of a tumor which, he found, could be felt in most cases of intussusception. In reply, Dr. Sutherland remarked that the edematous area described by Mr. Edmunds might serve to differentiate hemorrhage into the wall from intussusception, and in reference to the presence of a tumor Mr. Lett put its incidence higher than most teachers; but perhaps that was due to his method of examination.

At the Obstetrical Section of the Royal Society of Medicine on the 10th inst. Mr. Bland Sutton read notes on a case of red degeneration of a uterine fibroid associated with *Staphylococcus pyogenes aureus* in a primagravida of two months, who was seized suddenly with severe abdominal pain. Twenty-four hours later operation was performed, when a large subserous fibroid was found and several interstitial ones. Hysterectomy was done and the tumors examined by Mr. Somerville Hastings. The larger had an area of softening covered with lymph. From this "infarcted area" a pure culture was obtained of *Staphylococcus pyogenes aureus*. Interstitial fibroids showed the red change in streaks, but no microorganisms. This subject has also been before the Dublin Academy of Medicine, at which the president (Dr. Tweedy) exhibited specimens removed six weeks after delivery which had been induced at full term. There was high pulse and temperature on the third day, increasing to 103° next day; but it subsided and the patient recovered. The tumor was removed by supravaginal hysterectomy. It showed in a very characteristic manner red degeneration, or disease, Dr. Tweedy remarked, very rarely occurring except in pregnancy. High temperature was a constant symptom, and this, he thought, might be due to absorption of toxic matters from the degenerating myoma. In the discussion that followed Dr. Purefoy said he was not quite sure that the high temperature was due to the red degeneration. There might be some localized sepsis. Dr. Jellett was watching a patient, six months pregnant, with a large myoma below the fetus, filling up the pelvis. He asked how Dr. Tweedy would deal with it. Dr. Rowlette mentioned the points about red degeneration which may be regarded as fixed; it was associated with pregnancy, seldom other conditions; it was found in almost every myoma associated with pregnancy; it was a necrotic change, as the tissue did not stain; in the highly vascular state of the pregnant uterus anything interfering with the blood supply and causing stasis in the veins might give rise to diffusion of blood pigment; it might produce high temperature through being invaded by septic or putrefactive organisms. In reply, Dr. Tweedy expressed the opinion that there was a toxin which could raise the temperature apart from an invasion of germs. In his case it was only when he felt convinced that the growth had undergone degeneration that he determined not to let her run the risk of another pregnancy. Dr. Jellett's case he thought plain sailing; he should not allow labor to set in, but calculate full term and do a cesarean section. After removing the child it would be easy to do hysterectomy. The myoma would certainly degenerate if the patient were permitted to fall into labor.

A memorandum has been issued from the War Office by the Director-General of the Medical Service on "chronic carriers" of typhoid. It states that Kayser collected 101 cases of cured typhoid which were said to be free from bacilli. Two years after convalescence three of them were found to be carriers. Recent work is confirmatory, and it may be considered as established that 3 to 4 per cent. of convalescents from enteric fever become chronic carriers and that in the neighborhood of enteric fever cases a small percentage of the community may be temporary harborers of the bacillus. The idea of treating carriers with lactic acid has been tried in two intestinal cases with apparent success. Other patients were treated in groups by anti-typhoid vaccination. At first the vaccine prepared in the Royal Academy Medical College was used. This had proved a very effective prophylactic; but for treatment though it increased the protective substances in the patients, it did not arrest the bacilli. It is suggested that races of bacilli may vary in their resistance to protectives, and if the best results are to be obtained the Director-General says vaccines from the infecting bacilli must always be employed. Instead of a general vaccine auto-vaccines are now generally being used, through which it is hoped the bacilli may be got rid of.

Yesterday at the Royal College of Surgeons the additions, 383 in number, made to the Hunterian Museum during the year were placed on view and will remain until to-morrow night. The collection of specimens of the Odontological Section of the Royal Medical Society has also been offered and accepted by the college. It numbers some 5,000, and when they have been transferred this department of the museum will be one of the most complete in the world; for the collection it will enrich was already extensive and valuable, containing as it did many specimens used by Hunter in his work on the teeth. The conservator of the Hunterian Museum, Professor Keith, has adopted a new form of card catalogue in specially designed boxes attached to each case of exhibits so that the visitor finds at hand a history and explanation of each specimen. There was an additional reason for choosing yesterday for a visit, as the election of three fellows to the council took place in the afternoon. The poll was a record one, 971 votes being given. In the result Sir Watson Cheyne and Mr. Clement Lucas were re-elected and Mr. Harrison Cripps was elected.

Sir Victor Horsley delivered the Cavendish lecture at the West London Medical Clinical Society, taking for his subject the cerebellum as the organ of automatic actions, such as walking, running, and standing. Newly born animals could not stand because the cerebellum was not fully developed at birth. But a great deal of muscular control was dependent on the spinal cord. The spinal centers also as proved by experi-

ments do a good deal of what are called voluntary acts. We walk on four limbs, the arms moving alternately with the legs, and running is an extreme instance of this. Information was provided for the purpose of movement by the semicircular canals, and when they become diseased the head and body take attitudes which serve as aids to diagnosis. Sir Victor illustrated his lecture by views of the cerebellum, photographs of people running, and portraits of ear diseases. After the lecture a concert was given and various medical and surgical exhibits were on view.

At the Institute of Hygiene a resolution has been passed calling on the Board of Education to prepare a plan upon which all statistics referring to the medical inspection of school children should be so tabulated as to render the results of various districts strictly comparable. It was also agreed to ask that serious defects revealed by inspection should be promptly attended to and due remuneration secured to medical practitioners doing the work. Further, that fees should be recovered from parents, and the opinion was expressed that in the first instance existing institutions should be utilized for children whose parents were unable to pay for private attendance.

The Tuberculosis Exhibition has so far proved very successful. Some 50,000 to 60,000 persons of the poorer class have visited it and evinced much interest in it. A conference of public health authorities from all parts occupied three days. It is now proposed to transfer the exhibition to other poor districts of London and subsequently to industrial centers in the provinces. In this way it may become a traveling school of hygiene for the people—in fact, an anti-tuberculosis mission.

Of course you learn this morning, as we do on this side, of Lord Strathcona's renewed munificence to McGill University, and will be as pleased as I confess to be that this time it is the medical faculty which is to be so richly endowed. You will remember that his concern for medical science was formerly evinced by founding the chairs of pathology and of hygiene at McGill. The new gift of £100,000 to the medical faculty is indeed a noble one.

King's College Hospital, as you know, is to be removed to the south side of the Thames, but it will probably take a couple of years yet to effect the transfer. The cost is estimated at £300,000, of which about £225,000 has been promised. To raise the remainder a great carnival, under the patronage of the Prince and Princess of Wales was held yesterday at the Crystal Palace. It was unique among charity fêtes, and the promoters aimed at making it the biggest and cheapest. There was a bewildering list of entertainments, most of them free, but a few cost visitors the extravagant fee of 3 or even 6 pence. There was a huge company, and the fête continues to-day in much finer weather. A great addition to the fund is assured.

Dr. Thomas W. Bridge, Mason Professor of Comparative Anatomy and Zoology in the University of Birmingham, formerly at Cambridge and Dublin, died on Wednesday at the age of 60. He contributed many papers to the subject of his professorship.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

THE MANNER OF DEVELOPMENT OF CHOLERA EPIDEMICS—PHILIPPINE MEDICAL SCHOOL—APPROPRIATION FOR THE BOARD OF HEALTH—SOCIETY FOR THE PROTECTION OF INFANTS—A NEW PHARMACY LAW—WORK OF THE HOOKWORM COMMISSION—PERSONALS.

MANILA, P. I., June 6, 1909.

CONSIDERABLE uneasiness was injected into the local cholera situation last week by the appearance within a period of two days of four deaths in persons who suffered with many of the clinical symptoms of cholera. Careful laboratory investigations made of the intestinal contents, both *ante-mortem* and *post-mortem*, however, failed to reveal any cholera organisms.

It will perhaps be remembered that the carefully recorded experience since 1905 shows that in the four outbreaks which have occurred since that time, deaths have first occurred among persons who had many of the clinical symptoms of cholera, and that true Asiatic cholera follows in from four to six months after the first of such cases. The earlier deaths show many of the clinical symptoms of the disease, but no cholera organisms can be found. These are followed by other cases at intervals of a few weeks which resemble more and more the clinical picture of cholera, and finally curved organisms which are slightly motile and grow near the bottom of the media are found in the stools. Clinically, such cases give a history of sudden onset with vomiting which lasts for a period of six to twenty hours, marked diarrhea with stools not typical of cholera, extreme collapse, severe cramps in the arms and legs, profuse sweats, subnormal temperature, rapid pulse, anuria, and other evidences of intense intoxication, for which active stimulation, external heat, hypodermoclysis, intravenous transfusion of salt solution, or serum are of no avail. On *post-mortem* these cases show marked rigor; dryness of the abdominal cavity; intestinal contents not typical of cholera; the ileum and large intestine are studded with small, beadlike elevations; evidences of intense acute nephritis and punctiform hemorrhages upon the serous surfaces of the heart, and cultures made by competent observers fail to reveal cholera organisms. However, each succeeding case gradually approaches more and more the findings of cholera, both clinically and at autopsy, until finally the autopsies are typical and the cholera organism is recovered from cultures taken from the intestines.

The Philippine Medical School will commence its third annual session on June 7 with a freshmen class of 27 students. The entrance requirements compare favorably with those of the better medical schools of the United States, and it is therefore most encouraging to note that the educational facilities in the islands have become such that the Filipino students may secure the necessary preliminary education successfully to pass the entrance requirements of the Medical School.

The Philippine Legislature, which has just adjourned, has again made substantial appropriation for the routine work of the Bureau of Health, and, in addition, has appropriated a sufficient sum to enable the bureau to commence an active tuberculosis campaign. It is proposed to do this by opening a tuberculosis dispensary in the city of Manila, with a trained nurse on duty at the dispensary and another trained nurse to visit the patients in their homes, all, of course, to be under the direction of competent medical men. It is also proposed to start a night camp on one of the elevated sites near Manila, where popular lectures on tuberculosis and practical instruction will be given, the latter to be on sleeping, eating, disposal of sputum, etc. Those who are actually afflicted with the disease will be provided with sleeping quarters for periods of several weeks, and it is hoped that when they return to their homes they will continue the régime taught at the night camp. It is believed that in this way a large number of people can permanently be benefited. For the actual treatment of incipient cases it is proposed to construct a number of individual shacks in the mountains of Benguet in order to ascertain whether the cool atmosphere and the elevation of that region can be counted upon to be of material aid in the treatment of tuberculosis in the Philippines.

The Philippine Legislature also made an appropriation of $5,000, which is to be used by the Bureau of Health principally in aiding in the support of the Society for the Protection of Infants, the object in view being to make a substantial effort to reduce the infant mortality in the City of Manila by a system of education and the distribution of wholesome milk.

The Legislature has also passed an amendment of the Pharmacy Act, which might well commend itself to similar legislative bodies in the United States. It provides: "That * * * it shall likewise be unlawful to compound or dispense physicians' or veterinarians' prescriptions, recipes, or formulas which are written in cipher, or in which there are employed unusual names of drugs which differ from the names ordinarily used for such drugs in standard pharmacopœias or formularies. Any person violating this provision shall be punished by a fine of not more than $500, and in case of a recurrence of the offense the Board of Examiners may, upon conviction of the offender, revoke his certificate of registration in accordance with the provisions of section 14 of this act."

The Hookworm Commission, of which mention has previously been made, and which has been studying this problem at Taytay, has discontinued further work for the present on account of the fact that the majority of its members were either connected with the Philippine Medical School or were students therein, and as the school is again about to be opened the work will necessarily have to be delayed until the next vacation

period. However, the hookworm work in the islands is not to stop on this account. The Bureau of Health is putting a commission of its own into the field, which will shortly commence operations at the town of Las Piñas, in Cavite Province.

Dr. E. Martini of the German Naval Service, who has been on special detail at the Bureau of Science for the purpose of studying blood parasites of animals, has returned to his station at Tsing Tau, China. He expects to return in the near future and continue his researches.

Dr. W. J. Lindley, who was formerly the quarantine officer at Savannah, Ga., has been transferred to Manila, and is now on duty here.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 8, 1909.

The Widening Sphere of Medicine.—In an elaborate address by E. W. Taylor, the author says that in the feverish anxiety to train men adequately for certain well defined and essential branches of medical work, the broader possibilities of medical education have been strangely overlooked. The standard has been raised to advantage, and must not be lowered in the slightest degree, but it must be broadened and the attempt must cease to turn all medical students out of the same mold. Under no circumstances should men of unquestioned capacity be excluded from our medical schools because they may fail to conform to a preconceived standard. The pendulum has swung far in the direction of so-called scientific research with only good results, and the very success of such a movement is likely to develop intolerance, and the intolerance of the man of science is peculiarly difficult to meet. There is danger that at times we lose sight of the utilitarian function of the medical school. Its service is ultimately practical, whatever may be the means to that end. In the pursuance of this object there are strong indications that the system which has given free choice of studies through four years of academic life and four years of rigid requirement through the medical school will become reversed or at least modified. We must have an elective system in the medical school. There is no need of requiring obstetrics of one who is to become a bacteriologist, or a course of surgery of one who will be an internist. To accomplish our ideals, our medical schools must adopt a broad as well as a high standard, and must clearly recognize the fact that in the future, medicine will unquestionably offer fields of usefulness and honor to many men seemingly unfit if judged by the present narrow requirements.

The Pharmacopeia: What It Is and What It Is Not.—S. Solis-Cohen says that, first of all, the pharmacopeia is not a work on therapeutics. Its function is neither to explain the action nor to define the uses of remedies; neither to affirm nor to deny the opinions and conclusions of pharmacologists and clinicians on these; neither to recommend or deprecate the use of any agent or preparation which physicians may require at the hands of the pharmacist. The pharmacopeia is a book of processes and standards, giving directions for the making of certain medicines, and giving, in addition for all, drugs, prescriptions, and tests by which they may be recognized, and their identity, purity, quality, and strength be determined. It is this, and nothing more. Evidently its scope must be comprehensive. It should formally exclude nothing which the physician is apt to call upon the druggist to furnish the patient. Routine mixtures should not be included, except a few such as paregoric, tincture of cardamom, etc. and a few like Dover's powder and Basham's mixture. We have a full list of all mixtures in the book known as the National Formulary. There should be nothing of a secret nature in the pharmacopeia. At the next revision there should be appointed a committee on international nomenclature. If new products are introduced without previous submission to the committee on nomenclature, and these remedies become of sufficient importance in practical medicine, the committee should select an appropriate name for the new remedy and the insertion of this name in the pharmacopeia will give the new remedy an official standing. Manufacturers would soon find it to their advantage to cooperate with the committee in all these matters.

New York Medical Journal, July 10, 1909.

Prognosis in Eye Diseases Viewed from the Standpoint of the Patient's Rights and the Ophthalmologist's Duty.—A. Duane says that it is rarely justifiable to tell the patient that he cannot recover, and that nothing can be done for him. The conditions in which this sort of statement is oftenest made are: (1) Extensive disease of the cornea; dense corneal opacities, staphyloma, keratoconus; (2) iridocyclitis; degenerative iridochoroiditis, and other degenerative or destructive affections of the uveal tract; (3) retinitis pigmentosa; (4) optic nerve atrophy (including high-grade toxic amblyopia); (5) glaucoma; (6) progressive high myopia; (7) detachment of the retina; (8) intraocular hemorrhage; (9) cataract; (10) injuries, including operations. A series of clinical histories is given, showing how proper and persistent treatment may bring about happy results under the most unpromising circumstances. These histories justify, in the author's mind, the following propositions: (1) An error in prognosis is often more disastrous to the patient and more humiliating to the surgeon than an error in diagnosis or in treatment; (2) be the condition ever so desperate, we are rarely justified in admitting even to ourselves that the case is hopeless and that nothing more can be done; to make such a statement to the patient, except in the very rarest instances, is needless and often very pernicious cruelty. This is so because (a) our diagnosis and prognosis are necessarily fallible; (b) even if the diagnosis is accurate and the prognosis apparently so according to present standards, we never know how soon some new discovery may change our views of the one or the other; (3) brutal positiveness, often regarded as an evidence of honesty, is more frequently a sign of sheer selfish inconsiderateness on the part of the surgeon, who will not take the time or trouble to mitigate the blow he is inflicting nor give the patient the explanations necessary to qualify his downright assertions. Sometimes such positiveness is simply a mark of ignorance; the expression of a hastily formed and erroneous opinion; (4) if we maintain a cheerful and determined optimism we not only help the patient to bear his troubles, and by giving him hope prevent much suffering and mischief, but we are ourselves stimulated to make greater exertions in his behalf and are prevented from degenerating to the dead level of routine treatment or to the depths of an actual therapeutic nihilism; (5) in pursuance of this optimism, we should strive to emphasize the favorable points of the patient's case, call attention to the fact that he is holding his own, attend with sympathy and patience to his complainings, and lay stress on any factors in his case that we can ameliorate; (6) even when there is nothing much we can do, the patient often derives encouragement and satisfaction from the sympathetic cheerfulness that we have the power to give him when he visits us; (7) there are some cases, of course, in which optimism would be wrong. There are patients who have to be handled without gloves, and who have to be frightened or dragooned into obedience. In such cases brutal frankness is necessary, provided always that by it we can secure some good to the patient.

The Surgical Appendix.—R. F. Ward groups the appendix cases as: (1) Acute infective; (2) obliterative, that is, involution of the appendix, fibroid appendix, and (3) secondary. He presents the salient features of each form of disease, and indicates the mode of procedure to be followed. Under the first heading nothing new is presented, the author simply detailing his own technic and giving his reason therefor. The second form, chronic nonsuppurative inflammation of the organs, he regards as the most common. The normal structures give way to a formation of hyperplastic connective tissue which gradually in time replaces nearly all of the original structures. The irritation caused by the pressure of the contracting connective tissue around the sensory nerve filaments is the cause of pain over the appendix and in this region. Through the sympathetic fibers which are caught are produced all manner of reflex disturbances affecting the gastrointestinal tract. These vary from the slightest intestinal dyspepsia, to the most obstinate intestinal derangements of secretion and excretion. These cases are to be treated in the same way as are the "interval" cases. The third form is most frequently found in connection with a right salpingitis, salpingo-oöphoritis, acute or chronic oöphoritis, or a tuberculous peritonitis. A direct involvement, causing concomitant surgical appendix, or adhesions and constricting bands, interfering with the blood and lymph supply, may cause subsequent inflammation of the appendix, of the acute suppurative or obliterative type. Whenever the abdomen is opened for the relief of an inflammatory process in the neighborhood of this organ, it should be removed whether it appears to have shared in the inflammatory process or not. When lymph is present on the peritoneum, it should not be removed, as it signifies the presence and activity of the phagocytes, which are capable of destroying the infective matter, with two exceptions, (1) overwhelm-

ing virulent organisms; and (2) subnormal production of phagocytes, from any cause. The appendix can be removed without hesitancy where there is production of lymph from an inflammation of an adjacent organ, while judgment must be exercised in its removal at the same time that other intraabdominal operations are being done for noninflammatory or quiescent conditions.

Agricultural Aspects of the Pellagra Problem in the United States.—C. L. Alsberg says that pellagra is caused by the consumption of Indian corn, that is, spoiled corn consumed by poorly nourished and badly housed individuals. The tendency of the farmer is to harvest his corn before it is fully ripe, and this promotes the tendency to disease in the grain. Moreover, a most important factor is the present faulty method of transportation in bulk. The grain of corn is a live thing. It breathes, consumes oxygen, and gives off CO_2 and heat. The latter increases sufficiently to create ideal conditions of temperature and moisture for the growth of fungi. Corn shipped to the Northeast will have the tendency to ferment checked by the colder climate; if sent South the reverse effect follows. The avoidance of moisture in bulk transit is the thing desired. It is to the interest of the farmer to sell corn with as great a moisture content as possible, for such corn is heavy and will average more bushels to the acre than after proper drying and curing. When it is loaded into cars it straightway heats up, ferments, and spoils, often before it reaches its destination. The dealer who receives such corn naturally often succumbs to the temptation of mixing it with enough good corn so that meal made from the mixture will not be offensive to the taste or smell. The amount of spoiled corn used in this way is very great. The only rational means to combat this evil is to induce purchasers of corn to pay for it according to its moisture content. The remedy in its last analysis is therefore to cause the corn to be thoroughly dried before transportation.

Journal of the American Medical Association, July 10, 1909.

Preventable Deafness.—W. Sohier Bryant says that all deafness is preventable and its study involves consideration of all otology except that part dealing with equilibrium. The middle-ear changes causing deafness can be placed in two pathologic groups: (1) Ulcerative, necrotic, hypertrophic, adhesive, and cicatricial processes; (2) atrophic and selerosing processes. The two fundamental etiologic factors of these are infection and toxic vasomotor paresis, usually of infectious origin. That is, all forms and almost all cases of middle-ear deafness are the results of infection. This is clear enough in suppurative cases, but in cases of progressive deafness it is not so apparent, though inspection of the nasopharynx will reveal it. The prevention of infection, therefore, by keeping the mucous membrane normal, raising the local resistance, and destroying infectious organisms by strict attention to the hygiene, is the method of cure. Local hygiene requires attention to a great variety of detail—removal of obstructions to respiration, both because they obstruct and on account of their evil reflex effects and their hindrance of proper drainage—and attention to their causal factors is one of the essentials. Infections of the nasopharynx also require special attention, especially those which are not easily apparent and do not suppurate. They usually occur on the posterior superior wall of the pharynx. Orthopedics of the facial bones and teeth are also important factors. It is needless to say that pure air and hygiene are also important. The second group of changes causing middle-air deafness are the atrophic and sclerosing processes, which are also dependent on infection as already described, or by having induced a toxic paresis of the sympathetic nervous system, as occurs in abnormal mental conditions, shock, fatigue, etc., affecting the bodily functions in neurasthenic states, menstrual and obstetric abnormal conditions, etc. The hereditary tendency to those conditions is not real but only apparent. The unstable nervous system, the weak digestion, and the unbalanced metabolic functions are inherited, but the exciting cause of the diseased hearing is lacking unless some additional stress throws these weak functions out of balance and gives the initial stimulus to the condition of toxic paresis of the sympathetic system, causing the middle-ear deafness. The success in preventing deafness from middle-ear disease is in proportion to the rapidity of cure of the middle-ear infection. The acute inflammatory conditions require energetic measures for drainage and preservation of the middle ear structure, and, in convalescence from acute inflammation, inflation should be practiced in order to prevent contractions and adhesions and to keep the hearing apparatus in its proper place. Syphilitic middle-ear diseases respond readily to specific treatment. Periodic examination of patients is important for success. This is true in all cases of deafness, but especially so to prevent the insidious deafness due to middle-ear atrophy and sclerosis. If the patient waits until he is already deaf, he will bring to the specialist a very resistant sound conduction disease. The author's summary is given as follows: "Practically all deafness is due to the results of infection. Causes leading to infection are to be corrected, the soil is to be rendered non-retentive, and the existing ear defects are to be treated at once. Avoidance of the infectious organisms, the maintenance of the nasopharynx in a healthy condition, the eradication of any existing infection, and the avoidance of impairment of the sympathetic nervous system, through toxic action of fatigue or infection, will insure against deafness. To insure immunity from deafness, it is necessary for the individual to undergo a periodical otorhinopharyngeal examination perhaps once a year, so that any incipient middle-ear disturbance may be detected and corrected before the condition has become established."

The Visual Fields in Hysteria.—From a clinical study of 50 cases, W. R. Parker questions the commonly made statement that a concentrically contracted field of vision is the most common ocular stigma of hysteria. The cases are not selected ones, and are all observed under like conditions. He sums up his conclusions substantially as follows: (1) Dyschromatopsia is more common than concentrically contracted fields in the ratio of 72 to 40; (2) there is no relation between the contraction of the visual fields and amblyopia, the former being present in 96 per cent., while the latter was present in 8 per cent. of the cases; (3) there is no constant relation also between the areas of anesthesia and concentrically contracted fields. Of the patients with anesthesia 28.4 per cent. showed concentrically contracted fields, while 75 per cent. showed dyschromatopsia. In a note appended he states that not a single case of hysterical hemianopsia has been recorded in either the ophthalmologic or neurologic clinics of the University of Michigan.

Food Intoxications in Children.—J. Ruhräh describes the dietetic disorders in children which constitute a considerable proportion of the cases which we are called on to treat. Leaving out the chronic gastric and intestinal disturbances, there are a large number that are due to overfeeding. These may be caused by too much food of all kinds and too little exercise, or by too much fat, protein, or carbohydrate, or too much of any combination of these. There are, also, individual idiosyncracies of children to any one of these, and it is well to remember also that disease of some organ may in a reflex way upset digestion or metabolism. We cannot make a symptom-complex of each of these conditions, though it is to be hoped that it may be possible in the future. The most suggestive thing is a train of symptoms occurring periodically, no matter in what combination. The next step in diagnosis is by careful physical examination to exclude any disease of any organ and then to study the child's habits as to food. Sometimes the fault is easily found. In other cases it requires careful investigation, and sometimes trial diets. The following points are of use: Taking too much food of all kinds usually causes what are ordinarily known as bilious attacks, with recurring fever, coated tongue, foul breath, headache, malaise, often drowsiness; there is often vomiting or diarrhea, and the liver may be enlarged and tender. A brisk purge and a limited diet is usually all that is needed. Too much protein causes, as a rule, much the same symptoms, sometimes one and sometimes another of the above symptoms being the most prominent. There may be acute indigestion or simply furred tongue and foul breath. Cases due to too much fat are characterized by attacks when the child is not well and has a pale, muddy skin, and large dark circles under the eyes; a coated tongue and exceedingly fetid breath are one of the most striking features. There may be gastric disturbance and vomiting, and often diarrhea with undigested fat in the stools. The carbohydrate cases are the most numerous of all, owing to the indulgence of children in sweets. Many children have a very low capacity for utilizing sugar. The recurrence periodicity is, as in the other cases, most characteristic. Perhaps the most common form of attack is recurrent vomiting, though this occurs also in protein disturbances. In some cases the attack consists merely of fever and sick headache, while in others there are attacks of asthma following indiscretions in diet. The most difficult cases are those in which there is a combination, such as an inability to utilize normal quantities of protein and carbohydrate, making it difficult to arrange the diet satisfactorily. If the cooperation of the family can be secured, after determining the food factor at fault, the results are remarkable. An effort should be made to determine just

what quantity of the disturbing factor can be borne, and then keep the child on a diet well within the limits of its assimilation. In addition, the bowels must be kept regular, and it is well to use an active purge at least once a week. Outdoor life and plenty of exercise are exceedingly important.

Reflex Aural Neuroses from Eyestrain.—S. Theobold notes the slight attention that has been given to the effects of eyestrain in producing reflex ear troubles. He has not been able to find any mention of these in the Index Catalog of the Surgeon-General's library. While tinnitus is the aural reflex he has most frequently encountered as the result of eyestrain, it is not the only one. Others that may be mentioned are, a "muffled" or "stuffed" sensation in the ear, pain, not severe, and as often felt around and in front of, as in the ear; impairment of hearing which, according to the tuning fork indication, was due to disturbance of the perceptive rather than of the conducting apparatus. Whether the vertigo recognized as a symptom of eyestrain deserves to be called an aural reflex, he is unable to say, but he thinks the derangement causing it may be located in the semicircular canals. Of tinnitus due to eyestrain, he has observed three distinct varieties—the more usual or vascular type, the relatively low pitched, whirling or fluttering sound caused by irregular contractions of the tensor tympani, and the high-pitched, almost musical, intermittent tinkling produced by like contractions of the stapedius muscle. The evidence in favor of the ocular origin of the aural sensations mentioned is in their disappearance after the relief of the eyestrain, their greater intensity when the eyestrain is most troublesome or their appearance or aggravation by use of the eyes. The ocular fault often present was astigmatism, sometimes of high degree and associated with other refractive errors, though, in some cases, it was chiefly heterophoric. The most common form of tinnitus is, in all probability, best explained by a vasomotor disturbance of the intralabyrinthine vessels. The "muffled" or "stuffed" sensation may be similarly explained or, like the earache, be due simply to reflex irritation of branches of the trigeminus, as in the case of dental otalgia. He first gives his own case, followed by reports of three others.

The Lancet, July 3, 1909.

High Frequency Currents and Their Medical Application.—C. F. Bailey's conclusions are thus summarized: Experiments on animals and plants and observations on human beings not founded on the individual experimentees' own statements, show that there are *four* marked effects of electric energy produced, uncomplicated by chemical effects, by high-frequency currents: (1) Increased cell activity, increased metabolism; (2) return of a locally inflamed tissue to its normal; (3) either general vascular dilatation or contraction, according to the particular method used, and (4) "inhibition," diminished sensory or motor excitability. So that where one or more of these effects is or are desired and where the remaining effects are not prejudicial, or can be very much diminished or abolished, there high-frequency treatment may be of real value, and for these reasons has a prospect of considerable therapeutic use in the future.

British Medical Journal, July 3, 1909.

Quinine Dermatitis.—A case is reported by W. Gripper, whose patient, a woman known to be very susceptible to the drug, took two-dram doses of a preparation known to contain but one-quarter of a grain to a dram. During the day the rash appeared and spread over the entire body. She was advised to continue with the preparation in the hope that she might become accustomed to it. During the next two days the condition remained the same. The condition was worse at night. She had no headache, and practically no eruption on the face. The drug was then stopped. On the fourth day the hands, legs, and ankles were greatly swollen, the palms red and shining, while the fingers and toes were stiff, feeling numb, and distinctly cold to the touch. Bran baths, etc., gave no relief. By the seventh day desquamation began on the hands and arms, extending to the trunk and legs, the epidermis separating in large strips and flakes with almost casts from the toes. During the fourth week, this was completed and the appearance was like that of scarlet fever. The author adds that his patient has the most unpleasant symptoms if she takes any salicylate of soda.

Aortic Systolic Murmur: Prognosis and Treatment. C. W. Lawson gives epitomized histories of eight cases. Most of them have been in old persons, and the usual cardiac drugs have been of little use. Bromides, however, have been invariably of some service. In the cases of those who died he had been aware of the murmur for four or five years at least before death, so that the final illness did not produce it. It seems to be a commoner condition than books lead us to expect. When he meets with it now he regards it almost as a positively favorable sign of the heart's condition, unless the occupation is very arduous. The cases he has met have not had many symptoms in common. Perhaps the most universal has been a certain excitability of temperament, not necessarily prominent, but easily brought into notice; if the murmur be really due to aortic stenosis this characteristic might be due to some brain anemia. The patients have, however, been quite as often full-blooded people with rather the appearance of having congested brains, and this has tempted him to believe the murmur may be due to the resistance produced by an over-full condition of the vessels in the upper thorax and cerebrum. He is quite sure he has not seen a case of death, in the last seven years at least, from heart disease, with this murmur as the initial and prominent symptom, in any patient under 65 years of age.

A Danger Arising from the Use of Plated Instruments in Ophthalmic Operations.—W. C. Rockliffe refers to a case in which he lost an eye from acute panophthalmitis after extraction. Early on the morning of the day the eye was excised a bright foreign body was noticed floating away with the lotion used for irrigation. It was secured and proved to be a piece of metallic plating which on examination was found to have come off of a pair of scissors used in the original iridectomy. The author assumes that during the iridectomy the fragment had dropped unseen into the anterior chamber or cicatrix and caused the panophthalmitis. No fault could be found with the technique of sterilizing the instruments, and the question arose, could the use of carbonate of soda used in the boiling sterilizer have anything to do with the separation of the plating? It was suggested also that a fault in the copper-nickel plating in the presence of a saline solution might set up galvanic action. This would explain the separation of the plating and the subsequent setting up of the inflammation. The author is convinced of the truth of this theory, and calls attention to the need of great care in examining instruments before each operation.

The Value of Expert Radiography and Cystoscopy in the Detection of Obsolesced Tubercle in the Kidney.—E. H. Fenwick refers to one case, that of a woman in whom radiography demonstrated the presence of rounded renal prominences considered as cysts and full of caseous material like cream cheese. The pelvic space was replaced by fibrous tissue. The ureter was a fibrous cord. The organ was removed and proved to contain such material and to be of the exact size sketched by the author. The surgeon was able to make his positive predictions by the use of radiography and cystoscopy. He knew the patient had tuberculosis somewhere in the urinary tract. Eighteen years ago he had examined her with the cystoscope and found ulceration of the bladder near the right ureter. Later experience has convinced the author that such ulcers signify tuberculous disease of the corresponding kidney. When seen the second time, the cystoscope revealed the cicatrix of the old ureteral ulcer, and it was evident that the ureter was impervious and functionless. The next question was, was the presence of the kidney detrimental? Radiography now determined the presence of the cystic masses above referred to. Catheterization of the left kidney showed evidences of consecutive nephritis induced probably by absorption from the foci in the right kidney. It was therefore deemed advisable to remove the original source of infection. The author says that the kidney is always radiographed for him in two positions: in one the patient takes a deep breath and holds it while the *x*-ray is switched on; the effort thrusts and keeps a mobile kidney down; for the next plate the patient breathes easily and naturally while the kidney rises and falls easily. If the shadow of the organ corresponds in position in the two plates we may know we have a dangerously fixed kidney to deal with. If the shadow had moved, the organ is movable and may be easily dealt with

Berliner klinische Wochenschrift, June 14 and 21, 1909.

The Relation Between Gastric and Pelvic Diseases.—Lewisohn considers the frequency of the complaint of gastric symptoms in patients suffering from various gynecological affections. He investigated the gastric contents of a long series of gynecological patients in the hope of obtaining answers to three questions: In such cases is there an independant gastric disease? Is the stomach complaint caused by some other organic or a general disease? Are the gastric and sexual conditions simply coordinated diseases subordinate to some primary cause. After examining his cases and reviewing the literature he comes

to the following conclusions: (1) Testing the gastric contents during menstruation, pregnancy, and the puerperium gives no clear picture of the secretory function of the stomach; (2) the pathological processes in the genital system stand in a causal relation to the gastric disease in only a relatively small number of the women who complain simultaneously of gastric and pelvic troubles; (3) the gastric analyses of pelvic cases made in different clinics give no uniform results. Sommer of Graz found hyperacidity, Kehler of Heidelberg normal secretion, and Winkler of Berlin and the author subacidity in the majority of the cases; (4) the most divers illnesses of the genital apparatus can be associated with gastric symptoms; (5) as to the etiological relation between the gastric and pelvic complaints, alterations in the general nervous condition of the patient may precede the special nervous disease of the stomach. The pelvic condition may well be the cause of the general nervous condition; (6) therapeutically first of all the general nervous condition must be treated, if necessary by a medical treatment after orientation of the gastric secretions by use of the stomach tube.

The Etiology of Trachoma.—Halberstaedter and von Prawazek describe their experiments on the etiology of trachoma carried out in Java. Owing to the mixed cultures obtained from the eyes of human beings suffering from trachoma they experimented on apes, animals known to be susceptible to the disease. The conjunctiva was roughened and then a few drops of secretion from the eyes of a human trachoma patient dropped into the eyes and the lids massaged. At the end of a week the eyes showed signs of inflammation and the animals developed a conjunctivitis resembling trachoma. Scraping from the conjunctivæ showed the epithelial cells to contain a few granules which stained red in the Giemsa stain. As the disease progressed these granules became more numerous, until they filled the protoplasm of the cells. The authors have been unable to cultivate these organisms and reproduce the disease and so say that the proof of their etiological connection is not absolute. Nevertheless they believe them to be the case of trachoma. The authors claim that they and not van Greeff deserve the credit for discovering the cause of trachoma.

An Organic Hemiplegia in a Young Woman Following Shock.—E. Frank reports the case of a 26-year-old woman who six days after a severe fright developed a hemiplegia without loss of consciousness but associated with headache. After six weeks, movement returned in one finger and gradually the patient improved. Though there were many hysterical symptoms as constant laughing there were definite signs of an organic lesion as unilateral increase of knee jerk, Babinski sign, spastic condition of the leg, and atrophy.

Beneficial Effect of Thyroid Extract on Experimental Tuberculosis.—Frugoni and Grixoni discuss at length the relation of the thyroids to tuberculosis. The gland is rarely the seat of tuberculosis. The gland effects the nourishment of the body, a desired effect in tuberculosis. It increases in size in acute tuberculosis and is often found atrophied in the chronic form of the disease. All agents which injure the thyroid tend to stimulate the advance of tuberculosis. Infants born of tuberculous mothers have thyroids free of iodine. The authors then tested a series of rabbits and found that those fed on thyroid extract were more immune to tuberculosis than the controles.

Münchener medizinische Wochenschrift, June 15, 1909.

Passive Transference of Tuberculous Anaphylaxis.—J. Bauer discusses the three forms of anaphlyaxis, active anaphylaxis due to injection of a foreign substance into the blood, making the animal hypersensitive to a second injection, anti-anaphylaxis the increased resistance to the substance which occurs if the animal survives the second injection, and passive anaphylaxis, produced by injection of the serum of an anaphylaxic animal into a normal one. Simple anaphylaxis is shown by the tuberculin reaction. It has also been shown that repeated injections of tuberculin produces a resistance, or anti-anaphylaxis. The author then investigated the subject of passive anaphylaxis to tuberculosis. He injected the serum of tuberculous guinea pigs and men into normal, healthy guinea pigs. These pigs were thereby rendered anaphylaxic so that injections of tuberculin produced marked febrile reactions. The reaction did not appear if the tuberculin were injected within eight hours of the serum, or when the two were mixed. It occurred only when the serum was injected 24 to 48 hours before the tuberculin.

The Diagnostic Significance of a Diastolic Murmur in Dilatation of the Aorta.—G. Hoppe-Seyler has studied a series of clinical cases and cadavers and states it as his opinion that a diastolic murmur of maximum intensity over the manubrium and extending to the neighboring portion of the right chest, and also heard to some extent in the jugular vein, is a good sign of dilatation or aneurysm of the first part of the aorta and further makes a diagnosis of aortic syphilis probably correct.

Sterilization of Tuberculous Women During Pregnancy.—Martin discusses the effect of pregnancy upon a woman suffering from tuberculosis and considers the advisability of ending the pregnancy and preventing further conception by performing the operation of panhysterectomy on the gravid uterus. He lays down the following rules for the operation: (1) There must be definite physical signs of tuberculosis or the probability of its presence must be made strong by the sudden failure in the patients general condition and loss of weight, following quickly on the beginning of pregnancy. (2) The interruption of pregnancy has no influence if the pulmonary process is far advanced, or the woman is approaching the second half of pregnancy. In such case the procedure is of value only in case of the sudden onset of edema of the larynx or the lungs. (3) Suitable cases for the interruption of pregnancy are those in whom the disease is in an early stage and the pregnancy is in the first third of its course. A valuable aid in determining the suitability of the patient is found in the conjunctival tuberculin reaction. (4) If the interruption of the pregnancy is indicated it should be done under lumbar anesthesia and the simultaneous sterilization and complete extirpation of the gravid uterus should be done.

Deutsche medizinische Wochenschrift, June 10, 1909.

Pseudoparalysis Agitans (Hysterical).—Under this title Müller de la Fuente reports an interesting case. The patient, an English woman twenty-eight years of age, had taken care of her mother, who was a victim of paralysis agitans. During the mother's life the daughter feared she would also become a suffered from the disease. This fear increased after reading in a popular medical book that the disease was not only hereditary but contagious During the mother's last year the daughter watched herself closely, and thought she noticed a slight twitching of the right arm. A physician who was consulted on saying that she did not have the disease was deserted in disgust. After this the condition advanced rapidly. The tremor became stronger and the typical attitude was assumed. The speech became thick. The tremor increased so rapidly and was accompanied by such marked depression that the patient seriously considered suicide. At this time she came to de la Fuente. She was pale and poorly nourished, had a marked tremor and rapid speech, swallowing half her words. She was very emotional. There was a marked "pill-rolling movement" of the right hand. The author, however, did not diagnose paralysis agitans on account of the age, because on one occasion the tremor was equally strong during movement and rest, because there was no fibrillary twitching, and because the disease had made no progress in three years. There were, too, several of the hysterical stigmata. He therefore told the patient that a new cure for paralysis agitans had just been found. This quieted her and gave an opportunity for suggestive treatment. The patient made a complete recovery, and three years later is still quite well.

Is the Powder or Infusion of Digitalis the Better?—Focke reports some studies of the relative efficiency of powdered digitalis leaves and the infusion, and concludes that as one-fifth of the active substances in the digitalis leaves is not soluble the powdered leaves are one-fourth stronger than the equivalent dose of the infusion. He says that this quantitative difference is the only one he can find, qualitatively the powder and the infusion acting similarly.

Tobacco Poisoning in an Infant.—J. Lemaire reported to the Société de Pediatrie a child of one year of age who ate a cigarette containing 1.02 gm. of tobacco, or probably about 0.002 gm. of nicotine. After sleeping for an hour he awoke, cried, and vomited. There was diarrhea, pallor, and cold sweating. Two hours later he was prostrate and drowsy, very pale, with cold extremities, but no cardiac or respiratory disturbances. Tobacco was vomited and passed in the stools. Tea, brandy, and warmth were administered, and at midnight the patient went to sleep. In the morning he awoke quite well.—*British Journal of Children's Diseases.*

Book Reviews.

The New Standard Formulary. Vol. I. Pharmaceutical Preparations, Comprising all Preparations, Official or Included in the Pharmacopœias, Dispensatories, or Formularies in the World, together with a vast Collection from other sources, the whole embracing the entire field of Pharmaceutical Preparations as related to all Schools of Medical Practice. By A. Emil Hiss, Ph.G., and Albert E. Ebert, Ph.M., Ph.D. Chicago: G. P. Engelhard & Company, 1908.

The scope of this work is sufficiently indicated in the title above given. Its plan has been admirably carried out, and the result is a collection of extreme utility to all practitioners of medicine and of seemingly absolute necessity to pharmacists. There are many preparations here contained not to be found in the U. S. Pharmacopœia, the National Formularly, or any of the Dispensatories, mention of which yet occurs more or less frequently in medical literature. A careful examination of a number of the formulæ taken at random is convincing as to the accuracy of the compilation.

Surgical Diseases of the Abdomen; with Special Reference to Diagnosis. By Richard Douglas, M.D., formerly Professor of Gynecology and Abdominal Surgery, Medical Department, Vanderbilt University, Nashville; ex-President of the Southern Surgical and Gynecological Association; Fellow of the American Association of Obstetricians and Gynecologists; Member of the British Gynecological Association. Second Edition, Revised and Enlarged. Edited by Richard A. Barr, B.A., M.D., Professor of Abdominal Surgery, Medical Department Vanderbilt University; Late Major and Surgeon First Tennessee Infantry, U.S.V. Philadelphia: P. Blakiston's Son & Co., 1909.

Perhaps the most important gain to be noted in this second edition over the first, which was favorably reviewed six years ago, is found in the chapter on peritonitis. The editor has wisely retained the charming English of the original, but no fault can be found with the style of the new text. Indeed, throughout the book, so like the original are the editorial additions that it is only by an actual comparison of pages with the other edition that the beginning point of the new matter can be told. This leaves the new volume an unimpaired unit, of which the editor may justly be proud. It is almost unnecessary to say that the quality of the new information is thoroughly up to date and reliable. As example of this the reader has but to notice the changes which have been made in discussing the etiology of hour-glass contraction of the stomach. The editor agrees with Moynihan that this condition is rarely congenital, and has eliminated the classification given in the first edition. No such change, however, has been made in the stated relations of laboratory findings in gastric ulcer and carcinoma, and as these are known to be variable this is to be regretted. This is a small matter, however, and is compensated for by the judicial presentation of the surgical treatment of gastric ulcer. It is strictly fair, rational, and up-to-date, save for one fact—no reference is made to the very important physiological studies on which to-day our entire knowledge of the proper surgical treatment of ulcer is based. Briefly, gastro-enterostomy is not a "drainage" operation, and should not be so described.

Surgical Diseases of Children. A Modern Treatise on Pediatric Surgery. By Samuel W. Kelly, M.D., Professor of Diseases of Children, Cleveland College of P. & S.; Surgeon in Chief Holy Cross Home for Crippled Children; Pediatrist St. Luke's and City Hospitals; Late Major and Brigade Surgeon U. S. V.; President Pediatric Section, A.M.A., 1901; Member Association Military Surgeons of the U. S. New York: E. B. Treat & Co., 1909.

This volume is in every sense something more than a mere chronicle of surgical pediatrics. It strives at and attains a higher goal. There is a clear and consistent effort to present to the careful reader the practical essential differences between child-surgery and adult-surgery; between child-pathology and adult-pathology. Nor is this all—the book is new and up-to-date in the best sense because it not alone gives full credence and value to the importance of experimental medicine and surgery, but painstakingly seeks to make clear the relationship and interdependence of the surgery which in the past has erroneously been called "practical" and that which has with equal error been styled "theoretical" or "experimental." The author has wisely decided that modern surgery must necessarily be a combination of the two, and the skill with which he has woven the intricate woof of modern surgical physiology and pathology into the strong basic warp of well recognized surgical principles seems to the reviewer the most admirable fact of the entire work.

Finally, the author's great care in presenting essential details should be commented on favorably, as, also, and in every case, the reference to drug treatment. Far from omitting this most important matter, the author has devoted adequate space to a presentation quite worthy of the spirit of the book. Possibly the short chapter on club-foot might have been omitted, but its presence does no harm.

A Manual of Volumetric Analysis. For the Use of Pharmacists, Sanitary and Food Chemists, as Well as for Students in These Branches. By Henry W. Schimpf, Ph.G., M.D., Professor of Analytical Chemistry, Brooklyn College of Pharmacy; Member of the American Chemical Society; of the American Association for the Advancement of Science; of the American Pharmaceutical Association; of the New York State Pharmaceutical Association; of the King's County Pharmaceutical Society; of the German Apothecaries' Society of New York City; Honorary Member of the Alumni Association of the Brooklyn College of Pharmacy, etc. With one hundred and two illustrations. Fifth Edition, revised and enlarged. First Thousand. New York: John Wiley & Sons. London: Chapman & Hall, Ltd., 1909.

This work appears in its fifth edition with a new title. It is also much enlarged, its size being increased from 550 pages, 12mo, to 725 pages, 8vo· the illustrations, too, are nearly doubled in number. The book deals chiefly with pharmaceutical and food analysis; the processes described are such as have been tried and found of value. Copious bibliographical references are given, and the index is thorough and complete.

The Psychology of Dementia Præcox. By Dr. C. G. Jung, Private Docent in Psychiatry, University of Zurich. Authorized translation, with an introduction by Frederick Peterson, M.D., Professor of Psychiatry, Columbia University, New York, and A. A. Brill, Ph.B., M.D., Assistant in Psychiatry, Columbia University, New York. New York: The Journal of Nervous and Mental Disease Publishing Co., 1909.

This book is the fruit of three years experimental labor and clinical observation. Jung thoroughly discusses the different views of dementia præcox, and then cites Freud's analysis of a case of dementia præcox. Unlike the former conceptions of insanity, Freud shows that hallucinations and delusions are not at all meaningless and absurd, but have a distinct meaning when analyzed. They are all based on actual previous experiences of the patient. Jung's association experiments fully verify Freud's views; the complex corresponds to the split-off ideas and is subject to the same laws. The fourth chapter lucidly illustrates the similarities between dementia præcox and hysteria, and in the fifth chapter a full analysis is given of a chronic case of paranoid dementia.

The book is epoch-making in psychiatry and a welcome contribution to English medical literature. It shows how to penetrate the mind and throws new light not only on dementia præcox, but on the whole obscure field of normal and morbid psychology. The translation is very faithful and exceedingly good, and the translator's terse and clear exposition of the recent views of the Freud Zurich school is especially worth reading.

L'Asthme (Etiologie, Pathogénie et Traitement). Par le Dr. R. Moncorgé, Ancien Interne des Hôpitaux d'Alger et de Lyon, Médecin-consultant au Mont-Doré. Paris: Vigot Frères, 1909.

This is a careful and exhaustive study of a single disease, and is worthy of close attention by all physicians who are interested in respiratory affections. Dr. Moncorgé considers asthma a symptom rather than a disease; every intoxication, every infection may directly or indirectly produce asthma. This is especially true of rheumatism, the gouty diathesis, and tuberculosis. Every attack of bradypnea, accompanied or not by secretory troubles, is a true asthma. In spite of the apparent unity of syndrome, asthma often is only the total product of diverse associated causes. Clinically there is no such thing as pseudoasthma, one ought to make an etiological or pathogenical diagnosis and say frankly nephritic, or cardiac, or gastrointestinal, or hepatic asthma as the case may be. One-third of the book is given over to treatment, classified according to pathology and clinical forms. The author's clear method of presentation is a very real help in understanding the essential principles of this troublesome affection.

The Matter with Nervousness. By H. C. Sawyer, M.D., Member of the American Medical Association. San Francisco and Los Angeles: Cunningham, Curtiss & Welch.

This little book is addressed "to physicians, mental healers, and patient minds." Its unscientific title may prejudice physicians against it, but it is entertainingly written, if somewhat rambling, and contains many truths. The text seems to be: Scientific medicine affords all the known resources of healing. Why let others find and use them?

Nervousness is treated as "a surface sign of deep-lying bodily deteriorations that are real," and its cure is a struggle requiring on our part time, sympathy, insight into its etiological factors, and character.

Hygiène Oculaire de la Première Enfance. Par le Dr. E. Ginestous, ancien interne des Hôpitaux de Bordeaux, oculiste de l'Hôpital suburbain des enfants. Paris: Vigot Frères.

The work forms a small volume of 114 pages and contains a few tables, but is otherwise without illustrations. In the introduction Ginestous urges that the cause of blindness, like the cause of the high mortality, in children under 15 years of age, lies in want of care or neglect to establish the proper hygiene on the part of those who have the children in charge. He shows by statistics that about 20 per cent. of the blind become so during childhood, and he points out the fact that such sufferers are largely the innocent victims of neglect on the part of their elders. The causes of blindness in children, the hygiene and prophylaxis of diseases of the eye, the refraction of the eye, particularly the importance of progressive myopia and the influence of errors of refraction in the production of squint, are discussed. One chapter describes the congenital defects of the eye. The last chapter is devoted to suggestions regarding the care of blind children. The subject is treated briefly, in a direct, convincing manner, and is written in a semipopular style, so that those who are interested in children, whether of the medical profession or not, may fully understand the text.

A Textbook of Special Pathology. For the Use of Students and Practitioners. By J. Martin Beattie, M.A. (N. Z.), M.D. (Edin.); Professor of Pathology and Bacteriology, University of Sheffield; Hon. Pathologist, Sheffield Royal Infirmary and Royal Hospital; and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P. (Edin.); Lecturer on Pathological Bacteriology and Senior Assistant to the Professor of Pathology in the University of Edinburgh; Assistant Pathologist, Royal Infirmary, Edinburgh. With 191 Illustrations and two Colored Plates from Original Preparations. Philadelphia: P. Blakiston's Son & Co., 1909.

In this volume on special pathology the authors have provided a fitting pendant to their excellent work on general pathology recently reviewed in these columns. The present text is characterized by the same compactness and systematic arrangement, and, like its predecessor, bears evidence of much original thought and investigation in the fields with which it deals. The sections on the subjects of more importance, such as the heart, kidneys, liver, etc., are comprehensive and sufficiently detailed for all ordinary purposes, the chapter on the blood being especially noteworthy for its completeness, but it must be admitted that certain other topics are treated in rather step-motherly fashion. For example, a single page barely seems space enough to allow for the diseases of the prostate gland, and even less than this is devoted to the diseases of the penis and scrotum. It also appears a pity that the authors have preferred to omit altogether discussion of the diseases of the female generative system, referring the reader to works on gynecology. The work as now completed, however, must rank as one of the best in the English language, and is fully representative of modern standpoints in pathology. In this volume, as in that on general pathology, the very numerous and unusually excellent photographic illustrations contribute greatly to the value of the work.

Über die Wirkung Moderner Projectile. By Dr. F. Riedinger, Professor at the University of Würzburg. Würzburg: Kurt Kabitzsch, 1909.

This admirable brochure of thirty pages is of much value to the military surgeon, giving, as it does, our first exact information as to the effect on the human frame of the new metal-jacketed sharp point or "Spitz" bullet, recently adopted in all the more important armies of the world, that of the United States included. This bullet is much lighter than the round point metal-jacket bullets of the same caliber used in the Spanish, South African, and Manchurian wars, has an initial velocity of from 20 to 30 per cent. greater, and naturally a much flatter trajectory and increased danger zone. As might be anticipated from its high velocity, this new bullet has very pronounced shattering, or so called "explosive," effect at all but the extreme ranges. Some of these new bullets are not of homogeneous composition, but the posterior third is of softer metal, which expands under pressure to better fit the rifling of the barrel, and which becomes more or less deformed by the blast of the gases as it emerges from the gun. Such expansion and deformation naturally increase the damage done to the tissues struck. The *x*-ray illustrations included in this brochure clearly show that this new bullet can scarcely be considered as humane, and that it will produce bone shattering of even more pronounced and extensive character than resulted from the old style large lead bullets of lower initial velocity. This severity of wounds by the new missile should be clearly understood by military surgeons, lest they fall into the common error, in case of war, that the enemy is using small projectiles of a truly "explosive," and inhumanly destructive, character.

The book is excellently illustrated with *x*-ray plates, and with prints showing the different types of military small arms ammunition in use from 1740 down to the present time. The book is earnestly commended to the attention of all those interested in the surgery of the modern battlefield.

Catholic Churchmen in Science. (Second Series.) Sketches of the Lives of Catholic Ecclesiastics Who Were Among the Great Founders in Science. By James J. Walsh, M.D., Ph.D., LL.D.; Dean and Professor of the History of Medicine at Fordham University School of Medicine; Professor of Physiological Psychology at the Cathedral College, New York; Fellow of the New York Academy of Medicine; Life Member of the New York Historical Society; Member of the National Geographic Society, etc. Philadelphia: American Ecclesiastical Review, The Dolphin Press, 1909.

In this volume will be found the lives of some ecclesiastics of the Roman Catholic Church who have achieved distinction in science. Most of the sketches contained herein have appeared in various periodicals (chiefly religious) during the past few years, and are republished with some revision and additions. The ecclesiastics commemorated are Albertus Magnus, Pope John XXI, Guy de Chauliac, and Regiomontanus. There are also chapters on clerical pioneers in electricity, and the Jesuit astronomers. Catholic physicians and others will find much of interest in the volume; the most interesting chapter for the physician and surgeon is that on Guy de Chauliac.

The Theory of Ions. A Consideration of Its Place in Biology and Therapeutics. By William Tibbles, M.D. (*Hon. Causâ*) Chicago, LL.D., L.R.C.P.E., M.R.C.S., L.S.A., etc. Author of "Food and Hygiene," etc. New York: Rebman Company, 1909.

The author of this little volume presents us with a readable account of the present status of the ionisation theory. He also attributes to the ions certain properties akin to those possessed by living matter; in this way he makes the ionization process a sort of bridge over the chasm between dead and living matter. The book begins with a brief introduction, dealing with the theories of matter, and the characters of living matter. Succeeding this are chapters on The Ions, Ions in Biology, Evolution of Organic Matter, Influence of Ions on the Organism, and Influence of Ions in Oxidation and Immunization. Ample references direct the interested reader to authoritative sources of more detailed information.

The Fluids of the Body. The Herter Lectures (New York, 1908). By Ernest H. Starling, M.D., F.R.C.P., F.R.S., Jodrell Professor of Physiology in University College, London W. T. Keener & Company: Chicago, 1909.

This small volume contains the Herter Lectures for 1908, and an additional lecture which was delivered some thirteen years ago and has been rewritten to fit recent knowledge. In the lectures are discussed the physical properties of protoplasm, the osmotic relationships of the body cells with the exchange of fluids in the body, and the production of lymph. The last lecture concerns the causation of dropsy. The treatment of the subject is fairly simple, and the language in which it is presented is the clear and expressive English which we expect, but do not always get, from our cousins across the water. Many of the facts cited are based upon the author's own experimental researches. It would be well for the practitioner if he read more physiology of this type.

Society Reports.

MEDICAL SOCIETY OF NEW JERSEY.

One Hundred and Forty-third Annual Meeting, Held at Cape May, June 23, 24, and 25, 1909.

(Special Report to the MEDICAL RECORD.)

Wednesday, June 23—First Day.

THE PRESIDENT, DR. DAVID ST. JOHN OF HACKENSACK, IN THE CHAIR.

Report of Committee on Scientific Work.—Dr. E. J. MARSH of Paterson said that the committee had decided to limit the number of papers to be read at each meeting to 12, and that it had adopted the policy of securing members to read papers who had not presented papers in previous years.

Report of Committee on Prize Essay.—Dr. CHARLES J. KIPP of Newark announced that the first prize had been awarded to Dr. E. Moore Fisher of Greystone Park, and the second prize to Dr. Floyd McEwen of Newark.

Report of Committee on Medical Defense.—Dr. WILLIAM G. SHAUFFLER of Lakewood made this report: It was recommended that the Medical Society of New Jersey assume the defense of any and all members threatened with prosecution for malpractice, provided they be at the time in good and regular standing in their county societies.

Report of the Board of Trustees.—Dr. LUTHER M. HALSEY of Williamstown made a report of the Committee on Legislation.

Dr. DAVID C. ENGLISH of New Brunswick moved that a special committee of nine be appointed by the president to act in conjunction with the committee on legislation to draft a bill to be presented to the society in regard to the medical situation now confronting them. This motion was carried.

Resolutions Regarding Ophthalmia Neonatorum.—Dr. CHARLES J. KIPP of Newark offered a resolution that the society appoint a committee to put itself in communication with the State Board of Health and component societies to adopt some measures to put a stop to ophthalmia neonatorum. This was referred to committee for action.

Recommendations for Establishing a Home for Idiots.—Dr. CURTS of Paterson asked that the society recommend the establishment of a custodial home for idiots and ask for an appropriation equal to the requirements.

Dr. BRITTON D. EVANS of Greystone Park said that there was no institution in the State for the care of low-grade imbeciles and idiots, and he hoped that the society would give its endorsement of this recommendation. This was referred to the Committee of Legislation.

Oration on Medicine.—Dr. THOMAS N. GRAY of East Orange delivered this oration. He said that, in looking backward, lessons could be learned which should be an incentive to greater zeal in the medical profession. Fear and superstition marked its beginning; it came up through fetiches, alchemy, charms, poisons, and priestly functions to some little knowledge of man and his ailments, having no basis except that there was pain or sickness, and that the sufferers demanded relief from them. Later on, in a quest for the why, there came about some small knowledge of the cause and effect as applied to the human body and its ailments. All through these years there had been self-denial and the assumption of great risks, the giving of life even. All through the civilized world men were giving their brains, their knowledge, their all, for the good of man: this was a spirit of devotion on the part of men of medicine that gave to the history of medicine its salient features, steady advancement in the knowledge and equipment. Dr. Gray detailed a few of the advances made in medicine. In this wonderful advance in scientific medicine how much had they burrowed into chemistry, biology, bacteriology, sanitation, photography, electricity, and the other lesser sciences? The giant strides of scientific medicine during the last decade had been accompanied by a demand for educational standards commensurate with each and every advance. It did not come from the public, but from the medical world. As a consequence the many bogus medical schools of thirty years ago had been reduced to a very few, and the better class of schools had raised their requirements again and again; the requirements for entrance to the fifty-four medical schools in 1910 demanded one or more years of college, these years to be devoted to the study of physics, chemistry, biology, and languages.

Chloroform Anesthesia in Throat Operations.—Dr. F. C. DEMEREST of Passaic read this paper. Chloroform he believed to be the best anesthetic that could be used in operations about the throat in children under the age of twelve years. It should be pure and fresh, given by an expert, and by the drop method.

Dr. GEORGE E. TUERS of Paterson said that he had used five different anesthetics by five different methods. If one took the statistics of New Jersey he believed that the figures would be astounding, showing the large number of deaths that occurred from the giving of anesthetics. Chloroform be considered the pleasantest anesthetic to take, but the most dangerous to use. It was the quickest to anesthetize and the quickest to kill.

Dr. THEODORE F. LIVERGOOD of Elizabeth said that chloroform was being used more and more in throat operations, and the reason was that men were better qualified to give it than they were years ago.

The Influence of Sleep on Arteriosclerosis.—Dr. W. W. BEVERIDGE of Asbury Park read this paper. The whole process in arteriosclerosis seemed to be a failure of nutrition. The pathology of this trouble seemed to focus on this point. Very little work had been done in the study and investigation of the phenomenon of sleep. He believed that sleep had much to do with nutrition; in fact, the couch on which one slept was the repair shop for the body. The system demanded an abundance of good food and plenty of sleep. Those who suffered from arteriosclerosis were generally poor sleepers, their slumbers being disturbed by the cares and worries incidental to the present strenuous life. More sleep would tend to obviate the occurrence of arteriosclerosis.

Annual Address by the President.—Dr. DAVID ST JOHN of Hackensack delivered this address. His topic was "Some Recent Advances in Medical and Surgical Work." He said that medicine and surgery were now becoming an exact science, and many advances had been made. There was a revival in the use of tuberculin in the diagnosis and treatment of tuberculosis. Before the use of Flexner's serum the mortality from epidemic cerebrospinal meningitis had been from 68 to 85 per cent., but since its introduction the mortality had fallen to about 25 per cent. Great advances had been made in the surgery of the blood vessels; also in transplanting an organ of one animal to replace one that was removed by accident or disease in another animal.

Oration in Surgery.—Dr. GEORGE EMERSON BREWER of New York said he would take up the consideration of two subjects—acute unilateral septic infarctions of the kidney, and acute diverticulitis of the colon. Acute unilateral septic infarction of the kidney was a condition that was not generally recognized, as evidenced by the fact that of nine more or less typical examples of the disease which had been admitted to Roosevelt Hospital during the past four years only one came in with the diagnosis of a renal infarction. This condition was first called to his attention

twelve years ago, when a case was admitted to the New York Hospital. During the next five years two more cases were encountered, each almost identical in onset, clinical history, and pathological findings. In all of these cases the kidney was explored, incised, and drained. The patients all died. Up to this time he feared to perform nephrectomy, for the reason that he thought the infarctions were bilateral, although the symptoms pointed to one side only. The next case was more carefully studied, and the autopsy gave him his first definite conception of the true pathological lesion and clearly pointed to more radical treatment. This case, together with his previous experience, conclusively demonstrated to him that in these cases he had to deal with a severe type of infection, presenting an obscure symptomatology, which tended to progress rapidly to a fatal termination unless something far more radical in the way of treatment was employed than had been carried out in his earlier cases. The lesions most commonly found in these cases were due to a plugging of the smaller arteries and capillary vessels with groups of organisms. These minute emboli were later surrounded by an encircling zone of round cell infiltration. When the larger trunks were thus involved triangular infarcts were presented; where the capillaries only were involved, minute abscesses were seen throughout the cortex and beneath the capsule. Dr. Brewer then described three clinical types of the infection. One, the severe type in which the toxemia was so great as to obscure the comparatively mild renal lesion. This type progressed rapidly to a fatal termination unless promptly treated by nephrectomy. There were thirteen cases of this type which came under his observation, of which five were treated by nephrotomy with death in every instance; eight were treated by nephrectomy and all recovered. The second was the intermediary type, and in this the initial symptoms might be as severe, but the evidence of grave, progressive toxemia was wanting. Six cases of this type had been operated upon by him; all were decapsulated and all made satisfactory recoveries. The third was the mildest type of the disease; no operation was required and the patients were of surgical interest only on account of the fact that it accounted for certain cases observed by all surgeons in which during or after a presumably typical attack of subacute appendicitis or cholecystitis an operation revealed no lesion or signs of inflammation. The one pathognomonic sign in all cases was a marked unilateral costovertebral tenderness. Acute diverticulitis of the colon he divided into four clinical groups. One in which there was a mild inflammation of the diverticulum which subsided like a catarrhal appendicitis under rest and appropriate medication. Secondly, those cases in which the inflammation was more severe and progressive and in which the diagnosis was made and operation performed before rupture took place. Thirdly, those cases in which there had been a rupture of the diverticulum with the formation of a localized abscess. Fourthly, all cases in which rupture of the inflamed diverticulum into the free peritoneal cavity had taken place with a resulting spreading or generalized peritonitis. In general it might be stated that the symptoms and signs of an acute diverticulitis were practically identical with those of an acute appendicitis in its various forms, the only difference being that the former occurred, as a rule, on the left side rather than on the right side of the abdomen. The clinical course of the disease was so similar to the various forms of acute appendicitis that the treatment should be the same.

Intramuscular Mercurial Injections in Syphilis.—Dr. Henry A. Pulsford of Orange said that in the administration of mercury by mouth or inunction there was no indication to tell one how much reached the general system. There was no doubt regarding the merits of the intramuscular injections of mercury. The physician's control of the patient was perfect. Of all the objections against the use of these injections, the most common was that it was painful. This was not always so. About the point of injection there was formed an organized or unorganized exudate which was called "nodes." If too many of these formed, then there was danger from mecurialism. In case the patient had an extensive dental caries this was a contraindication for the use of mercury.

Dr. J. F. Wallhauser of Newark believed that the intramuscular injection of mercury in the treatment of syphilis would be the plan of the future. He began this treatment five years ago and had never seen any disagreeable features except from the painful nodes. The use of the gray oil was less painful he thought than the salicylates.

Dyspepsia a Misnomer.—Dr. W. Blair Stewart of Atlantic City said that dyspepsia was not a disease but a symptom. The term dyspepsia was an unfortunate one. Dr. George B. Wood in his book written in 1847 said that the term was a most unfortunate one as it expressed no pathological state. This term should not be used in order to shield ignorance. He reviewed the modern diagnostic methods and made a plea for early and accurate diagnosis of cases.

Dr. J. Finley Bell of Englewood believed that the word dyspepsia was not used to-day as it was a few years ago since the diagnostic methods had become so refined.

Thursday, June 24—Second Day.

Address of the Third Vice-President.—Dr. Daniel Strock of Camden made this address on "Problems that Confront the Component Societies." He emphasized the importance of medical representation in city, state, and county affairs, not so much for what benefit might accrue to the profession, but for what might be done for the good of mankind. Contract and lodge practise was strongly condemned. The opportunities for doing good were to be had only through a hearty cooperation on the part of the doctors in the component societies.

The Indications for the Induction of Labor: Instrumental Delivery Through the Vagina and Cesarean Section.—Dr. Edward P. Davis of Philadelphia read this paper. He said that cases of parturition should be divided for the purpose of study into those who had passed through either one parturition at full term and those who had not passed through parturition at full term. In the case of the former every effort should be made to prepare the patient for spontaneous delivery. Unless the pelvis was highly contracted, labor should not be induced, because 80 per cent. of the patients with abnormal pelves of lesser degrees of contraction delivered themselves spontaneously. During pregnancy these patients should receive careful attention in order to bring them to labor in the best possible condition. In four-fifths of the cases of pelvic contraction the child spontaneously entered the pelvis and in nine-tenths of all cases of primipara this result occurred from natural causes only. In those cases where the women had passed through unsuccessful parturition an effort should be made to select a method of delivery in accordance with former experiences. In selecting the time to induce labor two methods were of practical value. One consisted in fitting the presenting part into the pelvis by suprapubic pressure coupled with a vaginal examination to determine the result. The second consisted in taking the average period of gestation and to bring on labor at that time. Thirty-four weeks had been found to be a good average time for the induction of labor. In selecting instrumental delivery through the vagina the most frequent operation performed was extraction by the obstetric forceps. One could not too strongly condemn the application of forceps to the head which was not engaged in the pelvis. The engagement of the head would

be furthered by placing the patient during the second stage on that side of the body towards which the back was directed, by causing the bladder to be frequently emptied, by preserving the membranes intact, and by giving a stimulus, as well as rest to the nervous system. When the head was engaged without descent and the operator decided to use forceps, Walsher's position would aid all women younger than thirty-five. The operation of version had fallen into some neglect during the development of other methods of operating. Under the most favorable circumstances the induction of labor threw a distinctly increased risk upon the child. The maternal mortality of embryotomy did not depend so much upon the operation as upon the unfavorable circumstances surrounding it in those cases in which it was indicated. Where the disproportion between the mother and the child was slight, where the vagina was very distensible, or had been distended by previous labors, where the mother and child were in good condition, and the life of the child was desired, symphysiotomy or pubiotomy done in the hospital with good technique gave fairly good results. In summarizing, Dr. Davis said that except in cases of highly contracted pelves, or where it was impossible for the presenting part to engage, the patient should have the test of her first labor. In the majority of the cases engagement and descent began, and labor was safely terminated by vaginal delivery. Where there had been a disastrous first labor ending in injury or death to the child and injury to the mother the cause should be carefully sought. If a disproportion in the size had been the cause, the mother's diet should be carefully chosen and, if the child was evidently large, labor should be induced on an average of about the thirty-fourth week. If the parents were anxious for a child, the mother's diet should not be restricted and labor should not be induced, but the mother should be put in the best possible condition and allowed to come into the beginning of labor. When it was evident that engagement and descent were not occurring normally, the child should be delivered by abdominal section. Forceps should not be applied to the presenting part unless the latter was engaged and beginning to descend through the upper pelvis. When this did not occur the life of the child was to be considered, and if a competent operator and hospital facilities could be secured the patient should be delivered by abdominal section. If the patient was a multipara and the disproportion was very slight, and the vagina was distensible and a competent operator at hand with hospital facilities, a pubiotomy, if desired, might be selected. When an engagement of the head had not occurred and the operator was unwilling to assume a reasonable risk for the life of the child, the case might be terminated by an embryotomy. Abdominal section should not be done in those cases where efforts had been made to deliver the child by forceps, version, or embryotomy unless the operator was prepared to remove the body of the uterus. Those cases in which unsuccessful efforts had been made by vaginal delivery should be considered as infectious; the conditions were unfavorable for abdominal delivery, and the child should be extracted by embryotomy and the uterus drained with gauze. Where there was reason to fear that the uterus and surrounding tissues had been injured and ineffectual attempts at delivery had been made, an abdominal section followed by the Porro operation should give the best results. Dr. Davis desired to emphasize the following points: (1) The forceps should not be applied to the presenting part unless engagement had occurred and descent begun. (2) Delivery by abdominal section should not be performed in those cases where inefficient attempts at delivery by forceps, version, or embryotomy had been made, unless the operator was prepared to remove the body of the uterus.

Indications for Interference During Labor.—Dr. Simon Marx of New York presented this paper. He said that when and how to operate during labor were gifts possessed by few obstetricians. The best operator was the one who possessed the faculty of knowing both how and when to interfere. The following essentials held the crux of the situation: (1) The study of the woman before labor. (2) A positive appreciation of the position and presentation of the fetus and its relation to the pelvis. (3) The constant control of the fetal heart's action and the maternal condition. (4) Interference only when there were positive indications which warranted such interference. In studying the woman from the standpoint of pelvimetry, the pelvic contractions and irregularities, especially the latter, could be determined by the pelvimeter, and the use of this instrument should be encouraged more. If a relative or absolute pelvic contraction could be excluded, a case of dystocia must of necessity be due to a malposition or malpresentation of the presenting part in an overwhelming majority of the cases. The head that failed to engage was either malposed or too large for the pelvis. The constant regularity of the heart's beat was of unquestionable value in estimating the safe life of the unborn child; on the maternal conditions they pinned their faith mainly on the condition of the pulse and the temperature. No labor should be interfered with unless there were present symptoms of beginning maternal exhaustion or fetal exhaustion. Should either one or the other of these manifestations present, labor must be terminated to save the fetus. In a canal that was prepared, a rapid delivery was simple and safe, both for the mother and the child. But if the conditions were otherwise, he believed in the following: Placing the life of the mother and the child on the same plane, where a cutting operation was to be done, a Duhrssen's operation or a vaginal cesarean section would be the measures at their command. To attempt to deliver the fetus rapidly, no matter what the indications were, simply defeated their own ends, and to this was added the risk to the mother. To successfully cope with such an emergency as a sudden irregularity of the fetal pulse and a discharge of meconium in a woman whose os was hardly distended, he asked if they were justified in subjecting the woman to the risk of a serious operation in order to attempt to deliver her of a living fetus. Could they operate quickly enough or deliver sufficiently rapid to succeed without producing dangerous lesions? Personally, Dr. Marx thought not. It would subject the operator to a very uncomfortable position to deliver a dead or dying fetus under these conditions, after subjecting the woman to all the risks of operation, plus the usual lack of preparation. Where the canal could be easily dilated for rapid work, it should be done; but under all other conditions he favored the waiting policy. Correct any anomaly of uterine obliquity and by placing the woman persistently on that side corresponding to the position of the presenting part at once favored flexion in vertex cases and extension when the face presented. This might or might not be supplemented by direct finger pressure to insure the completeness of either flexion or extension. The posterior occiput cases could be corrected by version, by rotation of the entire head with the body into a perfect occipito-anterior position, but how seldom did this correction, when possible, remain permanent? Version was more preferable than head rotation; but how often could it be done? He advised letting these cases alone until indications for interference arose. Where all the physical causes could be excluded and the labor was tardy and the pains faulty, there was no better oxytocic to regulate the pains and increase their efficiency than one or two grams of quinine by either mouth or rectum. When an examination revealed a neurotic or spastic condition of the os, with sharp edges, there was no better means at hand than chloral in divided doses up to three grams.

Opium was of good service early in such cases during the first stages where there was danger of lagging pains and exhaustion.

Dr. J. Watson Martindale of Camden said there was no method of determining the exact size of a child's head before birth, and he reported the case of a woman giving birth to her child naturally, and on the operating table, while preparations were being made for doing a cesarean section.

Dr. Ellis W. Hedges of Plainfield said that delivery was often hastened, especially in the larger cities, for the convenience of the operator, and not always for the good of the patient.

Dr. Edward J. Ill of Newark recalled two cases in which high forceps operation was done, and in both cases the pubic bones had been separated. In one case there resulted an incurable vesicovaginal fistula; in the other cases a vesicovaginal fistula resulted which had been operated upon three times unsuccessfully. Both these patients were made invalids for life.

Dr. Norris of Philadelphia believed that no man had any right to attend a confinement in a primipara without a knowledge of the size and the shape of the pelvis, or in a multipara without a study of the patient, a history of her former labor or labors, and a knowledge of her physical condition. In forceps delivery, when the third stage approached he removed the instruments and allowed the woman to come out of the chloroform and deliver herself. By so doing there would be less hemorrhage and fewer complications. He thought that the infant's claim for life should be heeded and operations more often resorted to. Whenever the conjugate diameter was less than 8 cm. he believed in elective operations. Cesarean section was indicated in cases of placenta previa where an early diagnosis had been made, with a patient not exsanguinated, with a child that was viable, with good environment, and with a skilled operator at hand.

Medical Expert Testimony.—Dr. Thomas P. Prout of Summit read this paper, in which he made a strong argument against medical expert testimony as it existed to-day. He urged an expeditious reform. There was too slow an administration of justice. He was asked to testify in a case recently; when he asked how soon he would be needed he was much astonished at the reply, "In about three years." It seemed to him that the law of the future must take on a more scientific aspect if it intended to keep up with the progress of the world.

Dr. Britton D. Evans of Greystone Park said that the particular reason for introducing hypothetical questions in the trial of a case before a court and jury was for the purpose of setting forth in a more or less abstract way the scientific facts and conditions identical with or similar to those which had been proven or were to be proven in the given case at issue; and the extensive hypothetical question had been ordered because it set forth in a most expeditious manner all the admissible parts in the testimony needed. Personally, he found the hypothetical question in many particulars objectionable in that it grouped together a number of hypotheses, and forced the witness to accept them all as proven facts and to reject all other minor testimony not included in such hypothetical question. It was firmly his belief that long hypothetical questions, consisting of several thousand words, did not contain the best advances in the cause of justice; they tended to bewilder and confuse.

Dr. Edward J. Ill of Newark thought that the reader of the paper deserved great credit for his criticism of the law and its officers. He wished for the abolishment of hypothetical questions. The intimidation of witnesses should not be permitted. They should ostracize those among them who contributed to the miscarriage of justice.

Election of Officers.—*President,* Dr. B. A. Waddington of Salem; *First Vice-President,* Dr. Thomas H. Mackenzie of Trenton; *Second Vice-President,* Dr. Daniel Stock of Camden; *Third Vice-President,* Dr. Norton L. Wilson of Elizabeth; *Corresponding Secretary,* Dr. Harry A. Stout of Wenonah; *Recording Secretary,* Dr. William J. Chandler of South Orange; *Treasurer,* Dr. Archibald Mercer of Newark. Next place of meeting, Atlantic City.

Pathognomonic Signs Relating to Appendix Localization.—Dr. A. J. Walscheid of Union Hill read this paper and offered the following conclusions: In making a diagnosis of appendicitis it was essential (1) to take into consideration the previous history; (2) the character of the pain, whether general or local; (3) the presence of gastric disturbances and bowel movement; (4) the presence of bladder, rectal, respiratory, and other symptoms; (5) the degree of contraction and tenderness, with a careful mapping out of the points of most severity; (6) the leucocyte count, temperature, and pulse. Edenataus condition of the parietal peritoneum involving the ileopsoas fascia and muscles produced a sign which was important in making a topographical diagnosis. It was brought about by an inflammatory irritation causing muscular rigidity, and was exhibited by the patient complaining of pain with moving the right leg and keeping the thigh continuously flexed upon the abdomen to bring about muscular relaxation. In the beginning of an attack of appendicitis this sign might be overlooked; but as the disease progressed it presented itself in mild degree, and gradually assumed a more severe type.

The Sterilization of Confirmed Criminals, Idiots, Imbeciles, and Other Defectives by Vasectomy.—Dr. William J. Chandler of South Orange said that students in sociology had called attention to two important facts—that the birth rate of the criminal and defective classes increased much more rapidly than did that of the intelligent and law-abiding citizens, and that certain defects were passed along as an inheritance from the parent to the child. The statistics showed that criminals, imbeciles, idiots, rapists, and the insane multiplied twice as fast as the rest of the population. There were several reasons for this increase, and the most obvious laid in the fact that these defectives had no sense of their responsibilities and sought only a gratification of their animal nature, while the more intelligent classes realized their responsibilities and the burdens entailed in raising families, and so limited the number of their offspring. The forbidding of marriage would not help; marriage was not necessary for the propagation of children, for many were born out of wedlock. The segregation of these people in colonies was too costly. Castration unsexed the individual, and therefore was objectionable. The *x*-ray was known to produce sterility in a large number of cases, but their knowledge was limited, and it would take considerable experimentation to determine its effects in this respect. Dr. Chandler said there was one safe and thoroughly efficient operation to prevent the propagation of criminals, idiots, imbeciles, and other defectives, and yet not unsex them, namely, vasectomy. This was a simple operation, and could be performed under a local anesthetic or none at all. The power of self-control was said to be increased by preventing the absorption of the testicular secretion. He hoped that a resolution would be passed to prepare a bill on the lines of the one framed in Indiana to be presented at the next session of legislature.

Dr. George H. Balleray of Paterson said that crime and its punishment properly came within the province of preventive medicine. If the race was to be improved, the criminal element must be eliminated. The only efficient way to prevent crime was to unsex all criminals. There was nothing that would act more powerfully than the fear of being unsexed. Crime was fundamental in order to obtain the means of satisfying the sexual propensity. A

man would incur any risk to satisfy his sexual instincts, and this made him a source of danger in the community. When a man allowed his sexual passions to override his judgment he reduced himself to the life of a brute, and should be so treated. After he had been unsexed such a man became a better citizen, and might become a very useful member of the community. When one considered the perfect abandon with which the modern woman submitted to evisceration of her pelvis by her pet gynecologist, he concluded that the fear of being unsexed would not act as a means of deterring from crime so far as the woman was concerned. But the thought of being rendered sterile would prevent them from propagating offspring, that would inhibit their tendency, and in that way diminish the number of criminals. For that reason the female criminal should be treated as their male companions in crime. The suppression of immigration came within the province of preventive medicine. If America was to be the dumping ground of all the riffraff and scum of Europe, we must expect physical and moral degeneracy as a reward for our utter disregard for the consequence of our asinine behavior. Why should America open its doors for the vagabonds, paupers, and criminals that Europe saw fit to unload on our shores? What was to become of the American people if this state of affairs was to continue?

Friday, June 25—Third Day.

At What Age Should a Child Be Admitted to Our Public Schools?—Dr. Joseph Funk of Elizabeth said the law read that children over five and under twenty years of age should be admitted to the public schools. He believed that no child should be admitted under the age of seven years; that the length of the school hours should be shortened, especially during the first two years of school life; that outdoor games should be encouraged; that every child entering school should be carefully examined by a school inspector, etc. It was no wonder that the children fell a prey to disease after spending long hours in rooms containing fifty or more children, and that the mortality among them was so high. Before thinking so much of their mental training, more attention should be given to their physical training. They should be more in the open air and in the sunshine. Plenty of sleep was also essential.

Some Points in Infant Feeding.—Dr. D. E. English of Summit said that infant feeding was not yet an exact science nor a perfect art. The final result to be striven for was a mentally and physically perfect adult. With regard to the kind of food given he had very little to add, but he advocated mixed feeding. When the mother's milk was deficient the child should nurse all there was, and then be given the bottle immediately to finish the meal; in this way the artificial food would be influenced by the ferments in the mother's milk. The babe should be put to the breast at once after it had been washed and given nothing but water until the milk appeared in the breasts. The babe should have plenty of sterile water between feedings; raw water was better if it was sterile. The baby's hands and everything he touched should be kept as clean as possible. The inside of a healthy baby's mouth should not be washed until the teeth appeared. When the infant had two incisor teeth one could begin feeding cereal water. The cereals should always be boiled three hours. A week later egg-albumin water could be given; the white of one egg to one half-pint of water was strong enough. A little salt, and possibly some milk sugar, might be added. From the third month fruit juice, preferably orange juice, should be given twice a week. One could begin weaning the infant when he had four well-developed teeth. Night feeding should be first omitted. Weaning should be a slow process, extending over six or eight weeks, and if indications for weaning came in the hot or humid season it might be well to defer it or to wean only partially. Clean raw milk was better than pasteurized milk; middle milk might be used or the cream might be pasteurized. It was safer to sterilize the milk sugar. The tendency was to use too high percentage of fat and protein and to overfeed. The infant would fail to grow on too rich food just as surely as on too poor food. Raw yolk of egg might be begun at the end of the third month, a quarter of a dram once a day. This quantity might gradually be increased, until by the seventh month one dram twice daily was given. One should always add a little salt to modify milk and suit the infant's taste. No hard and fast rules could be given as regarded the amount of food. The capacity of the infantile stomach was not accurately known, and each infant was a law unto itself. The infant was the best judge of how much it should take at each feeding. They required a little more modified milk than mother's milk. The only safe guide was the increase of weight and length in proper proportion. One should not try to make an infant grow much during hot or humid weather, but should be content with keeping it hardy and well. In regard to the manner in which food was given, one should remember that one object was to develop the muscular power of the stomach. This could only be done by properly exercising that muscle. Too frequent feeding, not feeding too much at one time, was the cause of dilatation of the stomach. Feeding a fixed amount at certain regular intervals, with mathematical exactness, was a mistake; a baby was not a machine—it was vital, not mechanical. The infant could not always digest the same amount of the same kind of food in the same number of minutes. An infant should never be fed when it was not hungry. Never feed the infant until nothing else would quiet it. Try water, fresh air, adjustment of clothing, then let it cry and worry for a time; be sure it was hungry. When the infant was feeding try to induce it to continue feeding until its stomach was full and distended. It did no harm if a little ran over. This stretched and exercised the stomach muscle. After the infant had taken all the food that it could be induced to take it should sleep. Everything should be done to prolong this sleep as long as possible. The child should not be fed again until nothing else would quiet it. Ample time should be allowed for digestion, complete contraction, evacuation, and rest.

Ophthalmia Neonatorum.—Dr. T. Richard Paganelli of Hoboken said that one-fourth of all the cases of blindness was due to ophthalmia neonatorum. The partially and totally blind, according to the United States Census for 1900, equalled 7,369. Ophthalmia neonatorum was probably the cause of 25.02 per cent. of the blind in the first year of life. In Great Britain, in 1880, 7,000 persons lost their sight from this disease, costing the government 350,000 pounds annually to maintain them. From a commercial point of view one could readily see the benefit it would be to stamp out this disease, which was both preventable and curable. The best method of prevention was that instituted by Credé, which was as follows: Remove by washing with sterile water the collection of vaginal discharge on the infant's eyelids; the eyelids were then separated and a drop of a two per cent. solution of silver nitrate was instilled. The following were Credé's own figures: 1880, 211 births; cases of ophthalmia neonatorum, 0; a percentage of 0.00. 1881, 400 births, cases of ophthalmia neonatorum, 0, a percentage of 0.00. 1882, 418 births; cases of ophthalmia neonatorum, 1-2; a percentage of 0.25—0.49. 1883, 131 births; cases of ophthalmia neonatorum, 0; a percentage of 0.00. Bayer had stated that from 1877 to 1880 ophthalmia neonatorum in Stuttgart, Germany, was from 8.7 to 14.3 per cent. Since the Credé method had been instituted there had not been a single case.

The Super-Nutritive Properties of Milk.—Dr. Alex-

ander McAlister of Camden read this paper. He said that if an apology were demanded for presenting what seemed at the present time to be the most hopeful features of the pure milk propaganda from the viewpoint of the physician, the mention of recent developments and the fact that almost alarmingly little was being written on the subject should suffice. The sanitary sciences and the campaign against tuberculosis seemed to have crowded the great problems of infant feeding and how to secure a purer general milk supply to the rear. This was to be regretted, because pure milk was a requisite in the treatment of tuberculosis. The tendency to consider milk in its purely biological aspects was at once the most recent and the most auspicious, because it showed milk to be the most extraordinary of foods, and it demonstrated the difference between pure whole milk and milk that was not pure and whole. This new aspect of milk gave the strongest incentive yet entertained for shortening to the minimum the interval of time between the milking of cows and the ingestion of milk. Centuries ago the opinion was entertained that mother's milk possessed properties not embraced under the head of nutritive principles. This biological principle in milk over and above the strictly nutritional gave to milk its distinctive character as a food. Other foods were more fattening, but none was so well suited to the needs of the growing organism. Because of the presence of this principle, milk was of the nature of mixed food in the sense that it contained all five of the essentials of a perfect food; it was digested with the ease of a simple food, with very little residue to be disposed of by the intestines. Thus milk met, as no other food could, the special demand in the infant for rapid constructive metabolism and growth. Milk was an extraordinary food in the sense that it was made available by nature, unaided by man, to meet specific needs in nature. If these needs were those of an infant, this statement was only applicable to the mother's milk. Cow's milk was ideal only for calves. Still it was a superb fact that cow's milk was the best of all available foods for infants deprived of breast milk. Substitute feeding always added an element of danger, but the danger was least when cow's milk was employed. The aim should always be to derive from the milk all that nature centered in it for the benefit of the youth. The extraordinary properties of whole pure milk, stripped of the verdant laboratory phraseology, lay in its close kinship to blood. Formerly, milk was looked at as a natural emulsion; to-day it was regarded rather as living cells suspended in serum. The cells were nucleated, and if not genuine white corpuscles were at least first cousins of the white corpuscles. The property that stimulated and facilitated digestion and assimilation, perhaps even metabolism, the power that restrained, if it did not destroy, bacterial activity and other more subtile, if not more important, qualities were explained by this blood kinship. These supernutritive principles in milk were always the first to suffer when change occurred in the milk. These supernutritive principles were found only in fresh, whole milk; in stale milk overrun with bacteria and in boiled and preserved milk they were no longer present.

Amebic Dysentery in California.—J. D. Long considers that amebic dysentery has a firm foothold in California. He recommends for its eradication: (1) Legislation making it a punishable offense to use human excreta as fertilizer; (2) inspection of gardens, truck farms, etc., to see that such a law is enforced and the licensing of gardeners, all cases and crates bearing the license number; (3) education of the people to the knowledge that fresh vegetables must be thoroughly cleaned and cooked; (4) inspection of water sheds; and (5) proper disposal of sewage.—*California State Journal of Medicine.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending July 17, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	480	158
Diphtheria	250	27
Measles	501	13
Scarlet Fever	107	8
Smallpox	—	—
Varicella	13	—
Typhoid Fever	60	8
Whooping Cough	47	12
Cerebrospinal Meningitis	7	8
Malarial Fever	..	..
Totals	1,465	234

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending July 16, 1909:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
Illinois, Chicago	June 27–July 3.	2	..
Danville	June 28–July 4	2	..
Springfield	May 28–June 11	2	..
Kansas, Kansas City	June 27–July 3.	1	..
Kentucky, Covington	June 27–July 3.	2	..
Lexington	June 27–July 3.	2	..
Louisiana, New Orleans	June 27–July 3.	3	..
Massachusetts, Lawrence	June 27–July 3.	1	..
Missouri, St. Louis	June 19–26.	2	..
New York, general	May 1–31.	411	..
Ohio, Cincinnati	June 26–July 2.	1	..
Texas, San Antonio	June 27–July 3.	3	..
Washington, Spokane	June 19–26.	1	..
Tacoma	June 20–27.	2	..
Wisconsin, Appleton	June 19–26.	1	..
Milwaukee	June 20–27.	2	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	May 22–29.	5	1
SMALLPOX—FOREIGN.			
Argentina, Rosario	Apr. 1–30.	..	1
Brazil, Pernambuco	Mar. 20–May 15.	..	26
Canada, Halifax	June 19–26.	2	.
China, Amoy	June 1–5.	..	3
Hankau	May 8–15.	.	Present
Hongkong	May 15–29.	7	5
Shanghai	May 15–June 5.	..	2
Tientsin	May 1–8.	1	1
Ceylon, Colombo	May 22–29.	2	..
Egypt, Cairo	May 27–June 3.	3	4
Suez	May 20–June 17.	42	3
India, Bombay	June 2–8.	..	10
Calcutta	May 15–29.	..	64
Madras	May 29–June 4.	..	3
Rangoon	May 22–24.	..	2
Indo-China, Saigon	May 8–15.	6	3
Italy, general	June 13–20.	14	..
Naples	June 13–20.	8	4
Rome	Mar. 6–13.	1	1
Java, Batavia	May 22–29.	2	..
Mexico, Aguascalientes	June 20–27.	..	1
Guadalajara	June 10–17.	..	17
Mexico City	May 15–22.	..	17
Monterey	June 13–27.	..	10
Veracruz	May 29–June 19.	1	1
Portugal, Lisbon	June 19–26.	3	..
Russia, Moscow	June 5–12.	43	7
Odessa	May 29–June 19.	7	..
Riga	June 12–26.	10	..
St. Petersburg	May 29–June 5.	19	1
Warsaw	Apr. 24–May 8.	..	6
Siam, Bangkok	May 1–28.	1	1
Switzerland, Geneva	June 5–12.	1	..
Siberia, Vladivostok	May 14–21.	1	..
Spain, Barcelona	June 7–21.	..	8
Valencia	May 29–June 19.	22	1
Vigo	May 29–June 19.	..	4
Turkey in Europe, Constantinople	June 6–13.	..	1
Turkey in Asia, Bassorah	June 5–12	..	Present
YELLOW FEVER.			
Barbados, Parish St. Joseph	June 12–19	1	..
Brazil, Manaos	June 5–12.	2	..
Pernambuco	Mar. 20–May 15.	..	7
CHOLERA—INSULAR.			
Philippine Islands, Provinces	May 22–29.	14	5
CHOLERA—FOREIGN.			
India, Bombay	June 2–8.	..	11
Calcutta	May 15–29.	..	117
Madras	May 29–June 4.	..	1
Indo-China, Saigon	May 8–15.	1	..
Russia, Bachmatschowe	June 24.	1	1
Cronstadt	June 18.	2	.
Mariecbamn	June 23–24	1	1
St. Petersburg	June 18–24.	379	105
St. Petersburg Govt.	June 23–24.	8	1
Siam, Bangkok	May 1–28.	1	..
PLAGUE.			
Chile, Iquique	June 2.	10	In lazaretto
China, Amoy	June 1–5.	..	25
Canton	May 1–29.	110	85

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Original Articles.

PARASITISM AND NATURAL SELECTION.

A MEDICAL SUPPLEMENT TO DARWIN'S ORIGIN OF SPECIES.

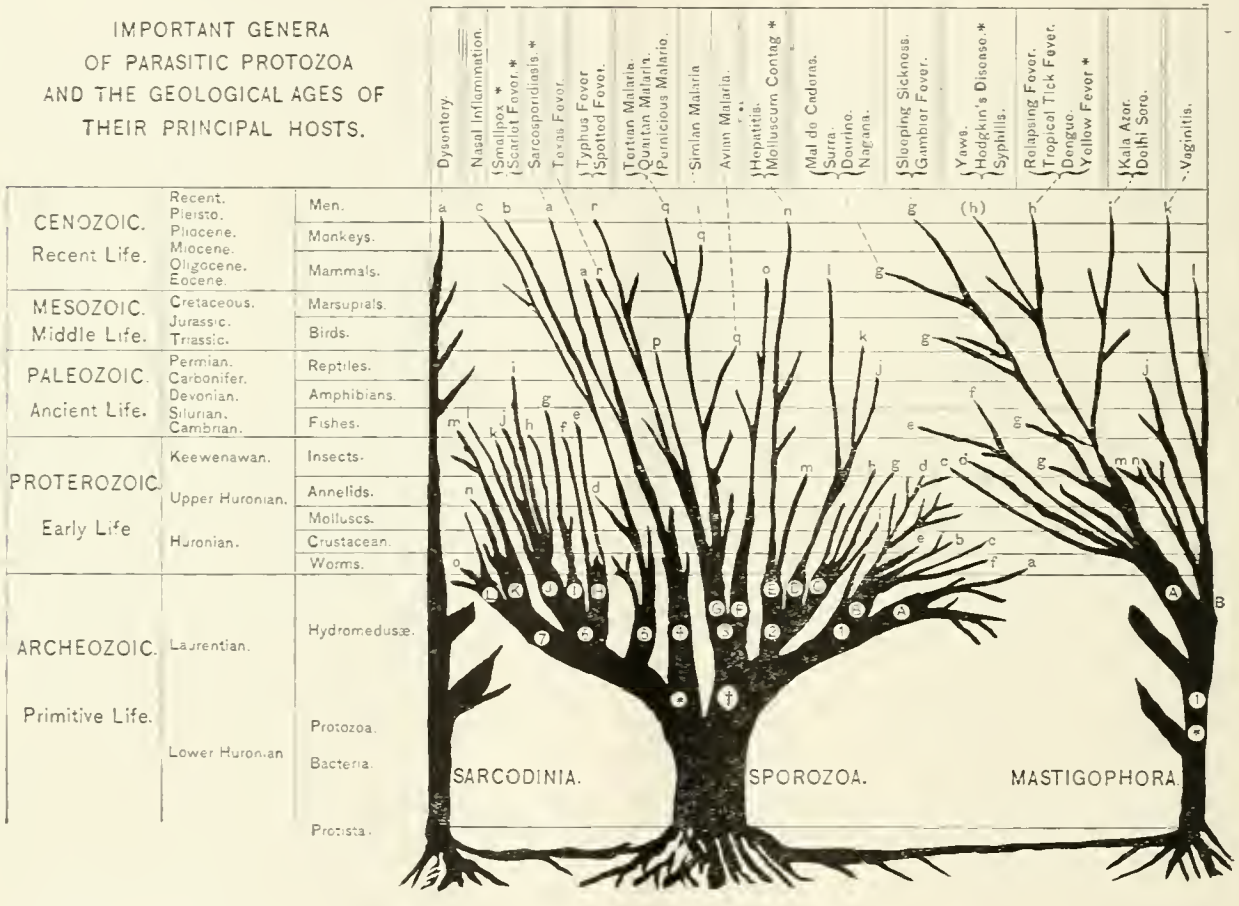
By R. G. ECCLES, M.D.,

BROOKLYN, N. Y.

Fifty years ago, when Charles Robert Darwin published the first edition of his, now, justly famous book, "The Origin of Species," nothing was known of the part played by parasitic microorganisms in the struggle for existence. At that time conditions of ill-health were looked upon as due to miasmatic effluvia, dampness, cold, and other climatic causes. An unavoidable consequence of looking at things from this faulty viewpoint was that all of his evidence, and all of his deductions, had almost exclusive reference to the struggle of the higher forms of living things with one another. He took no notice of that deeper and more subtle form of struggle that is going on between disease germs and tissue cells. This, though the most profound phase of the Struggle for Existence, among higher animals and higher plants, was entirely unknown to him and was, of necessity, totally overlooked and absolutely neglected. Starting, as this phase did, at the very beginnings of that part of the warfare that is of chief importance to us it could not but be connected with the earliest causes that fixed the trends of variations and led up to the higher organized forms. It was also the nearest in character to a purely Malthusian fight, such as constituted Darwin's ideal of the battle of life with life, for a supply of food. Biological surfaces were then all that could be seen. The great depths had not been explored. His conceptions of competition, as stated by Prof. F. E. Clement, "were drawn largely from Lyell and Herbert, and he was content to take it as a universal and fundamental process among living things, without detailed inquiry into its working or its precise relation to the origin of new forms."[1] He chose as his viewpoint the best that his generation could supply. The fact that it was inherently defective can cast no discredit upon him.

In the year that the "Origin of Species" was published (1859) Louis Pasteur, then a young man of 37, was at work in the Ecole Normale, Paris, laying the foundation for a new and better conception of the breadth and depth of the species-making forces which Darwin's theory implied. It was not, however, until 1865 that the truth began to dawn upon Pasteur that in disease we have a battle royal, between life and life, for food. The silk industry of France was then threatened with extinction by a virulent plague that was killing the worms in a wholesale manner. The government representatives had been called upon for help and they sought advice from Dumas. The latter turned to Pasteur, as the one man in all the world likely to be able to benefit the people in that hour of financial peril. Pasteur at first hesitated to act but Dumas insisted, feeling confident that the man who had solved the problem of fermentation, in a way so thorough as to defeat Liebig, must be the right sort of man to face a subject so beset with difficulties. In a few weeks Pasteur had formulated a germ theory of the cause of the trouble but it took him five years to demonstrate its truth. The worms were, finally, found to be suffering from the attacks of two kinds of pathogenic microorganisms—those of pébrine and those of flâcherie. In this remarkable piece of pioneer research work he opened the door which has led us to modern pathology. In 1870 he published two volumes on diseases of silkworms in which he gave the world its first glimpse of the kind of battle that constitutes the most fierce phase in the Darwinian Struggle for Existence. Then, however, there was no appreciation of the fact that he was dealing with an important part of the problem of natural selection. It took years for us to see any particular connection between his work and that of Darwin. Indeed, there are still many intelligent people into whose consciousness this idea has not yet penetrated. Up to about 1880 it had hardly been dimly realized by our best thinkers. The earliest, unequivocal statement of it, that I have been able to find, is that of Prof. H. Gradle of Chicago, who in 1883 wrote that, "In the light of the germ theory, disease is *a struggle for existence between the parts of the organism and some parasite invading it.* From this point of view, diseases become a part of the Darwinian program of nature."[2] The author evidently felt that he was presenting what was then a novel idea or he would hardly have taken the pains to italicize so many of his words. A more recent author, whose volume lies before me, gives expression to the idea in this way: "The microparasites of disease are an integral part of organic creation. Like all other living creatures they are subject to the laws of evolution, of the struggle for existence, of the survival of the fit."[3] During the last decade such statements have become common but in no instance known to me has any writer tried to show that if this is true our structures must, in great part, be a resultant of disease action. Nor has any one pointed out to us that failure to incorporate this view into our evolutionary reasoning must lead to erroneous conceptions regarding the relations of certain kinds of phenomena to natural selection. To look upon disease as of trivial importance, when it may, in fact, be the one thing of greatest importance, is to put a Darwinian at a serious disadvantage when called upon to explain some apparent exception to the law. If the multiplication table stood in the way of biased ideas, like some that Darwinism has to face, there can be little doubt but that flaws would be found in it. No law of nature can ever be known with such perfection

that apparent exceptions cannot be discovered. Even of the great law of gravity we are told that "Newton, though he had the highest confidence in its truth, admitted that there were motions in the planetary system which he could not reconcile with the law."[4] Le Verrier and Adams cleared up one such difficulty by directing Galle where to turn his telescope in order to discover the unknown planet that was causing it. In this way Neptune was discovered and Newton's law vindicated.[5] H. Sainte-Claire Deville questioned the truth of the law of Avogadro—the law upon which is now built that vast scientific structure known as Organic Chemistry—because of its apparent irreconcilability with the behavior of the compounds of phosphorus, arsenic, antimony, and nitrogen at the temperature of volatilization. Cannizzaro, Kopp, and Kekule showed that the whole trouble was due to their decomposition at such a temperature.[6] If in two such laws neglected regions tended to bring doubt, by the apparent irreconcilability of facts with them, what better fate can be hoped for the law of natural selection if its foundation facts have been neglected and almost ignored? When there have been avowed Darwinians who have taken the ground that, so far as civilized men are concerned, the struggle for existence is entirely at an end, why should there not be trouble in explaining phenomena due chiefly or wholly to the action of disease? They have pointed to the fact that we have no longer any wild beasts to fight, that no animals now seriously contest with us our right to the food we eat, that our system of agriculture and our system of storage keep famine permanently from our doors, and that even the beggar can secure enough to lift him out of the brutal fight with hunger. But it can likewise be said of many animals in the wild state that they too can often get enough to eat without a serious hand-to-hand struggle for existence. Prof. W. E. Kellicot, while making a study of the common toad (*Bufo lentiginosus americanus*) found that in a colony of 450 individuals 13 had lost parts of toes in one or both feet; 2 had their feet crushed; 1 had old flesh wounds on its arm, thigh, and side of body; 4 had broken shanks that had healed short; 1 was minus a fore and hind foot with the stumps covered with heavy callosities; 1 had a broken clavicle with the ends projecting under the skin; 2 had each a small misshapen foot; 3 had one of their respective feet with 6, 4, and 3 toes; 5 had no gall-bladder; 1 had a ventricle deeply furrowed, ventrally; as if injured when very young. It thus happened that 8.75 per cent. of the entire colony were abnormal, yet able to secure a living under such handicap. It is thus evident that, even among amphibians, physical unfitness may be less crushing than disease and less likely to lead to favorable modifications.[7]



* Etiology still *sub judice*.

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The knowledge concerning that part of the Darwinian struggle to which Pasteur introduced us had been, in part, anticipated as early as 1863, by Rayer and Davaine, who had shown that there was some sort of connection between splenic fever and the anthrax bacillus. The demonstration, however, of the pathogenicity of the germ was not made until 1873 when Prof. Robert Koch succeeded in growing it outside of the living body. Following the work of Pasteur came a series of brilliant discoveries along similar lines and all supporting the view that infective disease in vertebrate and invertebrate animals is *a contest of cells with cells*—protozoan

and protophytan against metazoan—*for food*. It would be impractical, in a brief paper like this, to give a list of the hundreds of discoveries of disease germs that have been made among the lower animals and plants. There is not a single form of living thing in which, on careful examination, evidences of this contest have not been found. The few which, from a purely human standpoint, are now of the greatest importance, and all of which have been discovered within a period of less than thirty-five years, are already familiar to most medical men. In order to refresh the reader's memory, however, and to emphasize the part which they play in the battle for life the following short list is appended. It contains most of those known to attack human beings.

Year	Organism	Disease	Discoverer
1871	Amœba coli	Dysentery	Loesch.
1872	Bacillus septicus	Malignant œdema	Coze and Feltz.
1873	Spirochæte obermeyeri	Relapsing fever	Obermeyer.
1879	Micrococcus gonorrhœæ	Gonorrhea	Neisser.
1880	Trypanosoma evansi	Surra	Evans.
1880	Plasmodium malariæ	Malaria	Laveran.
1881	Diplococcus pneumonia	Croupous pneumonia	Pasteur, Sternberg, etc.
1882	Bacillus tuberculosus	Consumption, etc	Koch.
1882	Bacillus mallei	Glanders	Loeffler and Shutz.
1883	Bacillus pneumoniæ	Broncho pneumonia	Friedlander.
1883	Streptococcus erysipelatis	Erysipelas	Fehleisen.
1883	Bacillus typhosus	Typhoid fever	Eberth.
1884	Spirillum choleræ asiaticæ	Asiatic cholera	Koch.
1884	Bacillus diphtheriæ	Diphtheria	Klebs and Loeffler.
1887	Diplococcus intracellularis meningitidis	Meningitis	Weichselbaum and Jaeger.
1889	Bacillus tetanicus	Tetanus	Kitasato.
1892	Bacillus influenzæ	Influenza	Pfeiffer.
1893	Piroplasma babesii	Texas fever	Theobald Smith and Kilborne.
1894	Bacillus pestis bubonicæ	Plague	Kitasato and Yersin.
1901	Trypanosome gambiense	Sleeping sickness	Nepveu and Dutton.
1902	Bacillus dysenterica	Dysentery	Shiga.
1904	Unnamed protozoa (Cytoryctes variolæ ?)	Smallpox*	Councilman and Calkins.
1905	Cyclasterion scarlitinale	Scarlet fever*	Mallory.
1905	Treponema (Spirochæte) pallidum	Syphilis	Schaudinn and Hoffmann.

*Sub judice.

The largest number of pathogenic microorganisms discovered in the last half century, and proven to be pathogenic, since the time of Pasteur, have been found in insects, molluscs, fish, and amphibians. Huxley, many years ago, declared that "insects are wonderfully liable to the ravages of contagious diseases."[8] Prof. Minchin says that "There is perhaps no species of annalid, mollusc, arthropod, or vertebrate which is not liable to become the host of some kind of sporozoan parasite."[9] Prof. Calkins tells us that the pathogenic Protozoa "cause vast epidemics among silkworms, fish, and domestic animals, and have been the means of great economic loss, or through malignant epidemics, have terrorized whole communities and have brought about untold loss of life."[10] A writer in *Science* reports having made an actual count of the dead bodies of insects, and of parts thereof of sufficient size to be representative, which he collected from four square feet of meadow-land and an equal space of forest. He satisfied himself that these spaces fairly represented the average condition of the entire region. On the basis of his four square feet he calculated that there were "tangible remains of 240,030 departed insects on each acre of meadow and 488,925 on each acre of wood."[11] There was no indication of there having been anything in the nature of an epidemic and the figures, large as they may seem, can only represent a fraction of the true number of deaths. Wandering sarcophagous insects, that subsist upon such remains, must have consumed a large proportion. Insectivorous birds devoured multitudes of the living before serious sickness had an opportunity to scatter such remains over the ground. Few of us realize the enormous numbers of living things that become a prey to disease. We can see the great ravages of our "white plague" upon humanity but it never occurs to us that varieties of the same bacillus attack domestic animals, beasts, birds, and fish.[12] We note the tax on health and life of the diphtheria bacillus but it is only the human portion that we consider. The turkeys, chickens, pheasants, partridges, quail, Guinea fowls, and other birds may die from the same cause, and we know little or nothing about it.[13] To give due weight to disease as an important factor in Natural Selection all such cases must be considered. Nor should we forget even plants, for they, too, are sufferers, since "bacteria and parasitic fungi, which are themselves plants of a low order, are the cause of the bulk of the plant diseases."[14] Look where we will, into every nook and cranny of the biological world, and we will discover that "perfect health does not exist; living organisms are always in a state of unstable equilibrium, which finds its explanation and cause in the very conditions of life."[15]

From time to time virulent epidemics sweep over various parts of the earth. The struggle for existence is then intense and unless structural adaptations occur, or happen to be present in some of the exposed, the species is likely to perish. No type of living thing, and no particular region, is known to be exempt from the possibility of such visitations. Beasts, birds, fishes, and plants all, in turn, have to endure them. The story of the black death of the middle ages is common knowledge. The terrible havoc wrought by trypanosome diseases is coming to be equally well known among medical men. It is only a short time since the Island of Mauritius lost every horse by an epidemic of surra.[16] In 1904 the farmers of the Transvaal lost 15,000 cattle—one-third of all they had—from tick disease. The tsetse fly "renders thousands of square miles of Africa uninhabitable. No horses, cattle, nor dogs can venture, even for a day, into the so-called 'fly coun-

try.'"[17] Paleontologists inform us that there existed on this continent at one time a number of mammals similar to those now found in Africa. They "all died out with the great wave of death which swept off the camels, horses, and the giant South American sloths, just before or during the first advance of the Glacial Period."[18] When Columbus arrived no such animals existed here. In the neighborhood of Florrisant, Col., there is an extensive area of country which, like Pompeii and Herculaneum, was buried in volcanic ashes and lava, in Miocene times. From the pumice beds have been dug out numerous and interesting forms of animals that were then buried there. Prof. Cockerell has described one such find in these words: "Perhaps the most remarkable instance of this sort is afforded by the tsetse fly, Glossina. Scudder obtained from Florrisant an imperfect specimen of a large fly, which he regarded as representing a new genus and species. We were so fortunate as to secure a much better example, showing the long proboscis, and it was not difficult to recognize it as a veritable tsetse fly. The species, of course, is extinct but the genus is the same as that now confined to Africa, where it is dreaded as the disseminator of some of the most terrible diseases known. What part the existence of such flies may have played in the destruction of the tertiary mammalia we can only surmise, but it is not impossible that their influence was great. How it happened that they disappeared entirely from America and survived only on the Ethiopian continent is, of course, unknown."[19] That great destruction of plant life may be going on in our presence, with but few of us aware of it, is seen at present in the diseased condition of the chestnut and chiniquipin trees of the United States. Its fierceness can be inferred from an editorial note in *Torreya* which says: "It is well known that practically all of the chestnut trees in and about New York City have been killed within the past few years by the chestnut canker, *Diaporthe parasitica;* but the number of trees destroyed has been only very roughly estimated. Through the efforts, however, of Mr. J. J. Levison, arboriculturalist of the parks of Brooklyn, who has made a careful study of Forest Park, it is now known that 16,695 chestnut trees were killed in the 350 acres of woodland in this park alone."[20] That this is not the only instance of such wholesale destruction by plant disease is evident from the statement of Prof. E. S. Reynolds to the effect that "there are many diseases of trees, which, unless curbed, threaten the growing of forests,"[21] and of Prof. H. M. Richards who tells of great "loss through the destruction of crops from disease, losses which statistics show may amount to tens of millions annually" in the United States.[22]

The antiquity of parasitism is well known to most zoologists so that few or none of them would call in question Prof. Metchnikoff's statement to the effect that "Diseases in general and infective diseases in particular were developed on the earth at a very remote epoch. Far from being peculiar to man, animals, and the higher plants, they attack inferior forms and are widely distributed among unicellular organisms."[23] Within recent years considerable geological evidence has been discovered bearing directly on this point. Massee tells us that fossil plants have been found, within the tissues of which was evidence of their having been diseased when alive. In some specimens the pathogenic fungi were so well preserved that the structure of the perithecia with their conidia or spores was sufficiently perfect for study under the microscope. They were from "the lower carboniferous and permian rocks" and so must have been of a hoary antiquity millenniums before the first human being appeared upon the earth.[24] Fossil crinoids have been found in carboniferous limestone with parasitic Myzostomidia imbedded in their structures.[25] Bacteria have been detected in caprolites, fossil bones, and fossil tree-trunks "from the earliest geological ages" and "in forms closely resembling those now existing."[26] Fischer declares that "the fact that several species of fossil bacteria are known from the carboniferous and other periods shows that they are among the oldest inhabitants of the earth and were already widely distributed when the Tertiary Epoch and the evolution of warm-blooded creatures began."[27] Readers not familiar with geology may wish to know something about the probable number of years that lie between us and these early evidences of disease. Prof. Upham, in a very conservative manner, estimates that the facts in our possession give us reasons for believing that the Carboniferous Period existed "about four or five millions of years" ago.[28] The present habits of parasites, particularly of Protozoan parasites, and their distribution among their hosts, are just such as should be expected if they were descended from a long line of parasitic ancestors that extend back into the indefinite past. Their parasitism is inborn—hereditary—and gives many indications of having been so throughout geological ages. The methods of warfare of Protozoa against Protozoa differ but little from those they pursue against higher animal forms—the Metazoa. Their peculiar habits show as little change as is seen in the vertebra of a fish when compared with that of a man. They bear the characters of a common origin and indicate convergence at the beginnings of polycellular forms. In the case of *Amœba vespertilio* we find that the smaller Nucleophaga amœba, by taking up its abode in the nucleus of the former, causes that nucleus to degenerate and "a similar parasite in the macronucleus of *Paramecium caudatum* was described by Calkins as an intranuclear parasite similar to the intranuclear phase of the smallpox organism."[29] Metchnikoff has pointed out that "the most simple and the most primitive organisms have constantly to struggle for their existence, they give chase to living organisms in order to obtain food, and they defend themselves against other organisms in order that they may not become their prey. When the agressor in the struggle is much smaller than its adversary the result is that the former introduces itself into the body of the latter and destroys it by means of infections. In this case it takes up its abode in its adversary in order to absorb the contents of its host and to produce within it one or more generations."[30] Here we have all the essential features of an infection of an animal of the highest form of life. The successive steps from the preying upon an enemy to the making that enemy into a host are gradual, but the connecting links are all found among the primitive forms. In order to trace the methods by which the preying habit evolved into the intracellular parasitic habit we must go behind the first invasions of Metazoa. When we come to study the parasites that have adopted such a habit we discover that an entire zoological class has given itself over to this degraded form of life. The Sporozoa are "a class of Protozoa which, without any exceptions, are parasitic and thus infest all animal forms from Protozoa to man."[31] Another author describes them as

"a group of exclusively parasitic Protozoa, of very widespread occurrence, infesting the internal organs or tissues of animals belonging to almost all classes and orders of cœlomate Metazoa."[32] This condition is one of great significance, and one which the reader should try to picture, in his imagination, as a whole. Consider the class Sporozoa as a genealogical tree, the diverging large branches of which constitute its orders, the sub-branches the genera, and the subdivisions of these sub-branches the species. All of the smallest sub-branches are unlike each other, but as they converge toward the trunk the linking resemblances become apparent. Considered as common kindred, and remembering the immensity of time needed to produce such changes, what can be the meaning of the fact that *they are all,* without a solitary exception, parasites? So completely dependent upon parasitism are they that not one of the multitudes of distinct forms could continue to live without its special hosts. The whole structure of their organization is adapted to a parasitic life and to no other, except in their brief resting condition as spores. What could have been the origin of this state of affairs? Where, when, and how did this abject dependence upon parasitism originate? It could not have begun within the lifetime of any individual among them for they are all alike parasitic. Vast as is the time which probably covers the origin of the various species of a genus it could not have begun within this time for all of the species are obligatory parasites. It could not have begun within the life history of any one genus for all of its kindred genera are incapable of any other than a parasitic life. It could not have begun during the development of any one of the orders for every order is unalterably riveted to parasitism. Look at the facts in any way we choose and the conclusion is forced upon us that the existing parasitism of the Sporozoa is as old, or older, than the class. The fact that related branches of other classes are parasitic bears out the latter conclusion. For many millions of years disease must have existed much as it does to-day and all available facts indicate that it began before there was even as high an animal on the earth as a jelly-fish. This conclusion is further confirmed by the distribution of the various branches. Sporozoan parasites infest all kinds of worms, insects, crustaceans, molluscs, fishes, amphibians, reptiles, birds, beasts, and men, and do so in a way that is far from being fortuitous. The general rule is that "each species of Sporozoa is parasitic on a particular species of hosts, or on a limited number of allied species."[33] While there may be overlappings from one kind of host to another, as when mosquitos and men, tsetse flies and cattle, harbor the same species, and when birds, beasts, monkeys, and men harbor forms of varying degrees of kinship, in the great bulk of cases there is a regularity about the distribution. The gregarines "are confined for the most part to invertebrate hosts," the Hæmosporidia "are parasitic usually upon the red blood-corpuscles, sometimes also upon the cells, of Vertebrata," the Phænocystes are preeminently parasites of Vertebrata and especially of fishes," and the Sarcosporidia "with the rarest exceptions are parasites of the striped muscles of warm-blooded vertebrates, birds, and mammals."[34] This limiting of special kinds of Sporozoa to special kinds of hosts and of kindred species of Sporozoa to allied species of hosts, seems to imply parallel evolution of both. The implication, too, is confirmed by the limiting of specific parasites to special host organs. Calkins tells us that, "one group lives in the digestive tract and the cavities of the body (*Gregarinida*); another in the cells of the digestive organs (*Coccidiida*); another in the muscle cells and lymph surrounding them (*Myxesporidiida* and *Sarcosporidiida*); and still another in the blood-plasm (*Hæmosporidiida*)."[35] Some have a preference for the spleen, some for the kidneys, some for the gall-bladder, some for the liver, some for the ovaries, and some for the testes. Those that prefer the testes avoid the ovaries and those that take to the ovaries are never found in the testes. This apparent choice, on the part of such lowly one-celled organisms, is one of the most peculiar of nature's strange phenomena. We can hazard but two theories as to its cause. Either it is a chemical attraction exerted by the organ upon the parasite or it is the presence in the circulation of some desirable substance that causes the latter to hunt for the source of supply and to find it in that organ. As different organisms have different organs as choice—if choice we are permitted to call it for lack of a better word—it follows that we are here dealing with a series of adaptations that the Darwinian can only interpret as survived fitnesses. The special organs or tissues have come to be a life or death necessity for the parasite. It cannot live without that special organ. Other organs have placed some opposing barrier against it. All of its kin have perished that failed to acquire this one-organ habit. It, and its kind, have ceased to be able to contest with other organs of the body successfully. The food that other organs supplied has become, what we may, for lack of a better word, call, distasteful. It is to the parasite, evidently unsuitable, poisonous, as it were. A similar condition is seen between plants and the higher animals. The food of one animal is disagreeable or poisonous to another as a result of a similar selection. One kind must have the poisonous Solanacea to live upon while another must have clover or grass. One loves the bitter leaves of the oak while another prefers the succulent leaves of a cabbage.

A glance at the accompanying diagram will show, in a rough way, that many a battle must have been fought between hosts and parasites during the long geological ages of their evolutionary history—their phylogeny. Only a comparative few, of the many kinds of Protozoan parasites, have held their own in the long ordeal and been able to mount up to man and make him their host. The great bulk of them have been left behind in frogs and fish, insects and worms, turtles and lizards. Many of them have been so specialized that they can live only in a few kinds of the higher forms. (The specialization is shown by the scattered positions of the lower-case, or small letters of the diagram, as found at the ends of the tree branches.) A parasite that is capable of living only within worms of various kinds finds no suitable food in other kinds or else such food as it does find is poisonous to it, or there is some sort of barrier that makes life for it impossible there. We must not lose sight of the fact that all this control of parasites which compels one to stick to the liver, another to the kidney, another to the spleen, another to the pancreas, another to the ovaries, another to the testes, etc., means ages of struggle to the death, and what is still more important, at present, means that all of the organs of the body have been compelled to change their chemical composition, structure, or both, in order to gain their immunity. The parasites that have acquired a composition that enabled them

to subdue one organ, and live there in relative comfort, have been the kinds of parasites that have caused readjustments and readaptations innumerable, in all other organs prior to the evolution of the higher forms of living animals from these lower forms. At the beginning of the disease struggle between the lower forms—Protozoa—and the higher forms of animals—Metazoa—there could have been no choice of organs since there were no such organs. One part of the host was as acceptable for food as another. As the selection of organs, as choice locations for parasites, begins low down in the scale of animal life, it is evident that such organs were subjected, at a very early period, to these attacks and the chemical and structural natures of the same had to undergo modification near to, or at, their beginnings. We have here to face exactly the same kinds of problems of adaptations as have hitherto held the field regarding the higher plants and animals. As the structures and shapes of flowers have been moulded into accommodation for insects, in order to facilitate cross-fertilization, so must the internal organs of all the higher forms of animals have had their structures and forms moulded into opposition to parasitism. There is not a part or particle of the body that has not needed some sort of immunity against attack. That all parts have received some kind of immunity is proved by our being here. That it is not all-sufficient is seen when we know that every check upon the parasite often—but not always—means a counter check on its part in order to overcome our protection. Both parasite and host have adopted a number of ways of overcoming each other's attacks. The two chief ones are protective coverings and secretion of poisons, and both of these are common to both parasite and host. In order to overcome each other's protective coverings special enzymes must be secreted that are capable of dissolving such coverings. In order to overcome each other's poisons antibodies are required to neutralize or hold them in abeyance. To be able to enter a given kind of cell the parasite must have the power of dissolving the cell-wall, when it is incapable of mechanically rupturing it. The organs that cannot attack have cell-structures it is unable to pierce or secrete poisons it cannot neutralize. The fact that we are immune to so many kinds of parasites shows that we have gained structural and poisonous protection, through milleniums of struggle, against their progenitors and kindred. They have failed to keep up their adaptations against us. At the beginnings of Metazoan life there could have been no specially protected parts and every form must have been vulnerable at all or most points. Then the parasitic protozoa had common proclivities. Now they have changed into many forms with many habits. The relations of the two to each other, during the entire period of the long war between them, is given in the accompanying diagrammatic sketch, which is, necessarily, imperfect. In order to facilitate medical men in tracing the connections between the pathogenic forms that are at present creating so much interest, it became imperative that the top of the evolutionary trees be elongated and so distorted. The true space from mammals to men would scarcely fill a line. The spaces between worms and reptiles, covering many millions of years, had to be shortened materially, and those from reptiles to men, covering a much shorter period of time, lengthened, in order to accommodate the figure to a satisfactory size and to emphasize the points of special interest to physicians. The list of human and mammalian diseases, at the top, includes all that are at present of prime importance to the profession. This, I believe, is the first time that these have been put into a shape in which it is easy to see, at a glance, exactly how all of these diseases are related to each other. By passing the eye from the disease names down the branch to the trunk and up again to other disease names their exact relationship is seen. The three trees might have been drawn as three huge branches from a common protozoan trunk, but it was deemed more satisfactory to show the kinship connection of the three classes by uniting them by their roots. With this diagram before him the doctor will get a better idea of the part protozoology now plays in medicine than he could from any medical work upon the subject, unless he is prepared to sit down and give it a lot of hard study. Those willing to try and master some of the details will find the following key to the diagram of service:

MASTIGOPHORA. (Class.)
- *FLAGELLATA. (Sub-class.)
  - 1. Monadidæ. (Order.)
    - *A.* Protomastagina. (Sub-order.)
      c. Critbida, *d.* Herpetomonas, *e. f.* Trypanoplasma, *g.* Trypanosoma, *h.* Spirochæta, (*h*) Treponema, *i.* Leishmannia. (Genera.)
    - *B.* Polymastagina. (Sub-order.)
      j. Trichomastix, *k.* Trichomonas, *l.* Lamblia, *m.* Trichonympha, *n.* Lophomonas. (Genera.)

SPOROZOA. (Class.)
- †TELESPORIDIA. (Sub-class.)
  - 1. Gregarinidia. (Order.)
    - *A.* Acephalina. (Sub-order.)
      a. Monocystis. (Genus.)
    - *B.* Cephalina. (Sub-order.)
      b. Aggragata, *c.* Porospora, *d.* Gregarina, *e.* Gamocystis, *f.* Eirmocystis. (Genera.)
  - 2. Coccidiida. (Order.)
    - *C.* Polysporocystidia. (Family.)
      g. Klossia, *h.* Diosporia, *i.* Adelea. (Genera.)
    - *D.* Disporocystidia. (Family.)
      j. Isospora, *k.* Diplospora, *l.* Cyclospora. (Genera.)
    - *E.* Tetrasporocystidia. (Family.)
      m. Crystallospora, *n.* Coccidium. (Genera.)
  - 3. Hæmosporidiida. (Order.)
    - *F.* Hæmosporea. (Sub-order.)
      o. Hæmogregarina. (Genus.)
    - *G.* Acystosporea. (Sub-order.)
      p. Halteridium, *q.* Plasmodium, *r.* Piroplasma, (Genera.)
- *NEOSPORIDIA. (Sub-class.)
  - 4. Sarcosporidia. (Order.)
    a. Sarcocystis. (Genus.)
  - 5. Haplosporidia. (Order.)
    b. Cytoryctes, *c.* Rhinosporidium, *d.* Haplosporidium. (Genera.)
  - 6. Myxosporidia. (Order.)
    - *H.* Myxobolidæ. (Family.)
      e. Myxobolus, *f.* Henneguya. (Genera.)
    - *I.* Chloromyxidæ. (Family.)
      g. Chloromyxum. (Genus.)
    - *J.* Myxidiidæ. (Family.)
      h. Myxisoma, *i.* Myxidium, *j.* Leptotheca, *k.* Ceratomyxa, *l.* Myxosomo, (Genera.)
  - 7. Microsporidia. (Order.)
    - *K.* Polysporogenæ. (Section.)
      m. Glugea, *n.* Myxocystis. (Genera.)
    - *L.* Oligosporogenia. (Section.)
      o. Gurleya. (Genus.)

SARCODYNIA. (Class.)
- RHIZOPODA. (Sub-class.)
  - Amœbida. (Order.)
    a. Amœba. (Genus.) [36]

Although Darwin was entirely unconscious of the fact that disease is an important part of the biotic fight for food, and therefore an essential part of his great theory, he seems to have had a vague perception of its taking a place of no mean utility in the fight. In his chapter upon "The Struggle for Existence" he ends his argument with the remarkable statement that "the vigorous, the healthy, and the happy survive and multiply."[37] He evidently looked upon vigor, health and happiness as the supreme surviving benefits of the struggle which he had just been depicting. If this is so, then lack of vigor, disease, and unhappiness were the conditions out of which the survivals must have most frequently occurred. But lack of vigor is but a symptom of disease and unhappiness is usually a consequence of its presence. The supreme feature of survival and of fitness would thus appear to be due

to a triumph over disease. A glance at nature will show the truth of this. If a herd of deer is fleeing from a pack of wolves, those first overtaken and killed, other things being equal, will be the ailing, and in other successive flights from wolves the new victims will be chosen in accord with the seriousness of their ailments. If severe weather has to be faced by the herd the first to perish will be the very sickly, and as the weather becomes more and more severe those chosen for destruction are likely to die in the order of the severity of their respective diseases. If famine overtakes them, other things again being equal, the worst afflicted perish first and the rest in the ratio-order of their afflictions. In flood, in tempest, in forest or prairie fire, in contests with enemies or with their own kind, in fact, in all adverse conditions of life, death chooses its victims in the order of the severity of the diseases that happen to afflict them. What is true of deer is likewise true of every living creature. The decisive factor that runs through every struggle wherein other things are equal is disease. There is no other factor so universally present. Only organisms that have gained a high degree of resistance to disease germs are capable of maintaining their own in any severe contest, no matter what its nature may be. The first requisite is health, and health is only possible among organisms the progenitors of which have triumphed over disease and left them a proper heritage. Disease tips the scales for or against survival in almost every trying condition. Tempests of such severity as to defy the boundary line of disease leave no survivals and cannot modify the race. Famines that bring as much destruction upon the healthy as upon the sickly have no selective value and leave no fittest to survive. Great earthquakes, tidal waves, with other universal and merciless exterminators, take no part in natural selection because they do not select. Cold that is so rigorous as to defy the endurance of the most healthy can add no new adaptations to heredity. The survival of fitness only occurs at the border-line of endurance—the line between health and death. The survivors are those that escape death in the presence of a persisting danger. They are those that have become modified in a way to resist strain.

Before it was perceived that disease is an undisputable battlefield of the true Darwinian struggle for existence, the tremendous part which it takes in ridding the earth of weaklings and causing the survival of health was all credited to the environment and its dead physical forces. Climatic influences and other predisposing causes of disease were imagined to be the prime and efficient causes. Naturally this view still holds its place in the lay mind, so that many zoologists and botanists are still held in the thraldom of this old superstition. It is almost impossible to overestimate the influence for evil that it is now having upon biological science. It tends to divide evolutionists into warring factions over problems that would never have arisen if they had been long ago made to see the Darwinian nature of disease. In a sort of way they probably all see a connection between Darwinism and disease, but it is, as yet, so vague that there is no mental fruition from it. They fail to assimilate them in their thoughts. Take, for instance, the following statement by a leading zoologist who seems to be still controlled by the old way of thinking upon this subject. He says: "I have long been a believer, in common with my fellow systematists, in the evolution of species and races by environment, which, of course, includes evolution by isolation. This seems far more rational than evolution by natural selection, as this process was originally defined. But since the inefficiency of natural selection, pure and simple, to produce the results formerly attributed to it became evident, the significance of the term has been expanded to embrace evolution through climatic influences, including also the factor of isolation."[38] We see here the distinct mental trend of the non-medical mind on a problem similar to one over which physicians wrestled a generation ago. Just as the doctors sought to make predisposing causes responsible for the symptoms of disease so now the zoologists seek to repeat that error in evolution. The apparent inefficiency of natural selection complained of is due to his own inability to see natural selection, pure and simple, doing the very things he declares it does not do. Evolution through climatic influences, including also the factor of isolation, is neither more nor less than evolution through disease. Climate and isolation predispose to disease and thereby predispose to variation, but neither is an efficient cause in the absence of disease. This truth is being assimilated by ecologists, among the botanists, probably because it is their function to study plant diseases, while it is but a small part of the average zoologist's duty to understand the nature of animal diseases, or their relation to evolution. Prof. Clements tells us that, "Abnormal adjustment occurs in those plants that migrate into a new or different habitat, or those whose habitat is seriously changed. It is characterized, as a rule, by profound disturbance of function, though the latter depends upon the intensity of the change. The most familiar cases of abnormal response are due to biotic factors, particularly parasitic fungi and insects."[39] Here we have a distinct acknowledgment of the part played by disease in evolution and of its being a struggle for food between the plants and their biotic enemies. He also shows us that the isolation of new habitats leads to disease. There is here no vague references to environment and climate, as he shows us exactly what features of each lead to the changes. Prof. H. Bolley, another ecologist, says: "For a number of years I have attempted to hasten the survival of the fittest, or of the unlike, through the development of or heightening of the action of plant disease for the purpose of eliminating the weak or unfit. * * * The method has given marked results when applied to wheat *versus* wheat rust; wheat *versus* wheat smut; flax *versus* flax rust; flax *versus* flax wilt; potatos *versus* scab and blight. My observations along these lines have been such that I have no fear but that the future will find me right in the assertion (1) that mutants may be so insignificant and numerous as to be unrecognizable and thus fall directly into the class called by de Vries 'fluctuating variations'; or (2) that they may be induced in a mixture of a great number of variations of a species at one and the same time because of the same environmental causes; or (3) that in some cases 'fluctuating variations' are of such nature and worth as to allow results to be obtained in mass breeding of as great importance as any that may be hoped to be obtained by looking for a single mutating type evolved through the method of de Vries."[40] The professor distinctly states that his variations that breed true from their seeds (mutations) are most likely the direct products of the diseases he uses in making the fit survive, and, as we will soon see, this is, probably, just what he is causing to happen. The variations

that do not breed true (fluctuating variations) are such as have not been impressed upon the seeds. They are variations of the plant itself (somatic variations) that have left no impress upon the seed. It is important to note the fact that this method of treating the plants has given numerous mutations, but, so far as amount of change is concerned, of insignificant value in some instances. He has shown that Prof. C. B. Davenport was right when he declared that "the abnormal is, paradoxical as it may sound, the important for evolution."[41] The fact is that it is impossible to think of any scheme by which evolution could be brought about that is not due to the introduction of the abnormal. All the experiments that have yet been made, in trying to solve the problems of evolution, have been just such as would favor disease. They all introduce abnormal conditions for the plant or animal experimented upon. Every condition lying between a fish and a mammal, or a fish and a bird, is abnormal to the fish, and to every modification which it might be supposed to assume in mounting mammal-ward or bird-ward. The conditions of life in every high form are abnormal to the earlier forms from which they may be supposed to have evolved phylogenetically. The adaptations which the high forms display are fitnesses to conditions of prior abnormality. As all biotic responses to abnormal conditions are symptoms of disease, then all modifications of the organism to new, i. e. abnormal, conditions are pathological products. The body in its war against the abnormal introduces the new adaptations or adjustments. But bodily adaptations cannot be directly transmitted by heredity. Only when the germ-plasm has had to respond in a similar manner can progeny acquire any adaptation that may be made by the body. It is quite evident to every medical man that "the germ-plasm is not isolated anatomically or physiologically, and that the germ cells, so far as is known, possess the same property of response as do other cells or whole individuals,"[42] so that anything that affects the body as a whole must affect the germ-plasm in at least a proportional degree. Indeed, there are reasons for suspecting that germ and sperm cells are somewhat more sensitive to certain kinds of stimulating substances, that happen to reach the circulation, than are some of the other cells of the body. Prof. H. B. Ward in an address as chairman of Section C of the American Association for the Advancement of Science, declared that, "It has been frequently noted that parasitic infestation tends to retard the development of the host organism. In fact, it does not hinder the general growth of the host strikingly, but arrests primarily its sexual development. This has been especially investigated by Alfred Giard, who denominates the phenomenon parasitic castration and defines it as the sum total of modifications produced by a parasite on the reproductive apparatus. The phenomena appears to be widespread, instances being found in all branches of the animal kingdom and as a result of the most varied sort of parasites."[43] Here the poisonous products of the parasites seem to affect the germ-plasm more profoundly than the soma-plasm. The degree of effect must, of course, vary with the amount of the toxic agent so that we can easily infer that there are many results between the absence of all effect and the presence of the optimum castration. The character of such effects can now be clearly inferred from some of the experimental results obtained by both botanists and zoologists. Prof. MacDougall, experimenting with plants, has, up to the present time, reported the most startling results. Taking different plants belonging to the genera Raimannia, Oenothera, and Cereus, and subjecting the germplasm to dilute, but slightly toxic, solutions of calcium nitrate, potassium iodide, zinc sulphate,, or methyl blue, he saved the seeds from his treated ovaries and grew plants from them for a series of years. In this way he discovered that he was able to produce plants having qualities quite unlike those of their parents, qualities that were transmissible through as many generations as he has been able to test them, and qualities unknown to kindred forms.[44] In other words, he has created new species of plants similar to the mutants of Prof. de Vries. Indeed, he took the de Vries plant—the evening primrose—and by the aid of injections of solutions of zinc sulphate into the ovaries, produced forms with new qualities that, at last report, had bred true for three successive generations. In the case of de Vries's plants it is quite likely that transplantation from America to Holland had mildly poisoned their germ-plasm, owing to soil poisons or parasite poisons in the sap, as in MacDougall's experiments. If chemical substances, by action on the cell chromosomes, can produce such results, why may not the toxins of disease have been doing the same thing during the countless milleniums of geological time? That the nature of the stimulation is not the essential cause is seen in the fact that many kinds of poisons can accomplish similar results. Nor are such results only possible for poisons. The stimulation of radioactive substances when carried near to the disease point give us similar effects. Prof C. Stewart Gager has put this to the test and finds that "when the pollen or the ovary is exposed before pollination, or the ovary after fertilization, the resulting seeds produce plants profoundly different in the first generation from that normal for the species."[45] It seems that radioactive substances produce these results through disturbing the normal processes of cell-division, for "exposure to the rays also induces marked irregularities of mitosis. This is shown, among other ways, by the failure of some of the chromosomes to take part in the organization of the daughter nuclei. Usually such chromosomes organize smaller, nuclear-like structures within the daughter cells. In one instance they were observed to be undergoing an independent karykinesis at one side of the main mitotic figure. Interesting possibilities are here suggested along the line of experimental mutation. Experiments like those described in this paper have been many times repeated with confirmatory results, and seem amply to justify the general conclusion, earlier stated that radium rays are a stimulus to plant activities."[46] That poisons act on mitoses in a similar manner is evident from Prof. Wilson's statement that "Under certain circumstances the delicate mechanism of cell-division may be deranged, and so give rise to various forms of pathological mitoses. Such a miscarriage may be artificially produced, as Hertwig, Galeotti, and others have shown, by treating the dividing cells with poisons and other chemical substances (quinine, chloral, nicotine, potassium iodide, etc.)."[47] If we turn from the consideration of plant experiments to those of animals, we again discover that poisons produce results quite in agreement with those already given. Mr. C. R. Stockard has repeatedly, and *at will,* produced from the eggs of the fish, *Fundulus heteroclitus,* hundreds of specimens in which, instead of two eyes, one on each

side of the head, he got one eye in the center of the same. He tells us that "the cyclopean individuals appear to be as active as the normal and their ability to live would seem to depend only upon the possibility of their obtaining food."[48] All that is needed, in order to produce such strange results, is to add a definite amount of magnesium chloride to the water in which the eggs develop. It is evident from this that "changes in the relative positions of parts which would be absolutely impossible in the adult may be readily accomplished in the unsegmented egg, as is shown by cases of inverse symmetry."[49] The nearer we get to the germ-plasm the easier it is to produce changes in adult forms that arise from such plasm. A little rill, at the source of a river, is easier to divert from its regular course than is the mighty river that started from this rill. In the experiments of Prof. W. L. Tower, on Chrysomelid beetles of the genus Leptinotarsa (Colorado potato bugs), "it is shown that there are variations which are inheritable and others that are not; and * * * it is further shown that the heritable variations as far as discovered arose in the germ-plasm, the non-inheritable during development in the soma. Further, the experiments * * * show that heritable variations arise as the response to stimuli applied to the germ-plasm. These responses, moreover, follow exactly the law of error in their distribution around the normal mean. I maintain, therefore, that *all organic variations are responses to stimuli*, and are not due to inherent tendencies or latencies."[50] The conditions tried by Prof. Tower on these beetles were those of abnormal temperatures, abnormal humidity, abnormal food supplies, and abnormal environments. By the use of these abnormal conditions pathological responses occurred that became heriditable. The only stimulus that could reach the germ-plasm would be that borne to it by the circulation. Such beetles are the common hosts of protozoa and of bacteria. The increasing discomfort of increased temperature and increased humidity would lessen the resistance of the beetles to the parasites. This would favor the multiplication of the parasites within their hosts. Toxins would be thereby caused to increase to a quantity that would stimulate abnormal mitotic changes and demand readjustments within the germ cells. The poisons of perverted metabolism, due to the abnormal conditions, might also act in this way. It thus appears that the experiments of Towers, Gager, MacDougall, and Stockard, all, tell the same kind of a story, viz., that structural changes are a resultant of the germ-plasm stimulation when that stimulation reaches toward the optimum power of endurance—the point of disease production. We know of no experiments in which the problems of evolution have been under investigation in which abnormal conditions have not been resorted to. We can conceive of no evolutionary experiments that would help us to any knowledge of the subject that would not place the organism in abnormal conditions. We cannot imagine a means by which nature could have wrought existing results save through conditions favorable to disease. When we study the distribution of parasites, in time and place, we find that these are just such as they ought to be if such parasites had been the source of germ-plasm stimulation like that required to give us a biological world such as we have. It thus seems probable that what we have hitherto deemed altogether a thing accursed—disease—may yet be proved to be a blessing in disguise. It can truly be said of all our race that "these are they that came up through great tribulation" but, without such tribulation, there could have been no such perfection of beauty and of form as we find upon the earth at present.

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RENAL TUBERCULOSIS AND ITS SURGICAL TREATMENT.*

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Tuberculous infection of the kidney has been thought to take place by ascending infection from the bladder, a much-mooted question, in which case one is dealing with a secondary renal tuberculosis, one or both kidneys being involved. In all probability, however, the bacillus reaches the kidney by way of the blood and involves the glomerulæ, or it may remain in the intercanalicular connective tissue. The cortical zone appears to be the point of predeliction for the attack of the bacillus.

When the kidney has become infected, tuberculous granulations develop in variable quantity, be-

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ing either disseminated throughout the kidney substance or else collected in masses which by their fusion form tuberculomato of variable dimensions. The kidney will be found riddled with caseous masses, forming large rounded foci in the parenchyma, often projecting on the surface of the organ. This is the infiltrating form of the affection. The renal pelvis may remain intact.

The caseous masses finally soften and transform into cavities. The medullary layer of the kidney, the pyramids and their intertices will be found filled with irregular cavities with indurated and ragged borders, containing dry or soft caseous matter or a yellowish purulent fluid, which may make its way outwards by way of the calices, renal pelvis and ureter. This may be termed tuberculous pyelonephritis.

The cavities are in the first place isolated and localized in the lower portion of the kidney and are separated by walls which finally disappear, giving rise to one large cavity. In this case the kidney is more or less completely destroyed, the walls of the cavity being formed by the renal capsule. By the passage of the tubercluous matter the ureter in turn becomes involved. It may become temporarily or permanently obstructed, this giving rise to pyelonephritis with distention and symptoms of infection from retention.

If the ureter becomes permanently obstructed the kidney will in turn become completely disorganized. Or, on the other hand, obstruction of the ureter may result in a tuberculous hydro-nephrosis which in no way differs from an ordinary aspetic dilatation of the kidney. In some few cases the kidney undergoes a total caseous necrosis. These various pathologic types of chronic renal tuberculosis—the only ones of surgical interest—may be found combined in one kidney.

Complete involvement of a kidney does not of necessity always take place because the lesion may be limited, with a tendency towards cicatrization. The granulations undergo calcification, resulting in the development of a true renal calculus, whose nucleus contains the specific bacillus. The walls of the cavities granulate, filling up the loss of substance, and at the same time there is a peripheral atrophy of the parenchyma.

Primary tuberculosis when developing in the depths of the parenchyma, thus protected from mixed infection, should offer greater opportunities for spontaneous cure than secondary tuberculosis which involves the kidney at the time that it has been invaded by pyogenic bacteria. This question, however, is not settled, but it would appear that the duration of primary tuberculosis is much longer than the secondary form. For that matter, this diagnostic precision as to the starting point of renal tuberculosis is only of relative value from the operative standpoint, but I may here say that in my opinion primary renal tuberculosis of a single kidney is far from being infrequent. A single kidney when infected by the specific bacillus producing its special lesions will make itself evident symptomatically by renal pain or hematuria.

According to the length of duration of the process, the kidney may be found more or less increased in size, but occasionally it is artophied. It may also retain its normal size, but usually it forms an appreciable tumor. More or less marked bossae or even cavities may be found on its surface and not infrequently it will be slightly prolapsed. In cases of long standing, there is most always a perinephritis, while the envelopes of the kidney form a limiting zone isolating the focus from the remainder of the organism. The renal capsule can only with difficulty be detached and is thickened, ulcerated and indurated. The perirenal fat is very vascular and hard and contributes partially to the formation of the renal tumor when perhaps the kidney itself is not increased in size. The organ may be in reality atrophied and buried in the indurated fat. This perirenal tumor, which usually is most marked in the neighborhood of the renal pelvis, may continue down along the ureter. In other cases the fatty capsule is involved by the tuberculous process, giving rise to abscess formation when a renal cavity has opened into the perirenal fat. Very large abscesses, extending up under the liver or diaphragm, or downwards along the psoas have been encountered. When these are opened an irregular pocket is found, composed of numerous diverticula, containing purulent or serous fluid having a fetid, urinary odor. After the pocket has been emptied the walls are with difficulty removed on account of their great hardness and intimate adhesion with the surrounding structures.

In the region of the hilum an irregular tumor will be found, very adherent and composed of lymph-nodes in which a tuberculous process has developed. In consequence of the perirenal sclerosis, there is a retraction of the organs contained in it, particularly of the renal vein, which consequently draws the vena cava or even the aorta towards the diseased kidney. The perinephritis may also contract adhesions with the colon, peritoneum or small intestine and when these exist on the right side they render the operation extremely difficult and dangerous. A diagnosis of this condition of affairs is impossible and can only be suspected.

In the primary type of renal tuberculosis the ureter is often involved, and nearly always so in the secondary type. It is increased in size, its walls infiltrated, thickened and sclerotic, while the mucosa presents ulcerations and strictures. Its lumen may thus become permanently or temporarily obliterated.

The bladder may present tuberculous lesions in the neighborhood of the ureteric orifice in the form of granulations or ulcerations, but what should be particularly studied is the condition of the other kidney and the genital apparatus.

From the statistics of Roberts, Dickenson, Morris, and Guyon, unilateral renal tuberculosis is encountered about once out of every three cases. When it is bilateral, one kidney is usually more diseased than its fellow. Of course, when the second kidney has become involved, it is a contraindication for surgical interference. On the other hand, the second kidney may not be tuberculous, but presents a pyelonephritis or an amyloid degeneration, both of which contraindicate operation. Of course, a compensatory hypertrophy is favorable, and nephrectomy of the diseased kidney may be undertaken.

The genital apparatus must be carefully investigated because it is frequently involved. The prostate, testicles, epididymis, and vas deferens must be carefully explored. In the female, however, the genital apparatus is rarely involved on account of its complete dissociation with the urinary tract.

In surgical interference for tuberculosis of the kidney one must be guided by the symptoms presented. These are hematuria, pain in the renal region and pyelonephritis. Hematuria is often the first symptom and is to be considered in the same light as

hemoptysis occurring in pulmonary tuberculosis. It would seem that this symptom is due to renal congestion and is of considerable value in diagnosis of renal tuberculosis. It often appears spontaneously without any apparent cause in a patient who has been urinating normally. This hematuria is not influenced by movement, and rest will not cause it to cease as in hemorrhage from renal calculus. There may be absolutely no pain in the kidney. The urine may be only slightly tinted with blood or it may be dark red, while in some cases the loss of blood is so slight that it can only be demonstrated with the microscope. In some cases the hematuria may be severe, occurring irregularly. It may last several days or a week or two and then disappear without any cause. It may give rise to nephritic colic when a blood clot obstructs the ureter. The hematuria is usually present when the tubercles are developing in the renal cortex, which is almost exclusively composed of vessels.* The following case is an excellent example of initial hematuria in renal tuberculosis:

A strong and well-built man, thirty-two years of age, consulted me for loss of blood occurring after micturition. It occurred only once at the end of micturition, the patient stating that the amount might have been about a teaspoonful of practically clear blood. Other than a feeling of lassitude the patient presented no other symptoms. The urine voided in my presence was uniformally cloudy, containing minute white flakes. Cystoscopic examination was made by Dr. John Cunningham with the following results. The bladder was normal, likewise the left ureteric orifice, but the right orifice was somewhat swollen and hyperemic. The urine from the left kidney was found perfectly normal, that obtained from the right was loaded with bacilli of tuberculosis. This was proved by inoculation of guinea pigs, three of which died within a few weeks with marked peritoneal tuberculosis. I advised immediate nephrectomy, which the patient refused because he considered himself too well to be operated on. This man was under my observation for eighteen months, his condition remaining absolutely the same. The urine did not change in nature and no evidence of further infection occurred in any other organ. At the end of eighteen months he finally accepted nephrectomy. The kidney was found tuberculous, particularly in the cortex, the renal pelvis only presenting a mild degree of catarrhal changes. This was done eight months ago and the patient now enjoys perfect health.

The hematuria of renal tuberculosis may be mistaken for one occurring from prostatic hypertrophy, or some urethral growth, particularly when it occurs as in the above mentioned case. The hematuria of vesical calculus occurs at the end of micturition after walking or riding over a rough road, but cystoscopic examination will clear up the diagnosis. In cases of tuberculous cystitis the pain in the bladder will be intense and early hematuria occurs, the latter having the same character as that coming from the kidney. The diagnosis will be made easy if signs of beginning tuberculosis are found in the prostate, epididymis, and seminal vesicles. The cystoscope will remove all doubts.

Hematuria occurring in a patient presenting tuberculous lesions of some other portion of the genital-urinary apparatus, and then developing persistent lumbar pain is symptomatic of renal involvement from ascending infection.

The diagnosis of hematuria symptomatic of a renal neoplasm is more difficult. In this case it is often early in occurrence, and sometimes the only symptom. Hematuria is often the only symptom of a neoplasm of the bladder, but in this case the hemorrhages occur at long intervals, and the elongated, wormlike clots that come from the ureter are never encountered. Here again the cystoscope is the surest means of diagnosis.

Hematuria from renal lithiasis is more prone to occur after fatigue, walking or rough riding, and, like the pain, when it is present, disappears with rest.

To the early symptoms of renal tuberculosis, such as simple polyuria and frequency of micturition, the patient may complain of lumbar pain. Cases of renal tuberculosis are met with where repeated nephritic colic is complained of without any hematuria or purulent urine. Its characters vary greatly. Some patients may complain simply of a transitory ache in the back, while others state that it is very sharp and either intermittent or continued. Walking or pressure over the kidney do not appear to have much influence on the pain. In the female, the paroxysms have a tendency to occur at the menstrual periods. When there is renal retention, the pain will cease after the renal pelvis has emptied itself of the pus, epithelia, and caseous masses which have caused the obstruction.

I would particularly warn physicians not to mistake this pain for lumbago, more particularly so as it may occur suddenly after taking cold or a strain. It will also disappear by rest. Pain due to renal calculus is more acute and shoots down along the ureter; riding and walking increase it while it improves by rest. The indefinite pain complained of in the early development of renal growths is certainly hard to diagnosticate. If persistent pain in the lumbar region occurs in a phthisical subject presenting polyuria and albumen, renal tuberculosis should be suspected. At the same time that the pain occurs palpation may occasionally reveal an enlarged kidney which may be movable or not.

If the renal tumor felt is due to a pyonephrosis resulting from an obstruction in the ureter, thus producing retention, there will be a sudden enlargement in the lumbar region, while this will disappear when diuresis has become established. At a more advanced stage in the process the obstruction may be caused by phosphatic concretions becoming lodged in the ureter, likewise by blood clots or caseous masses.

The characters of the urine are of great importance. Clear or only slightly cloudy at the commencement, it becomes distinctly purulent. Pyuria will sooner or later occur. After voiding, the urine remains cloudy, and if allowed to stand in a test-tube a grayish, chalky layer falls to the bottom. The remaining urine retains its cloudy aspect. The urine is acid and may or may not contain a small amount of albumen. It has been maintained that in renal tuberculosis the urine is always acid, while in other types of pyuria it is alkaline. It has also been said that when the urine in the case of renal tuberculosis contains albumen the latter is due to a parenchymatous nephritis. All that I can say is that a marked amount of albumen would indicate a chronic nephritis or amyloid degeneration of the kidney.

The urea is normal in quantity; an excess in the

*C. G. Cumston, "The Patheogenesis and Treatment of the Symptom Hematuria."—*Am. Journal of Urology*, January, 1907.

phosphates and occasionally the urates is met with.

Microscopically one finds leucocytes, fat globules, blood cells and epithelia coming from the renal pelvis and bladder. In my experience, in about fifty per cent. of cases the specific bacillus will be found in the urine.

To sum up, it may be said that the pyuria of renal tuberculosis presents three characters, namely, its spontaneity, constancy, and durability. Its abundance corresponds to the progress of the lesions. It may be intermittent when complete or partial retention occurs, in which case pain will be complained of and there is an elevation of the temperature. If the obstruction is overcome and the renal pelvis empties itself, there is usually a return to a better condition of health.

When fully developed, the vesical symptoms and pyuria will prevent any mistaken diagnosis of a tuberculous kidney with a tumor of the liver, spleen, or intestine. In many cases the differential diagnosis must be made between renal tuberculosis and tumors of the kidney. Here, the age, the sex, and examination of the urine, especially when the specific bacillus is absent, will be the elements to consider. In malignant disease of the kidney, the tumor is always larger than that of the tuberculous kidney even in the advanced state, and is more frequently met with in young children and in people advanced in years than in adults. Sarcoma is the most ordinary type of malignant growth in children and may or may not be accompanied by severe hematuria. I would also point out that there are instances of renal tuberculosis in one kidney and malignant disease in the other. As far as I am aware, there is no way of differentiating renal syphilis from tuberculosis.

If the specific bacillus cannot be found in the urine the case may be one of pyelonephritis following renal lithiasis, but the *x*-rays and the clinical history will be of great importance. If no shadow of a calculus can be discovered after several essays have been made, it does not mean of necessity that no stone is present, because I have had several cases where it could not be detected on the plates and, nevertheless, at operation the kidney contained beautiful specimens. The character of hematuria in lithiasis, if it occurs, the repeated paroxysms of colic followed or not by the passage of a calculus and a very great sensitiveness when pressure is applied over the kidney, are all excellent diagnostic signs. These symptoms may, however, in some cases be very mild, and, likewise, instances of renal lithiasis and tuberculosis in the same kidney are known.

The symptoms of a non-tuberculous pyelonephritis occurring in a patient presenting tuberculosis in other organs may, of course, cause a diagnostic error. The tuberculous form should not be mistaken for the ordinary types of infectious pyelonephritides, or those arising during acute infections. The history of the case will usually lead to the correct diagnosis, and then again, in the latter case, the pus is homogeneous, while in renal tuberculosis it is granular, thick, and sometimes streaked with blood.

A differentiation of pyuria due to a non-tuberculous cystitis must be made with that of a symptomatic pyuria due to renal tuberculosis. In the latter, the quantity of pus is very large, the lumbar region is sensitive, and there will be abdominal rigidity on palpation. In these cases all treatment directed against the cystitis will be of no avail, the vesical lesions only becoming cured by the removal of the diseased kidney, when the case is one of unilateral renal tuberculosis. When the specific bacillus is absent microscopically from the pus, it by no manner of means indicates that the process is not tuberculous, and in every instance inoculations should be made in animals. The diagnosis of the vesical symptoms and pyuria of renal tuberculosis with similar ones arising in tuberculous cystitis accompanied by hematuria, can only be made by cystoscopy.

The following case, which I reported to the American Urological Association in 1903,* is of interest in many respects. The patient, a young woman twenty-seven years of age, was referred to me in February, 1897, for the removal of a large bunch of tuberculous axillary glands on the left side. She gave the history and presented the signs of a cured tuberculous process in both pulmonary apices. The operation for the removal of the glands required a very extensive dissection, but the patient made an uninterrupted recovery, and was discharged to all appearances cured. About two and a half years later she again returned, this time for symptoms pointing to some disturbance of the urinary apparatus. She had, on several occasions within the last few months, passed considerable blood from the bladder, and at the time she presented herself she was complaining of considerable pain both before and after passing the urine, and a constant desire to empty the bladder. Cystoscopic examination showed a small ulcer near the left ureteric orifice, with a gray fundus and irregular, ragged borders. Palpation of the left kidney showed that the organ was considerably enlarged and painful. The right kidney could not be palpated. From these facts a diagnosis of tuberculosis of the left kidney was made, and removal of the organ was advised and accepted.

At the same time the patient called our attention to the fact that a gland the size of a walnut had made its appearance about a year after the operation in the axilla, and by palpation it could be distinctly felt. Nephrectomy was done and a large kidney presenting the typical macroscopical lesions of advanced chronic tuberculous nephritis was removed. The parenchyma contained numerous caseous foci, and, on section, a few pearly gray tubercles were also discovered. The ureter, a portion of which had been removed along with the kidney, was also studded with miliary tubercles, while its mucous membrane showed a marked purulent infiltration. The patient did well for a few days, but she then developed symptoms of renal insufficiency and died exhausted twelve days later. It should be pointed out that at this time ureteral catheterism and urinary segregation were not commonly done, but had a comparative analysis been made of the two urines it is more than likely that the urine coming from the supposedly healthy kidney would have given evidences of its impaired functions, and I consequently would not have operated. Autopsy showed that both upper lobes of the lungs were adherent, and the prices contained much cicatricial tissue. Strangely enough, the right kidney and ureter were macroscopically normal but, unfortunately, no histological examination was made. The remains of the left ureter were greatly dilated and the mucosa studded with miliary tubercles. Near the left ureteric orifice several small ulcers were found in the vesical mucosa, but their diminutive size caused them to be overlooked at the cystoscopic examination. In this case it would appear that the tuberculous infection did not directly attack the kidney. A metastasis oc-

*C. G. Cumston, Notes on Two Cases of Urogenital Tuberculosis, *New York Medical Journal*, May 30, 1903.

curred in the left axillary glands in the first place and after their removal, which was done as thoroughly as possible, another infected gland developed in the site of the operation. It is my opinion that the renal infection started from this large lymph-node, the process being quiescent in the lungs, but the bacilli prospered in the lymphatics and from here invaded the kidney, probably by way of the circulation.

In cases of unilateral renal tuberculosis, the healthy kidney may give rise to pain of a reflex nature. The bladder is not infrequently sensitive, although it may contain no lesions. This is due probably to an irritation of the neck of the bladder from the irritating properties of the urine. A renal inflammation will, in many instances, cause a frequency of micturition and sometimes this function is extremely painful.

In the commencement of the renal process the general health is not changed, but when it has progressed the symptoms are those met with in any tuberculous infection, such as loss of flesh, night sweats, and elevation of the temperature. If there is a retention in the renal pelvis of the toxic products, there will be anorexia, vomiting and insomnia, chills, and sweating; in other words, all the symptoms of a septic infection.

I am here referring to cases of unilateral renal tuberculosis only, and where a careful general examination of the patient has revealed no cause for his condition.

The diagnosis of renal tuberculosis having been made and after having established whether it is primary or secondary, one must then diagnosticate the condition of the other organs, the ureter on the diseased side, the bladder, and especially the other kidney, because the indication for surgical interference is entirely dependent upon the functional condition of the latter. The ureter on the diseased side is nearly always involved and will be found indurated and thickened, sometimes sensitive. Cystoscopy and segregation of the urine or ureteral catheterism should never be neglected, but personally I have obtained as good results by segregation, and am inclined to prefer it as the technique is much simpler. As the technique of this examination is a special one, I merely refer to it without going into any detail.

Inspection of the lumbar region and palpation will sometimes show that the healthy kidney is increased in size, this being the result of a compensatory hypertrophy and is eminently favorable as far as the indication of nephrectomy is concerned. On the other hand, it may be symptomatic of a tuberculous pyelonephritis which is an absolute contraindication for operative interference, and this can only be settled by comparative analysis of the two urines. If the urine is normal from the healthy kidney and the organ enlarged and painful by palpation, this is probably due to a physiological hyperemia of the organ and does not contraindicate nephrectomy.

In dealing surgically with unilateral renal tuberculosis two operations are indicated, namely, nephrotomy and nephrectomy. Partial resection of the kidney is rarely feasible and personally I have had only one case, for that matter successful, in which I deemed it indicated. As this case has been recently published in the *American Journal of Urology* and as the indications for renal resection have been pretty well discussed in the paper, I shall dismiss the question here.

To justify interference in unilateral renal tuberculosis, we must be sure that the kidney to be operated on is the diseased organ; also the probable degree of its involvement, and that its fellow is functionally healthy. Nephrotomy is indicated in order to drain the kidney and its pelvis in cases where the ureter has become occluded, resulting in a pus-kidney. It has also been advised in cases where the organ has become so completely disorganized that its functional utility has become nil, and when the patient's condition is so bad that primary nephrectomy would in all probability be fatal. The following case will, perhaps, serve as an illustration:

Male, thirty-three years of age, presented no family history of tuberculosis. For the past four months he had had frequent micturition both day and night. He had never to his knowledge passed any blood. The urine voided in my presence was turbid and, when allowed to stand, formed a considerable mucopurulent deposit at the bottom of the tube, the urine above remaining cloudy. Microscopically it was loaded with tubercle bacilli and pus. Palpation in the right renal region revealed a tumor the size of an adult fist, immovable and somewhat sensitive. The left kidney could not be palpated. The diagnosis of right-sided renal tuberculosis was made.

About six months later I was asked to see this patient at his home some distance out of town. For the past three months, so his doctor informed me, the urine had become quite clear with an almost complete absence of pus, but that the patient's general condition was fast failing. He had developed an evening rise in temperature, complained bitterly of indigestion, had lost twenty pounds in weight, and sleep was greatly disturbed. Occasionally he would have a chill. From this history it was only too evident that the patient was suffering from an occlusion of the right ureter which had resulted in a pus-kidney. Palpation showed that the right kidney had increased nearly twice its dimensions since the patient was seen six months previously and distinct fluctuation could be made out. A specimen of urine was obtained and an analysis showed that it was devoid of pus and tubercle bacilli. As the patient's condition was serious, it was impossible for me to await the results of animal inoculation and nephrotomy was done two days later.

A transverse lumbar incision was made on the right side and the kidney quickly reached. The organ was very adherent to its fatty capsule and greatly enlarged. An incision along the convex border was made directly through the parenchyma, that is to say, what was left of it, into the renal pelvis, which gave issue to about a pint of dirty yellow fluid containing an abundance of caseous masses. Two large drainage tubes were inserted and the wound packed with iodoform gauze.

The patient recovered very well from the operation and by degrees recovered a fair condition of health. A fistula exists and gives issue to a large amount of mucopus daily, requiring two changes of dressing in twenty-four hours. He is under the observation of his physician, and if he reaches a satisfactory condition of health I shall attempt secondary nephrectomy. It is now five months since the operation, and although this observation is to be considered as yet incomplete, I have reported it nevertheless, as an illustration of what may occasionally be expected from nephrotomy.

Out of a total of fifty-three operations on the kidney that I have done, eight interferences were for renal tuberculosis, one case being a localized

tuberculoma in the lower pole of the kidney so that resection of the organ could be done; six primary nephrectomies with one death and the case of nephrotomy above reported. Nephrotomy in cases of renal tuberculosis has not often resulted in a cure of the process and almost all of them have fistulæ. These fistulæ inconvenience the patient greatly, but they should not be interfered with if the opposite kidney is functionally insufficient. In instances of fistula giving exit to both pus and urine, a secondary nephrectomy should be undertaken as soon as the patient's general condition is sufficiently good to withstand the interference, in order to do away with the suppurative process, but of course the functional condition of the opposite kindey must be carefully studied in order to be assured of its integrity.

In considering the ultimate results of nephrectomy, the influence of this operation on the patient's general health and life must be considered, likewise the local results of the interference. When the second kidney is healthy, it is little influenced by the removal of its fellow, and if it has undergone compensatory hypertrophy it will carry on its functions perfectly. Two of my cases of primary nephrectomy, done respectively seven and five years ago, are to my knowledge alive and well at the present time. One done three and a half years ago is well other than for chronic rheumatism, while the remaining two I have lost sight of. In primary nephrectomy a persistent fistula is very infrequent and none of my cases presented one. In tuberculous pyelonephritis with marked distention, the closing of the fistula may be a matter of months. However, this usually occurs within a year. There is no doubt that fistula arising after nephrectomy is due to a suppurative process, because nephrectomy done for a renal neoplasm never gives rise to this complication. A pyelonephritis causes two special changes to take place. The first is a sclerous transformation in the fatty capsule which, by keeping the walls of the abscess spread apart, results in a fistula, the formation of which is quite similar to pleural fistulæ. The suppuration and the extension of the infectious lesions of the ureter can be avoided by suturing the end of the canal into the lower angle of the incision after removal of the kidney, and later on destruction of the mucosa may be attempted if the fistula is persistent and gives issue to much pus.

Ureterectomy is a difficult operation, tedious and long, but in certain cases it must be attempted, although personally I have never been obliged to resort to it.

Primary nephrectomy, of course, has no preventive action on a future tuberculous process, and the patients will always remain predisposed to this infection; but I can say that in many instances lesions of the bladder when not too advanced, or of the prostate or seminal vesicles, have regressed and have been recovered from after removal of a diseased kidney.

The technique of nephrotomy and nephrectomy is to be found in all the textbooks, and therefore I shall not refer to it, but there is one point which I would like to consider, subcapsulary nephrectomy. If the fibrous capsule is intimately adherent with the perirenal fat, subcapsulary decortication of the kidney must be done, leaving the fatty capsule, which is thickened and very adherent, behind. The decortication should extend down to the hilum and the ureter should be ligated carefully at this point, after which the kidney is removed. Before closing the wound, which naturally must be carefully drained, the fatty capsule should be curetted as freely as possible in order to remove this diseased structure and thus lessen the tendency to fistula.

Primary nephrectomy should be done in those cases where a positive diagnosis of unilateral renal tuberculosis has been made and the functional integrity of the other kidney has been assured by proper investigation. This is the only rational treatment under these circumstances and will be very largely successful if these cases are diagnosticated early and the operation promptly performed.

In closing, I would again repeat that at present we positively know that there are many cases of primary unilateral renal tuberculosis, and in these removal of the kidney, before other manifestations of the affection have arisen in the urogenital apparatus, will result in a permanent cure. The operation should always be performed through lumbar incision because, although not always the easiest method, it gives a very much lower mortality than the transperitoneal route, which I believe should only be resorted to in nephrectomy for tumors of the kidney.

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SOME COMMENTS ON THE ETIOLOGY AND TREATMENT OF INTESTINAL HEMORRHAGE.*

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It is the purpose of this article to discuss only the etiology and treatment of intestinal hemorrhage, or enterorrhagia, in its various manifestations. The symptomatology and diagnosis will be touched only incidentally, and, should some of the statements embodied here seem iconoclastic, it is to be hoped on the other hand there will be advanced enough constructive thought to atone for it.

From a therapeutic standpoint hemorrhage from the intestine may be classed as the inaccessible, except that from the rectum and part of the colon. This loss of blood may arise from many morbid conditions, especially anatomic lesions of the intestines. It may occur in the different kinds of ulçeration, in acute catarrh, in toxic inflammation of the intestine, in irritation brought about by excessive use of laxatives, in injury, neoplasm, hemorrhoids, in embolism of the mesenteric artery, in general venous hyperemia of the intestine due to diseases of heart or lungs, in stasis of portal system, most frequently in cirrhosis of the liver, in volvulus and intussusception, and sometimes after reduction of strangulated hernia.[1] Occasionally small venous varicosities in the small intestine, as mentioned by Nothnagel, may produce it, and, as the patient suffers from no other disorder of the digestive system, may present a very puzzling condition. That this same accident may happen in small arterial aneurysms is claimed by some; also is mentioned aneurysm of the branches of the hepatic artery. Nauyn reports several cases in which cholelithiasis was the immediate cause of the rupture of an artery. Associated with certain hemorrhagic diseases or diatheses, such as purpura and scurvy, and in some infections as septicopyaemia, yellow fever and pernicious malaria, hemorrhage may occur without preceding alteration in the mucous membrane of the bowel.[2] There may be under these conditions an

*Read before the Medical Society of the Fifth Congressional District of Georgia, held at College Park, May 25, 1909.

extravasation in the mucosa from which the hemorrhage arises.

An interesting case of hemorrhage from the intestine caused by carcinomatous polyposis of the colon was recently reported by Babler, Niebruegge and Fisch, of St. Louis.[3] There was a more or less constant discharge of blood from the bowel for about three years. Shortly before death the appendix was removed, but a positive diagnosis was not made until the autopsy. Other clinically important causes are severe icterus, phosphorus poisoning and morbus maculosus. Bayer reports a fatal case following the disappearance of an attack of facial erysipelas. Though some writers disbelieve that enterorrhagia ever manifests itself as a vicarious menstruation, the writer has seen one instance that clearly proved its occurrence.

Leichtenstern has argued ingeniously that intestinal hemorrhage is caused in most cases by a nutritional disturbance in the vessel walls, brought on by failure of one of the most important factors in metabolism—the functions of the liver. His theory, though plausible, is hardly convincing. The tendency to excessive hemorrhage during typhoid fever is correlated by Wright and Knapp with diminished coagulability of the blood, and may occur even apart from the ulceration.[4]

Bamberger has arranged an interesting table showing the frequency with which hemorrhage occurs in different diseases. His deductions seem to prove that it is most frequent in hemorrhoids and in dysentery, typhoid fever and carcinoma of the colon, in the order mentioned. Other etiological factors are clinically important, but much less frequent.

Bériel describes a condition he call "hematemesis from the lower bowel," in a case of hour-glass stomach, in which there was a large gastric ulcer on the distal side of the contraction.[5] In this connection Rolleston reports hemorrhage from the bowel to the extent of a pint without hematemisis in a patient with a rapidly growing and ulcerated carcinoma invading the cardiac orifice of the stomach.

From the foregoing it will be seen that in loss of blood from the bowel, the origin or causation may sometimes be placed easily; or there may be extreme difficulty in determining where the trouble lies. One caution as to hemorrhages of obscure origin should be emphasized; always bear in mind that distended hemorrhoidal veins high up in the rectum may give rise to frequent and alarming hemorrhages in otherwise healthy individuals.

Regarding the treatment some general principles may be laid down applying to severe hemorrhage above the rectum. Physical and psychic quiet must be maintained, and anything tending to increase peristalsis, raise the blood pressure, or cause decomposition of intestinal contents must be sedulously avoided as far as possible.

Right here the writer wishes to condemn the use of cold applications, and to indorse the views of Leube, who says "The application of cold to the abdomen, either in the form of an ice-bag, ice-compresses, or Leiter coil, is essentially valueless, for the cold cannot possibly exert any direct influence on the bleeding spot." The possible reflex benefit to be obtained from cold is more than counterbalanced by the probable excitation of peristalsis; besides, few patients find these applications comfortable.

Should there be enough strength to admit it, no food should be given by the mouth or rectum for forty-eight hours, and no fluid except cracked ice sparingly. After this time only liquid foods should be allowed for a week longer, in the discretion of the physician.

Opium, another sheet anchor in the treatment of inaccessible intestinal hemorrhage, should be used sparingly, if at all, and then only in the form of morphine hypodermatically to calm bodily restlessness. To give enough opium to lock the bowels, thereby permitting their contents to undergo putrefactive decomposition, will defeat the main object in view.

Ergot, also, is an idol that should be taken from its pedestal. In addition to the writer's experience with this drug, which has been wholly unsatisfactory, permit the following quotations: Cushney—"In other forms of hemorrhages—from the stomach, intestines, kidneys, lungs, or uterus (excluding post partum hemorrhage)—in which the bleeding point cannot be reached, it is often advocated in the belief that it contracts the walls of the vessels and thus arrests the flow of blood. These hemorrhages so often cease spontaneously that it is difficult to estimate the value of any remedy, but it may be questioned whether ergot merits its reputation in these cases."[6] Rolleston—"Although hemorrhage may stop after ergot has been given, it is doubtful whether ergot has a beneficial influence on hemorrhage, except from the uterus."[7] Stengel—"Ergot, hydrastis, and turpentine have been used in the treatment of intestinal hemorrhages, but are of doubtful value."[8]

The collapse of anemia, as from any other hemorrhage, must be treated by external heat, counter-irritants or transfusion with saline solution.

The control of bleeding from the rectum will be briefly covered. As in this condition it is possible to reach the lesion, enemeta of ice water may be used. To these, if desired, may be added styptics as tannin, alum, acetate of lead, nitrate of silver, or adrenalin. The writer has used with much satisfaction a suppository suggested by Dr. Boardman Reed containing three grains each of suprarenal extract and iodoform, and 2 minims of ichthyol, given half an hour before the bowels are to be moved, and one after movement.[9] Further treatment is surgical and need not be described here.

Hemorrhages high up in the rectum or descending colon may be reached by ice cold or astringent injections, but these should not be used until other methods fail, as they tend to keep up undue peristalsis. Tampons of iodoform gauze, as recommended by a recent writer, are only mentioned as being likely to do much indirect harm and little direct good.

When the hemorrhage occurs from the transverse colon on up to the duodenum, remedies to control it must be given by the mouth or hypodermatically. Where there are slight and more or less frequently occurring hemorrhages, the bismuth salts—preferably the subgallate—in doses of 15 grains three to six times daily, are generally effective. Slightly more energetic in their action are tannic acid, tannigen, tannalbin, or tannigenaform in doses of 5 to 10 grains four to six times daily, but they often upset the stomach when continued more than three or four days.

When the bleeding assumes an acute form, and active measures are necessary, the remedies most efficacious are adrenalin, gelatin, and calcium chloride in the order stated.

Since 1901 adrenalin extract has been recognized as having important hemostatic properties, and while

its action on accessible hemorrhages has been fairly well understood, its effect on inaccessible intestinal hemorrhages has been in some doubt. Several have endeavored to clear up this subject, the most recent investigator being Dr. Carl J. Wiggers.[10] From a number of painstaking and enlightening experiments he draws the following conclusions, which are indorsed by the writer: (1) Large doses of adrenalin (from 0.05 to 0.1 mg.) cause a short preliminary increase in hemorrhage, followed quickly by a decrease or cessation of bleeding. On account of the great preliminary loss of blood they are always contraindicated. (2) Small doses of adrenalin (from 0.1 to 0.25 mg.) cause little or no preliminary increase, but shorten the course of the hemorrhage. As they save the red blood cells in every way, they are therapeutically desirable. (3) The method of introducing adrenalin determines the effect on blood pressure and hemorrhage. No results are obtained by subcutaneous administration. By continuous intravenous injection of weak solutions a slight elevation of pressure can be maintained and hemorrhage be simultaneously checked. This can also be accomplished by intramuscular injections. (4) Adrenalin is not indicated in all intesinal hemorrhages. The condition of the blood pressure is the criterion for its use. In hemorrhages of short duration, where the pressure has not fallen to any extent, a judicious use of nitrites proves of more benefit than adrenalin. When the bleeding has been profuse, however, and a low pressure already exists it becomes vital that hemorrhage should be checked without further reduction of pressure. Adrenalin finds its use in this field."

In 1896 Dastro and Floresco demonstrated that blood drawn from a dog into which a 5 per cent. solution of gelatin had been injected intravenously solidified almost immediately, and that the same results could be obtained by adding gelatin to the blood outside the body. In 1898 Lancereaux and Paulesco found that subcutaneous injections of gelatin were quite as efficient. Taken internally the unaltered substance has a marked local hemostatic effect, but it is doubtful if this can be obtained from the products of gelatin digestion. For this reason it is best that entire peristalsis be not checked when this agent is given by the mouth. When thought advisable gelatin may be given hypodermatically (3 to 5 fluid drams), and also by the mouth (1 to 8 fluid drams) in a 10 per cent. normal salt solution. It is fair to state, though, that Da Costa deprecates the use of gelatin hypodermatically, rather, in the opinion of the writer, overestimating the danger of thrombosis.

The chloride and lactate of calcium have seemed to give good results by increasing the coagulability of the blood, though there is some skepticism in high quarters regarding the absorbability of the calcium salts by the intestinal surface. Dr. Robert Coleman Kemp strongly recommends either the chloride or the lactate of calcium (grs. 10) well diluted every two hours. The chloride of calcium and gelatin may be given together, if desired, an eligible form being Tremolier's solution, which is a five per cent. solution of gelatin and a two per cent. solution of the calcium chloride. The writer has frequently alternated Tremolier's solution and gelatin with satisfactory results. Another hemostatic agent of merit is the lactate of strontium, which may be given by hypodermoclysis in doses of 15 to 30 grains.

Atropine, as a hemostatic, is being investigated at present, but its beneficial effects so far do not rest on a physiological basis.

It is well, especially in bleeding from duodenal ulcer, to endeavor to keep the bowel contents alkaline by the administration of some efficient antacid such as sodium bicarbonate in full doses.

After the active hemorrhage is arrested it is advisable to continue these agents, either in smaller doses or at longer intervals for several days, during which time rest and strict dietetic precautions should be enjoined.

Should all the measures mentioned fail, surgical aid will of course be demanded, for in the case of malignant neoplasms, erosion of large vessels by ulceration or otherwise, or some forms of hemorrhoids, medical treatment or local applications will necessarily be futile.

If, however, the suggestions indicated in the foregoing are intelligently and methodically followed, the cases of intestinal hemorrhage requiring surgical intervention will be reduced to a minimum.

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AN AMERICAN SCHOOL OF TROPICAL MEDICINE.*

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Whether we approve or not, the United States has expanded, and become a colonial nation, assuming all the complexities of tropical administration. Not the least of these new problems that have come to the nation, are those relating to the sanitary administration of our new possessions, and upon their solution depends in a large measure the outcome of our tropical ventures. These problems must be met and solved by American physicians working in the tropics in conjunction with native physicians. The men who are to do this work must be carefully instructed in the many duties they will have to perform. Sir Patrick Manson spoke very feelingly upon this subject in his Lane lectures,[1] saying: "To send a young fellow fresh from the schools to some tropical and unhealthy climate to treat diseases he has never seen before, many of which he has never heard of before, is not only cruelty to the doctor, but it may be death to the patient and bad business all around. A merchant would not think of running his business on such lines. Why, then, should the medical business, the most important of all business, in that it deals with human life, be run on such lines? I could cite hundreds of instances in illustration of the folly, I might also say the criminality, of the old system, by which raw, untaught and inexperienced youths were launched in the tropical service. Many of these illustrations, I am sorry to have to say, would be culled from the long category of my personal mistakes."

*Read by title at the sixth annual meeting of the American Society of Tropical Medicine, held at the U. S. Naval Medical School, April 10, 1909.

Doctor F. C. Wellman[2] who has spent many years in tropical Africa says: "The successful settlement of the tropics is of the greatest importance to the world. Such settlement depends in no small measure on the solution of various hygienic and epidemiological problems there obtaining. In the absence of this knowledge an extra expenditure of lives and money is certain to ensue. The problems in question can best be studied by trained observers working at first hand, in other words, by scientific men living in the tropics. With these points before us there is no occasion for me to dwell on the necessity for adequately equipped pathologists, clinicians and sanitarians, especially trained in the lines along which their investigations will run, to take up the enormous task awaiting them. It is no less than a cardinal sin to send poorly equipped men to the tropics."

Doctor George Dock[3] of New Orleans says: "Another pressing need is more extensive activity in the investigation of tropical diseases in the United States. I would not for a moment minimize the splendid advances made by private individuals, as well as by various departments of the government, but the field is unlimited and includes the diseases of all lower animals as well as man. The valuable results of the schools of Tropical Medicine of Liverpool, London and Hamburg show what may be done and what should be done by all countries having similar problems."

The physician who goes to the tropics to practice finds his duties very different from what they would have been had he remained at home, and the maxims taught by preceptors do not seem to apply to the conditions under which he is living. He is confronted by a host of strange diseases. The irruptive fevers which occupy so much attention at home are less prevalent, while malaria, and diseases of the alimentary canal are very common. Skin diseases, of which many practitioners in this country know very little, are prevalent and perplexing. The microscope is to be his daily companion and there are but few accommodating laboratories where such work can be done for the asking. The examination of the stools must be a routine. The study of the mosquitoes, both in the adult and the larval stages, will occupy much time, and the superintendence of the abolition of their breeding places will require tact and good judgment. This is really the work of the engineer, but there will be no engineer and the doctor will have to fill his place. There are a host of undetermined fevers in the tropics which must be studied with care before any progress towards their prevention can be made. The inspection of food, a subject which is practically untaught in our schools, must be a daily duty. In fact, in addition to the ordinary work of a physician or surgeon, the practitioner in the tropics will have to fill all the positions on the board of health from sanitary engineer to food and meat inspector. Besides he must be a medical zoologist, a bacteriologist and a diplomat.

Have the graduates of our medical schools been sufficiently instructed in all of these specialties? We may safely answer no!

Recent inquiry of the leading medical schools in this country has shown that although they all recognize the importance of instruction in tropical medicine there is no place in the United States where such instruction can be had. Doctor John M. Swan has established a laboratory course in tropical medicine at the Philadelphia Polyclinic, but he informs me that the instruction given does not include clinical teaching, and it is doubted very much whether satisfactory results can be obtained without bedside teaching.

Medical zoology occupies a small place in the course at medical schools in this country. In the Philippines this is probably the most important branch of medicine. I have more than once seen good practitioners who on their arrival there were entirely unacquainted with the amoeba or the intestinal parasites.

Hygiene, although occupying much of the attention of the public, is practically untaught in most of our medical schools. Yet in the tropics every physician has to be well posted in this branch of medicine.

The days when a physician isolated from contact with his fellows could by hard work and careful observation become a good and useful practitioner of medicine are passing away. The progress of medical science is so rapid that a few years of isolation puts a man behind. Especially is this true in the realm of tropical medicine where there are so many new discoveries in etiology and treatment.

If we are to obtain the best results from the men who are to represent our country in the tropics we must provide some means whereby they may become reasonably proficient in their many duties before they leave this country. Most of the colonial countries of Europe have recognized this and have provided schools where such instruction can be obtained. The London School, the oldest of these, has been in existence for about ten years and has had something like seven hundred students. Many of the graduates are now filling posts of importance in the tropics, while not a few have added materially to the world's stock of knowledge. This last is especially true of the Liverpool School, which has sufficient funds to provide for commissions to study the diseases of the tropics in the endemic areas.

Our laboratory workers and sanitarians in the tropics have accomplished much of which the nation is justly proud, but there is so much to be done that we should do all we can to obtain facilities for training men to continue the work which has begun so brilliantly.

The work so far has been mostly done under the auspices of the government, but it is well known that our legislators are averse to making appropriations unless they bring immediate returns, therefore there will come a time when this work will be abandoned by the government, and we should therefore provide an institution to continue this important work, an institute for the study of diseases peculiar to the warmer regions of the globe. There should be attached to this institution a well-appointed hospital and a school for the instruction of physicians in tropical medicine and hygiene. It should have sufficient funds to send experts to study the diseases in their endemic areas. The institute should be closely affiliated with the laboratories in Manila, Porto Rico, the Canal Zone, and Hawaii, and should make arrangements for an exchange of workers so as to advance the work as much as possible. Practitioners in the tropics should be encouraged to send there pathological and other interesting specimens, which should be kept and made available for study by those interested in the subject. This institute should be the "home office" of the tropical practitioner and a gathering place for all interested in the advancement of medicine in the tropics.

The services of the trained specialists of the in-

stitute should be at the disposal of the government whenever needed. They should also aid the workers in the tropics with their experience and advice as much as possible.

The study of the so-called tropical diseases is not only of importance to those who dwell near the equator, but also to the entire world. Many of these diseases are only relatively tropical. Within the past few years several of these diseases have been found to prevail extensively in the warmer portions of the United States.

Our ignorance concerning conditions in the tropics is appalling. We know nothing of the proper diet for the white race in such regions. There are those who believe one should live as the natives do and abstain from meats, while others say the beef ration should be liberal. One student of tropical medicine tells us that the cause of the decay of the white race in the tropics is the intense light. He also advocates the liberal use of alcoholic stimulants. Others of long tropical residence deny these premises. These points and many others should be determined scientifically, for if we are causing disease amongst our countrymen who are working in the tropics by overfeeding them or by exposing them to the intense light the sooner we know it the better.

There are no doubt many men who could furnish the funds for such an institute if they were aware of the importance of the work to be done. It has been estimated that $500,000 will provide for the school, and as much more would make a good foundation for the other work. Once the foundation is laid smaller sums will be forthcoming to provide for special work.

During the last few years there have appeared a number of papers advocating the establishment of an American School of Tropical Medicine. Most of these have boomed some city as the most desirable location for the school. This has done good by keeping the question alive, but it does not seem wise at this time to expend our energy discussing the merits or demerits of any city, but rather to make a united effort to secure the funds for the foundation of the Institute, leaving the question of location to a committee of physicians as was done in locating the Rockefeller Institute. The important points to consider in choosing a location are the supply of clinical and laboratory material and the convenience of the students.

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A CASE OF PARENCHYMATOUS KERATITIS IN ACQUIRED SYPHILIS.*

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Occasionally we see cases of parenchymatous haze of the cornea in individuals of thirty or upwards, who claim that they have always been robust; whose family history is vigorous; whose persons are not blemished by the facies of inherited syphilis, when, in spite of this, one feels justified in assuming from the appearance of the cornea that luetic infection is at the bottom of the disease, and especially so when the disease ends promptly after brisk mercurialization. Interstitial, or parenchymatous, keratitis due to acquired syphilis was regarded, in my early days at Wills Hospital, as problematical, and American writers on the subject were indeed very few in number prior to 1900. Since then, however, numerous instances of the disease have been recorded with indubitable evidence. Last year two important reviews were published (by A. E. Davis, at the Chicago meeting of the American Medical Association, and John T. Carpenter, at the meeting of the American Ophthalmological Society) which, to my mind, have fixed the subject definitely as an ophthalmologic entity; and by the recital of five additional cases these authors have amply justified the contention. Each author begs that forgotten cases may be recalled and that American surgeons report any they may have had so that doubt on the subject may no longer exist. Hospital records are so incomplete and often so abruptly cut short that one gets from the study of them only the most unsatisfactory results. In all the years I have been connected with the hospital I have seen there only one case and none in my private practice.

The present case, which Dr. Schwenk very generously allows me to report, is undoubtedly one of specific infection. Our opinion at the time the patient attended the hospital, however, was formed solely because of the accompanying symptoms.

The patient presented herself at the hospital in February, 1900. She was tall and of large frame, and apparently was a healthy woman. She came from one of the quiet towns in the interior of Pennsylvania. She was twenty-four years of age and had been married a year or so. She had one child, a well-developed nursling. The woman stated that at about the time the baby was born, in November, 1899, her left eye became reddened, tears flowed rather freely and her sight was foggy. There was but little pain, and after a while, in the midst of her new cares, the symptoms gradually disappeared or became less noticeable. In January, 1900, however, three weeks before coming to the hospital, the symptoms returned with increased severity. After a few days there came a lull, but three days before we saw her they returned, and this time with great pain.

Upon examination there was found intense tarsal and bulbar injection with deep ciliary congestion and tenderness. The cornea was steamy, the anterior chamber deep, and the iris discolored, the pupil 3 mm. and fixed. Atropine solution was repeatedly instilled, which after some time effected irregular dilatation, disclosing several posterior synechias. The vision of the right eye was 5/10; of the left 5/35. Ophthalmoscopically the right disk showed a very deep cup, yet the fundus was apparently healthy. The left cornea was too hazy for a satisfactory examination. The pupil was occupied in the lower part by a tough exudation. Atropine was prescribed for frequent use and mercuric bichloride and potassium iodide in full doses. After two days the lids became edematous; the ciliary injection most intense. The cornea was now seen to be pervaded by a dense haze which was caused by a fine granular infiltration of the parenchymatous lamina. The superficial lamina was not so edematous as at the earlier examination, yet a clear view of the iris and deeper structures could not be obtained. The pupil had become larger, the nasal border of the iris was narrower than that of the

*Read at the April 15, 1909, meeting of the Section on Ophthalmology, College of Physicians, Philadelphia.

temporal, for there it was tightly adherent to the lens capsule, which was studded with small masses of uveal pigment. I leached the temple and ordered iced compresses to be applied incessantly. In two days there was a marked reduction of the edema and superficial congestion, and in ten days the most observable sign was the diffuse opacifaction of the cornea. Through the periphery of the cornea a satisfactory view of the fundus was obtained. There were no gross changes noted, though the vessels were remarkably tortuous.

The patient at this time complained more or less of sore throat and of some discomfort in the nasal chambers. She was thereupon sent to the Rush Hospital for Consumptives and Allied Diseases, where she was examined and treated by Dr. Henry J. Off, who, on March 1, 1900, wrote to me that he had found a large perforation in the nasal septum and specific erosions in the larynx. Mercurials and the iodide were given in increasing doses. On March 8 there was noticed in the lower outer quadrant of the cornea, near the limbus, a small, macerating ulcer. This was thoroughly cauterized with carbolic acid and after three days the epithelium became restored. The iodide solution was again increased, the exact dosage, however, was not recorded, but on March 20, six weeks after the patient was first seen by us, the cornea had cleared so markedly that a testing of the vision showed so great a gain that with weak spherocyclindrical combinations the result yielded 5/5 in each eye. The patient had been greatly reduced during the course of the disease, but now regained so much that she believed herself well and abruptly left the city. We have not heard from her since.

This was evidently the first serious disease of the eye the patient had had. There were no signs of any dyscrasia nor of previous inflammation, and the disease had come on insidiously, without marked symptoms and was confined to one eye. At first the cornea contained a number of grayish punctate opacities, scattered through the parenchyma, which later became more numerous in the center and shortly were formed in a solid sheet so that the cornea became quite opaque. There was but scant vascularity of the cornea and but little lacrymation and pain. In nine weeks from the commencement of the attack the cornea regained sufficient transparency to afford a satisfactory examination of the fundus, where except for dense iritic adhesions to the lens, the exterior of the eye was apparently healthy, and the patient discontinued visiting the Hospital.

As in Collins' case, the cornea in this patient became ulcerated; and, in keeping with the details in certain of the reported cases, there were ulcerations in the nasal and laryngeal cavities. There was distinct iritis at the start, but at no time were there evidences of involvement of the choroid of either eye. It was impossible to obtain a satisfactory or even trustworthy history of syphilitic infection. The patient was high class and most intelligent, and declared she had been in perfect health up to the birth of her child. It may be assumed, therefore, that the infection had taken place within two years prior to the outbreak in the cornea. So prompt was the recovery of the patient after the administration of mercury and the iodide, that we allowed our faith in the empiric "therapeutic test" to rule us, in assuming it to be a genuine case of syphilitic infection.

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THE GENERAL PRACTITIONER AS A DERMATOLOGIST.*

By BENJ. F. OCHS, M.D.,

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Perfection in medicine has as yet not been attained. The era of positive diagnosis and treatment seems most likely to be reached through the specialist, for specialism tends not only to the exact knowledge of the class of diseases treated, but also to the treatment indicated. The specialist confines his whole time and thoughts to the particular branch involved, and does not touch upon the other branches, except in so far as they are part of, or in touch with, his specialty. Thus the dermatologist should be conversant with other branches of medicine, for he should not only know how to recognize diseases from their cutaneous manifestations, but should also know their etiology, and if depending on, or in conjunction with other diseases. He must know how to recognize diseases of internal origin from their cutaneous lesions. Many a case of diabetes has been diagnosed first by the dermatologist from the skin lesions presented to him for treatment. And what holds good for diabetes can also be said of many more diseases of internal origin. Thus we have the acne of the anemics, the zoster of the neurotics, the purpura of the rheumatics, the exanthemata, and the skin lesions of the eruptive fevers. Diseases of faulty metabolism, especially in children, are recognized from their cutaneous symptoms. It is from the correct interpretation of these cutaneous manifestations that the dermatologist makes his positive diagnosis; not that his judgment is infallible, but that he is more often correct than is the general practitioner. Mistakes in diagnosis are often ludicrous and quite often of severe consequences. Many of the mistakes in diagnosing skin troubles have had bad, if not fatal, terminations. To mistake a mild case of skin disease for syphilis or for variola will certainly not ease the patient's mind, but, on the contrary, is apt to do much harm, and cases of suicide have resulted from such grave errors of diagnosis. To show a few of the errors of the general practitioners who have referred cases to the writer, he may be permitted to quote that of a physician, who told a young man about to be married, and who consulted him about some skin trouble, that he had contracted syphilis. The young man, very much distracted, promptly called off his engagement, and with his physician called upon the writer, who diagnosed a pityriasis rosea, and in a short time, under appropriate treatment, the patient was cured, was married, and is now in good health. Another of the mistaken ideas of the general practitioner is that the so-called "liver spots" are solely of internal origin, depending on disorders of the liver or gall-bladder. A prominent lawyer was referred to the writer by his physican, asking for some advice in removing these "liver-spots," as all forms of cathartics, chologogues, etc., have failed to remove them. A simple solution of sodii hyposulphite (1-3) cured his "liver-spots." That these may be mistaken for syphilis, the following case will show. Mr. A. was under treatment by his physician for more than six months on account of a supposed syphilis, during which time he had hypodermics of mercury, inunctions, and pil. protoiodide *ad nauseam*.

*Read before the Medical Society of the Borough of the Bronx, April 14, 1909.

and as there was no improvement, the writer was consulted, the diagnosis of chromophytosis was made, and the patient was promptly cured. Thus he was spared a long continued course of treatment, his mind was eased, and he was restored to perfect health. Of course in this class of cases the microscope is of valuable assistance, as we can demonstrate the presence of the *Microsporon furfur* in the scrapings from the affected areas. Scabies also has often been mistaken for syphilis. About a year ago, a patient who had a lesion on his penis and some scratched papules on his body was referred with the diagnosis of syphilis. Careful examination showed the case to be one of scabies, and treatment for this affection proved the corrected diagnosis. Of course the *Acarus scabii* is not demonstrable in every case of scabies.

The general practitioner lays entirely too much stress upon the patient's statement in regard to what he has, and what he has not had, which the physician believes to be the absolute truth. In other words, the patient will sometimes unknowingly deny an infection. We all know that specific infections can take place extragenitally, thus, by the lips, the mouth, and even through the tonsil. (Physicians never contract syphilis in any other way than by the finger.) Ofttimes intra-urethral chancres have been mistaken for gonorrhea. Therefore, while the patient's statement seems correct, yet it is erroneous and leads the physician to make an incorrect diagnosis. To illustrate this the following case will suffice. A patient was referred on account of a long continued skin eruption; he had denied to his physician an infection. Nevertheless the true diagnosis was made from a serpiginous rash, which promptly yielded to proper treatment. Here we see that though the patient was unaware of his infection, and probably would have admitted it had he but known it, he really had acquired such an infection. Though to the dermatologist, who takes no history before examination, the case was clear, yet it was exceedingly confusing to the general practitioner. I repeat that histories are vague, indefinite and untrustworthy. The diagnosis should be made from the cutaneous lesions, and not from the history as given by the patient. I could go on enumerating many more cases, but do not think this advisable.

How frequently pustular syphilis is mistaken for variola, and patients are sent to the pest house, is surely known to you all. Then again cases of variola have been allowed to go around, believing them to be cases of pustular syphilis, thereby allowing numbers of people to be exposed to this most virulent disease. It seems that the general practitioner loses sight of the fact that the skin is the largest organ of the body, and, as the other organs, subject to all forms of ills. The average practitioner recognizes but few diseases which may affect the skin—eczema, acne, and psoriasis. His therapy is limited, and consists chiefly of arsenic internally, and zinc ointment, to which he adds occasionally sulphur or resorcine, externally. And if these therapeutic agents fail him, he thinks the case must be one of syphilis, and the patient is given mercury, principally by mouth, up to the point of salivation, and if all fail to cure the patient, a specialist is called upon. Of course the specialist is asked to make the diagnosis offhand, even though the original disease is masked by treatment. Yet we should not be too severe on the general practitioner, for he has not much opportunity to study dermatological cases, as they are really only a small part of the many cases he is called upon to treat; but were he to pay as much attention to dermatology as he does to the other branches of medicine, he would undoubtedly be farther advanced in this special branch.

Nor is the average practitioner to be blamed for his shortcomings, for as a student, and later on as an interne in a general hospital, where few, if any, dermatological cases are admitted, he acquires but little training in this subject. Therefore these errors in diagnosis seem pardonable. I would strongly advise the various hospitals in this city to have a ward for dermatology, the same as they do for surgery, gynecology, medicine, etc. Then this state of affairs would soon be corrected. In conclusion I would advise the general practitioner to give up some of his spare time to going to the various clinics that are open to him, and studying dermatology from the living subject. This branch of medicine can only be mastered by the use of both the eyes and the touch, and cannot be acquired by studying books and pictures.

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Early Diagnosis of Measles.—E. Apert describes two signs that he considers pathognomonic of measles, and that appear so early in the disease, or so late in the incubation period, that isolation begun at this time will prevent its spread to others in the family. It is not early enough to make the diagnosis when the catarrhal symptoms have appeared. The disease is then infectious and all precautions fail to prevent its spread. The signs that are of value are Koplik's spots and conjunctivitis of the pterygeal area, that is of the conjunctiva between the lids. This appears when Koplik's spots are seen, that is three or four days before the skin eruption, and both signs have disappears when Koplik's spots are seen—that is, three or four on the inner surface of the cheeks, rarely on the inner side of the lips, never on the gums or palate. At first they are like tiny, grayish granulations on the rosy mucous membrane, later becoming bluish.—*Le Bulletin Medical.*

Relapsing Scarlatiniform Desquamative Erythema.—G. Petges describes a form of erythema that is easily mistaken for scarlatina. Its distinguishing points are the absence of marked fever, and severe symptoms, the marked pruritus that precedes it, the very large plaques in which desquamation occurs with an erythematous condition continuing, and the recurrence of the attacks, one patient described by the author having had twenty attacks. It begins with pruritus, malaise, feeling of fatigue, chilly feelings, headache, and inability to sleep on account of the itching. It appears over the entire body. Desquamation begins in a few days and lasts for some weeks. There is no history of contagion. The plaques of desquamated skin are large and very tenacious. The cause of the disease is unknown, but the symptoms are in favor of an infection. It is probably this disease that is mistaken for second attacks of scarlatina.—*Gazette Hebdomadaire des Sciences Médicales, de Bordeaux.*

Osteomyelitis in the New-Born.—H. L. Devraigne says that osteomyelitis when it occurs in young infants begins acutely with high temperature, extreme pain on motion of the affected limb, moaning, and refusal of food. An enlargement of one or other bone is found accidentally. The source of infection may be intrauterine. After birth there are several modes of entry for microorganisms, the principal of which are the staphylococcus, streptococcus, and pneumobacillus. The last form of infection is short, but exceedingly severe. A bronchopneumonia from infective emboli may be a complication. The prognosis is affected by the age of the infant and the number of foci that are affected. When recovery does occur it is quicker and more perfect than in the adolescent. The joints generally recover perfectly, and there are no sequestra, since there is little tendency to necrosis of the bones. Treatment should consist of supportive measures and early drainage of the affected foci. The author recounts a case observed by him in an infant of eleven days, in whom there were eight distinct foci of infection in the long bones. The infant recovered with little deformity.—*Bulletin de la Société d'Obstétrique de Paris.*

MEDICAL RECORD.

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CHRISTIAN SCIENCE IN THE ARENA.

IT is curious to see with how little exercise of their reasoning faculties many otherwise intelligent persons are content to go through life. They both accept and offer statements, based upon the flimsiest sort of evidence which would not be accepted even in a police magistrate's court. Facts to them are facts; they never can be made to see that facts can lie like figures or that a few isolated and unanalyzed facts furnish an extremely insecure foundation upon which to construct a weighty theory. These, and other reflections of which charity and lack of space will not permit the expression, are suggested by an article in *The Arena* for March-June, 1909, entitled "Medical Explanations of Christian Science Cures Considered in the Light of Typical Cases." The paper is from the pen of the editor of the magazine who, the Christian Scientists jubilantly proclaim, is not a member of their sect. That they should regard this as adding any weight to his evidence is only another instance of the paresis of the reasoning faculties with which these peculiar people are so sorely afflicted. We suspect, however, that their diagnosis is incorrect in this case; if the author of the article is not a "Scientist" he certainly employs the jargon of the cult in the most approved Eddyistic style. The first case he cites is quoted, he says, "because of the supposed incurable character of the disease and the fact that from the viewpoint of *materia medica* the question of diagnosis leaves nothing to be desired." What the "viewpoint of materia medica" is or what possible bearing it can have upon diagnosis we must leave to Christian Science to explain. "From the viewpoint of the tariff on beans the question of the inflation of the currency leaves nothing to be desired" would be as illuminating a phrase.

The argument of Mr. Flower is that the Christian Science annals contain records of many cures of organic disease, diagnosed as such by experienced physicians, and pronounced by them incurable. He reports at length several cases of the kind, some very doubtful, some of simple eyestrain, but others of true organic disease, the most authentic being a case of blastomycosis which had been diagnosed and treated without success by a number of Chicago specialists. Admitting, however, for the sake of argument, that they were all cases of organic disease, that is to say, disease with demonstrable lesions, as grave and as imminently fatal as the sufferers and their friends and physicians said they were, they prove absolutely nothing. One swallow does not make a summer and one recovery from disease offers but faint presumption of the efficacy of any treatment. The annals of Lourdes and of scores of other shrines and places of pious pilgrimage in Europe and America contain records of a far greater number of "authentic cures" of organic disease than Christian Science can boast of. Father John of Cronstadt had more cures to his credit than has Mother Mary of Boston. The office records of any successful quack contain many instances, genuine ones, of the restoration to health of the apparently hopeless victims of organic disease. But what do they all, multiplied even many times, count in comparison with the thousands upon thousands of deluded creatures who entrust themselves to Christian Science, faith cures, out and out quackery, and the like, and, after a little temporary improvement, such as almost always occurs in chronic cases with a change of doctors—an improvement which is at once chronicled as a "cure" in the misleading records of the cult—drop the wretched imposition and die.

It is in the experience of every medical practitioner to see patients, who have been condemned to death, recover health and strength most inexplicably and contrary to all the rules of pathology. They are in the last stages of incurable disease and they ought, by all the rules of the game, to die—but they live. Tuberculosis is notoriously a spontaneously curable disease; cancer cures itself not infrequently, often belying the unfavorable prognosis of scores of surgeons; the subjects of Bright's disease sometimes fail to die when they are told they must, and so on throughout the list of incurable maladies. These are medical puzzles and the explanation of them is as yet beyond medical science. There is doubtless a reason in each case, and when the modus operandi of the cure is discovered, the science of therapeutics will come into its own. That the psychic element is in some way a factor is perhaps true, but for the present we must content ourselves with calling them spontaneous cures.

That the comparatively few cures in Christian Science of so-called organic disease are instances of spontaneous cure is certain. The only case of all these collected by Mr. Flower in which the possibility of spontaneous cure might be doubted by the experienced physician or instructed layman is the first one recorded, evidently regarded by him as the *pièce de resistance*, the one of blastomycosis. This disease has only recently been recognized as a clinical entity, and physicians in general know but little about it; they read of the severest cases and get the impression from their reading that the disease is incurable. That this impression is incorrect is shown by the textbooks on dermatology which teach not only that the disease is curable, but that spontaneous healing sometimes occurs. Schamberg says: "The prognosis is favorable unless septicemia has taken place." Hyde and Montgomery say: "Healing sometimes occurs spontaneously." Gilchrist, the discoverer of blastomycosis says: "In some cases there was to be noted a distinct tendency to spontaneous recovery." Pusey says: "Spontaneaus in-

volution may occur . . . the prognosis in cutaneous blastomycosis is good." Disproof of Christian Science pretensions is so simple a matter that, did they not mislead so many people, one would really be ashamed to notice them. It is almost as wasteful of good black ink as a denial of the late Brother Jasper's assertion that "the sun do move."

THE EFFECT OF DIPHTHERIA TOXIN AND ANTITOXIN ON THE HEART.

In spite of the decrease in the mortality from diphtheria since Behring's discovery of the curative serum, there still remains a residuum of cases which even after the use of the antitoxin fail to recover. Whether this is due to the too small or too tardy use of the antitoxin, or to an overweaning confidence in serum therapy leading to a neglect of other therapeutic aids, the immediate cause of death is, in a large proportion of such cases, cardiac failure. We are still much in the dark as to the physiology and pathology of this, there being yet a difference of opinion even as to whether the immediate cause of death is a true myocarditis or an injury to the nervous mechanism of the organ; and we are also uncertain as to the therapeutic value of antitoxin once the cardiac symptoms have made their appearance. Some experiments recently carried on by Fritz Meyer and reported in the *Berliner klinische Wochenschrift* for June 28, 1909, are of interest as throwing light on various aspects of the question. This investigator worked with a large number of rabbits and studied carefully the effect of diphtheria toxin and antitoxin given in various doses, at different times, and by subcutaneous and intravenous injection.

As death from diphtheritic intoxication is dependent on, or at least associated with, a marked progressive fall of blood-pressure, Meyer's first investigations were into the effect of the antiserum upon this factor. By giving fatal doses of toxin at various periods following antitoxin injections, he was able to demonstrate three points: Antitoxin, if administered early in sufficient doses, absolutely prevents the fall of blood-pressure; if given later, but before the fall has occurred, it delays its onset; but if given after the pressure has once fallen, it is quite without effect. Noting at autopsy the marked destruction of the suprarenal gland due to the toxin, he administered suprarenal extract subcutaneously, 1 c.c. of the extract in 19 c.c. of salt solution, to animals in which the fall of blood-pressure had occurred, and found that this acted quickly and definitely in raising it again. It was, too, the only agent he could discover which had this action. By another series of experiments the pathological changes in the heart muscle were studied. These were found to consist in a true myocarditis, which made its appearance from six to eight days after the intoxication. Very large doses of the toxin killed the animals before these changes occurred, and very small doses produced no effect. The myocarditis was produced by medium quantities of toxin or by severe intoxication with insufficient doses of antitoxin. The myocardial changes were found in cases in which the animals died at the end of a week, and in those which survived and were killed a month later. Antitoxin given early and in sufficient dose prevented the myocarditis after the injection of toxin in any amount.

The author believes from this that large doses of antitoxin given early will do away with all cardiac complications of diphtheria, and also, from still another series of experiments, with postdiphtheritic cachexia as well. He says that from 4,000 to 6,000 units should be given at a time and repeated frequently, and that when this is not promptly effective as much as 20,000 to 50,000 units should be administered intravenously. For this purpose one must be sure that the antitoxin is sterile, and is free of any preservative. This advocacy of the large doses of antitoxin is quite in accord with the work of McCallum and others in this country, who some ten years ago advised giving enormous quantities in all cases of diphtheria. The work of Meyer is of especial interest as showing that, on the lower animals at least, the antitoxin has a decided protective action on the cardiac muscle, but that to produce its effect it must be given, not only early, but in large quantities. His point, too, that, when once the blood-pressure has fallen, antitoxin will not raise it, while suprarenal extract will, should, if promptly acted upon in severe cases of diphtheria with heart failure, prove to be a therapeutic aid of practical value.

HYSTERO-ORGANIC DISEASE.

This ailment, according to Babinski, is the outcome of a change in the form which hysteria has presented. It is no longer characterized, in many instances, by the major attacks, which we know. There is a curious alignment with, or development from, true organic diseases such as arthritis or neuritis. Consequently the practitioner finds his diagnostic craft high and dry on a reef of negative determinations.

Writing in the *Journal des Praticiens*, July 3, 1909, Babinski illustrates this difficulty as it appeared in the case of a young girl, for whose antecedent arthritis compression by plaster apparatus had been employed. She came for what looked like hydrarthrosis, but on examination the leg was found to be anesthetic, and had lost its function. It was at once seen that no hydrarthrosis existed. Either the trouble was a result of the compression, or it was hysteroid. Neuritis was excluded because the tendon reflexes were preserved, as well as the faradic response of the muscles. Rapid cure followed upon suggestion and forced (passive) movements. Electric treatment of ten minutes' duration was used from day to day. The coldness in the part and the swelling offered confusing evidence, but the treatment of the earlier arthritis by immobilization explained those symptoms.

Babinski attributes the singular manifestations of the hysterical patient in many cases to more or less unconscious suggestion by the physician himself, although many times they originate in the patient's mind. In this case, it arose from the feeling of

the patient that movement would cause distress. The immobilization contributed to the production of a local paretic state. Anesthesia resulted from the notion of the patient that, because movements were not felt, sensation was likewise impaired. Contractures would obviously be found.

Asking whether hysteria may be blamed for vascular disturbances, Babinski replies that the sequence of conditions is from primary organic changes to truly hysteroid vascular degeneration. This must not be assumed to mean that hysteria is passing; merely that the disease is taking on a form different from that of former times. The obscuration of any genuine case of organic disease with the development of hysteroid symptoms must be recognized, or the practitioner may wander in a blind path.

Deceit as a Therapeutic Measure.

It has been said that no man is competent to treat typhoid fever until he himself has had the disease. Though this is an exaggeration it is an aphorism of value and contains a nucleus of truth. Every physician who has suffered from a severe illness, particularly if it has been one in which his life was in imminent danger, ever afterwards not only takes special interest in that particular disease, but also has a closer understanding of the sufferings of his patients and a more acute appreciation of the significance of the symptoms. Yet it is the rare exception that a medical man writes of his own case. There seems to be an inherent modesty among the members of the profession which prevents them from publishing their own symptoms and thoughts during illness. Whether this is due to a feeling that describing one's own sufferings is a sign of weakness or cowardice, or to a natural desire to keep the *ego* out of scientific writings, it is a fact to be deplored. We cannot know too much of the subjective sensations of the patient. The layman is too often unable to describe them intelligently, and it is through the careful introspection and self-analysis of the ill physician that our knowledge in such matters must be obtained. It is therefore with especial interest that we read in the *Deutsche medizinische Wochenschrift* for June 17, 1909, an account by Richard Lehmann of Berlin of a severe attack of appendicitis with perforation and general peritonitis from which he himself suffered a few months ago. Following two mild attacks the previous year, neither of which lasted more than two days, the writer was taken ill with what appeared to be a third of equal insignificance. After a few hours, during which he was scarcely ill, on turning over in bed he was taken suddenly with terrific pain, rigidity, and collapse, and an immediate operation revealed a gangrenous perforated appendix and several ounces of free pus. General peritonitis and obstruction requiring colostomy followed, and for several days but little hope was entertained for his recovery. During this time he was conscious, and, though himself fully appreciating his critical condition, demanded of the surgeon the truth as to whether or not he would recover. The surgeon assured him that he would soon be well. Though the patient knew that he had a general peritonitis, and that the surgeon could have no such hope as his words suggested, this reply gave him great comfort and mental relief. The main lesson that Lehmann drew from his illness was the fact that no matter how much a patient demands the truth, no matter how much he thinks he wants it, when he is seriously ill what he really desires is to be deceived. Although he knew that the surgeon was lying, the lie gave comfort and peace of mind. Those of us who have been in the same situation can well appreciate the truth of this statement and can remember with gratitude the confidence inspired by the cool, assuring, if not quite truthful, words of the medical adviser. Whether it is right deliberately to deceive a patient or any one else under any circumstances we must leave to the casuists and specialists in ethics. We simply record the facts as they are.

A Modification of the Esbach Test.

The well known method for the quantitative estimation of albumin devised by Esbach some years ago, though hardly of sufficient accuracy for scientific work, is so simple and so easily carried out that it has come to be used almost universally for the clinical estimation of the quantity of albumin in the urine. The great drawback has always been the necessity of waiting twenty-four hours for complete precipitation before reading the results. Working to overcome this Kwilecki has devised a simple modification, which he describes in the *Münchener medizinische Wochenschrift* for June 29, 1909, by means of which he claims to be able to estimate small quantities of albumin in two minutes and larger amounts in from five to six minutes. The method differs from Esbach's simply in the addition of ten drops of a ten per cent. ferric chloride solution to the measured amount of urine after it is put in the tube and before the Esbach's solution is added, and after gentle mixing placing the tube in a water bath at a temperature of 72° C. The precipitation begins almost immediately and is complete in a few minutes, when the results are read in the usual manner. This method is but slightly more complicated than the usual Esbach estimation, and, as it saves twenty-four hours, should, if it proves to be accurate, be a modification of value in saving much annoying delay.

News of the Week.

Work of Infants' Welfare Committee of Chicago.—The plan of campaign of the Infants' Welfare Committee of Chicago has been determined upon, and as outlined in the Bulletin of the city Health Department will be as follows: (1) The United Charities Association will maintain at the various active centers a force of from eight to ten nurses, who will make a personal investigation of the conditions obtaining in the neighborhood where the death rate from diarrheal diseases among infants was high during the months of July, August, and September of last year. (2) The nurses from the Tuberculosis Institute during their daily work will take cognizance of any cases of the same kind and will report these to the United Charities Association. (3) The Department of Health contributes to this work by the appointment of ten physicians who will be assigned for three hours each day to the various stations of the Milk Commission of Chicago, the purpose being to examine children coming to those places for milk. They will advise as to proper feeding, dressing, treatment, and gen-

eral care of the children. (4) At two meetings held recently, at which most of the officers of the branch divisions of the Chicago Medical Society were present or were represented, it was decided unanimously that the Chicago Medical Society through its branches should cooperate with the Infants' Welfare Committee in furnishing to the indigent and deserving poor the necessary medical care and treatment, physicians to be furnished and appointed by the different branches for this purpose. The officers of the Chicago Homeopathic Medical Society, the Chicago Eclectic Society, and the Physio-Medical Society are to be asked to cooperate in a like manner. (5) A staff of physicians has also volunteered to appear at various places at such times as may be necessary to instruct parents and nurses in the proper care and feeding of infants. (6) All dispensaries, hospitals, nurseries, crêches, and children's open-air sanatoriums in the city of Chicago have been asked to join in this movement, and practically all of them have agreed to do so. With these united agencies working under an organized plan there is little doubt that the usual mortality among children from gastrointestinal diseases will be materially reduced.

Prize Milk Contests.—Contests in which milk dealers and producers will submit samples of their goods for analysis have been arranged for by the Detroit Board of Health. It is probable that the first one will be held about August 10. Prizes will be awarded for the best dairy products, several classes having been designated. The winners will be announced at a public meeting which will be addressed by milk experts of national prominence. The farms from which the samples are obtained will be visited by Government inspectors.

Cholera in Russia.—The Russian health authorities state that the cholera epidemic in St. Petersburg is well under control, and that they do not believe it will reach the proportions of the 1908 epidemic.

Pellagra in Illinois.—It is reported that there are now in the Dunning Insane Asylum at Dunning, Ill., three patients suffering from pellagra and that six others have recently died from the disease there.

Laboratory Diphtheria.—The city chemist of Milwaukee has been suffering from an attack of diphtheria, supposed to have been contracted from working with cultures of the diphtheria bacillus in the laboratory of the Health Department.

The New York City Death Rate for the week ending July 17 remained low, 15.97 as compared with 18.48 for the corresponding week last year. This year there were 1,397 deaths as compared to 1,567 last year.

Cocaine Seller Arrested.—A man was arrested in the street in New York recently for selling cocaine. Over $100 worth of the drug was found on the man at the time. He was peddling it at a rate which would give him a profit of about $25 an ounce.

Dr. H. B. Ward, formerly dean of the College of Medicine and Professor of Zoology in the University of Nebraska, has accepted the position of Professor of Zoology at the University of Illinois, Champaign, to succeed Professor Stephen A. Forbes.

Dr. August Hoch of the Bloomingdale Hospital at White Plains has been appointed Director of the Pathological Institute at Ward's Island, New York, to succeed Dr. Adolph Meyer, who has been appointed Director of the Phipps Psychiatric Institute.

College of Medicine, University of Nebraska.—Plans have been drawn for a group of buildings to be erected for the College of Medicine, University of Nebraska. The group will comprise a central building with four wings for a general hospital, four corner buildings, each in the shape of an "L," for the orthopedic hospital, child saving institute, women's hospital and laboratory, and smaller buildings for administration and special laboratory between the corner buildings, the whole making ten buildings and forming a quadrangle.

Hospital at Ellis Island.—The deficiency bill passed by the House of Representatives in Washington, July 20, carries an appropriation of $20,000 to equip the contagious disease hospital at the Ellis Island immigrant station at New York.

New Hospital at Green Bay, Wis.—A new hospital has been opened at Green Bay. It is established by the Methodist Church and is to be in charge of deaconesses.

Home for Blind Babies in New Jersey.—The International Sunshine Branch for the Blind expects to found a home in New Jersey for blind babies. The Arthur Home property in Pine Grove Avenue, Summit, N. J., has been presented to the society for the purpose.

The Public Health Education Committee, a new organization of women physicians, has just been formed, its object being to instruct the laity in the prevention of disease. Dr. Rosalie Slaughter Morton is chairman of the Executive Committee. Dr. Sarah R. Adamson Dolley of Rochester has been made honorary chairman of the body. The secretary of the Executive Committee is Dr. Evelyn Garrigue of 616 Madison Avenue, New York.

The New York Italian Medical Society has been incorporated recently. The objects of the organization are "to maintain professional decorum and standard among its members and among other members of the medical profession, and particularly those who are Italians or Italian-Americans."

The Fourth International Congress of the Medical Press will meet this year at Budapest on August 27 and 28, on the eve of the Sixteenth International Congress of Medicine, and under the presidency of Professor Posner of Berlin. The sittings will be held in the Palace of the Academy of Sciences (Akademia utcza 2, Budapest V.), where the assembly hall has been placed at the disposal of the International Congress of Medicine. For this congress, to which all members of the medical press will be admitted, no entrance fee or subscription will be charged. The only condition of admission is that of being also enrolled as a full member of the International Congress of Medicine. Demands for admission should be sent before August 1 to the general secretary of the International Association of the Medical Press, Dr. Raoul Blondel, 103, Boulevard Haussmann, Paris.

The International Antialcoholic Congress, which has been in session in London, has accepted the invitation of Queen Wilhelmina of the Netherlands to hold the next congress at The Hague in 1911.

The Tristate Medical Association, which met in Toledo July 13, elected the following officers: *President,* Dr. C. B. De Nancrede of Ann Arbor, Mich.; *Vice-President,* Dr. Joseph A. Duncan of

Toledo; *Secretary,* Dr. George W. Spahn of Elkhart, Ind., and *Treasurer,* Dr. J. A. Weitz of Montpelier, Ohio.

The West Virginia State Board of Health recently elected the following officers: *President,* Dr. J. L. Dickey of Wheeling, and *Secretary,* Dr. H. A. Barbee of Point Pleasant.

The Rhode Island Medico Legal Society has elected the following officers: *President,* Mr. George H. Huddy, Jr. of Providence; *Vice-President,* Dr. Donald Churchill; *Secretary and Treasurer,* Dr. C. R. Doten; *Board of Censors,* Coroner C. H. Lincoln of Providence, Dr. Stimson of Tiverton, Dr. C. S. Christie of Riverpoint, Dr. J. Howard Morgan of Westerly, and Dr. C. W. Stewart of Newport.

Memorial Tablet to Dr. Wightman.—The members of the class at the Cooper Medical College, of which the late Dr. W. M. Wightman was a member, propose erecting a tablet in his memory. Dr. Wightman was a Passed Assistant Surgeon in the U. S. Public Health and Marine Hospital Service. While on duty at Guayaquil, Ecuador, he contracted yellow fever and died.

Obituary Notes.—Dr. M. A. Atkinson of Eureka Springs, Ark., died on July 14, aged 62 years. He was a graduate of the College of Physicians and Surgeons of Keokuk, Iowa, in 1872.

Dr. Arthur Earl Beach of Carroll, Iowa, died suddenly at his home on July 13, aged 35 years. He was a member of the Carroll County Medical Society and Iowa State Medical Association. Dr. Beach was a graduate of the Northwestern University Medical School of Chicago in 1905.

Dr. Joseph M. Emmert of Atlantic, Iowa, died at his home on July 14, aged 63 years. He was a graduate of the Jefferson Medical College of Philadelphia in 1872, and was a member of the Cass County Medical Society, the Iowa State Medical Association, and the American Medical Association. He was also the founder and first president of the Botna Valley Medical Society. From 1892 to 1898 Dr. Emmert was a member of the Iowa State Board of Health, and in 1898 he was elected to a seat in the Iowa State Senate. He was a member of the State Board of Parole and Pardons.

Dr. James Evans of Florence, S. C., died on July 14, at Clifton Springs, N. Y., aged 79 years. He was a graduate of the Medical College of Pennsylvania. On graduation Dr. Evans entered the army as a surgeon, and served through the Civil War. For many years he was secretary of the South Carolina State Board of Health, from which position he resigned in 1907. Dr. Evans was an extensive writer, especially of popular works on the hygiene of children. He was a member of the Florence County Medical Society and the South Carolina Medical Association.

Dr. W. E. Moore of Derby, Iowa, died at Lincoln, Nebraska, on July 8, aged 57 years. He was a graduate of the College of Physicians and Surgeons of Baltimore in 1881, and was a member of the Lucas County Medical Society, and the Iowa and American Medical Associations.

Dr. John C. Pannonborg of Hammond, Ind., died at his home on July 9, 1909, after a long illness, aged 54 years. Dr. Pannonborg was born in Germany, but came to America at the age of eleven, and later received his medical education at the University of Louisville. He was a member of the Lake County Medical Society, and the Indiana and American Medical Associations.

Dr. Clair S. Parkhill of Hornell, N. Y., died at his home July 20, 1909, aged 65 years. He was a graduate of the Albany Medical College in 1866, was a member of the Steuben County Medical Society, the New York State and American Medical Associations, the president of the Erie Railroad Surgeons' Association, and one of the most prominent physicians of Steuben County.

Dr. Joseph Robbins of Quincy, Ill., died on July 19, aged 75 years. He was a graduate of the Jefferson Medical College of Philadelphia in 1861, and was for many years superintendent of the Central Hospital for the Insane, in Jacksonville, Ill. He was a member of the Adams County Medical Society, and the Illinois State Medical Association. Dr. Robbins was prominent in State politics at one time, having been presented to the State convention as a candidate for the Governorship of Illinois.

Dr. Aaron Condit Ward of Orange, N. J., died at Nauheim, Germany, on July 19, 1909, aged 48 years. He was a graduate of Princeton University in 1883, and of the College of Physicians and Surgeons of New York in 1886. Dr. Ward engaged in the practice of medicine in Newark, N. J., until five years ago, when he gave it up to devote his entire time to the Prudential Life Insurance Company, of which he was a medical director.

Dr. James B. Cowan of Tullahoma, Tenn., died suddenly of heart disease, at his home, on July 24, aged 77 years. He was a graduate of the Medical Department of the University of the City of New York in the class of 1855. Dr. Cowan served through the entire Civil War as chief surgeon on the staff of General Forrest of the Confederate army. He practised for many years in Tullahoma, and was a member of the County and State Medical Societies.

Dr. Charles O. Hunt of Portland, Maine, died suddenly of heart disease in the Scarboro Beach Station on July 24, 1909, at the age of 70 years. Dr. Hunt was a graduate of the University of Pennsylvania in 1868, a Civil War veteran, a member of the Cumberland County Medical Society, and the Maine Medical Association.

Dr. Cyrus Francis Krauser of New York died on July 9, 1909. He was graduated from the Long Island College Hospital in 1867.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

ROYAL TOUR, HOSPITALS AND UNIVERSITIES—LEAGUE OF MERCY—FUTURE OF TROPICAL MEDICINE—ELECTROLYSIS AND BACTERIA—POOR LAW DOCTORS' ASSOCIATION—THE LATE DR. LALCACA.

London, July 9, 1909.

Unseasonable weather has done much to mar the royal tour in the northern and midland counties, but their Majesties seem to have met it cheerfully and the program was punctually carried out. On Tuesday the new buildings of the Manchester Royal Infirmary were opened by the King, who, with the Queen, arrived during a heavy downfall. It was a public holiday, but the enthusiasm of the people was unabated by the rain. At the university a halt was made and an address presented, to which the King replied and expressed his pleasure that the cause of learning and research in Manchester is united with that of practical benevolence by fortunate alliance with the great hospital. The Royal Infirmary dates from 1752 and after a long and distinguished career in the city is now being transferred to a more open site outside. The new buildings are constructed to accommodate 600 patients, but at first will be equipped for 483. The estimated cost is £500,000, of which £400,000 is provided by the sale to the city corporation of the old building.

With the due ceremony of these occasions the new infirmary was declared open by His Majesty. Afterward the King, Queen, and Princess Victoria visited two of the wards and unveiled their name plates. Their Majesties also spoke a few words to the patients in these wards—named after themselves, King Edward VII. and Queen Alexandra wards.

The next day the royal party left Knowsley, where they had been staying with Lord Derby, and drove in a motor to Liverpool—a distance of six miles thronged with cheering crowds. At the station an address was presented by the Lord Mayor and briefly responded to. The special train was then taken for Birmingham, where the King was to open the new university. Great preparations had been made for the occasion and the whole route traversed by the procession was decorated with Venetian masts and flags. There were also a number of arches constructed so as to illustrate the municipal enterprise and the chief trades of the city. At the Council House there was another address and full ceremony, but I must pass on to the university, where the great function of the day took place. Here the King, replying to the address, expressed his regret that the Chancellor (Mr. Chamberlain) was prevented by illness from being present to witness the completion of the scheme so dear to his heart. Then His Majesty dwelt on the paramount importance of such institutions as this, where four faculties were at work and the citizens prepared to add others, so as to keep pace with all advances.

Yesterday, having concluded the provincial engagements and returned to town, the King, accompanied by the Queen, the Prince and Princess of Wales, and Princess Victoria, laid the foundation of the new buildings of the Imperial College of Science and Technology. The ceremony was performed with full pomp and circumstance in the presence of a brilliant assembly in which the robes of doctors of science set off the decorations by flowers and flags. The King spoke of the "supreme importance" of the highest specialized scientific instruction and research and of providing the fullest equipment for advanced teaching.

The Prince and Princess of Wales received the officials and members of the League of Mercy at a garden party to which more than 1,000 had accepted the invitation. The League has now been established ten years and has contributed to the King's Hospital Fund £116,000. The work is carried on by a network of about one hundred "districts," with some thirteen to fourteen hundred presidents, vice-presidents, and other officials and above twenty thousand members subscribing a shilling a year. None of the officials are paid and every shilling subscribed goes to the hospitals without any deduction whatever.

Professor Ronald Ross, in his presidential address, took an encouraging view of the future of tropical medicine, although the present state of things does not seem to give him satisfaction. He has long advocated the inclusion of parasitology and such subjects in the medical curriculum. The influence of disease on the decay of nations he thinks should receive more attention, and he holds that helminthiasis is largely responsible for the physical deterioration now so prevalent in tropical countries. He declared there was no reason why the tropics should not produce healthy, vigorous men, just as they did the strongest specimens of animals. The housing question is a burning one for the tropics, as much as for Europe. One or two advanced nations had shown the possibility of having cities without slums and he hoped the future would banish the miserable sights that were seen throughout the tropics.

The pressing objects were improvements in sewage and water supply, the better management and protection of wells, and the extinction of vermin. To achieve them sanitary organization must be completely remodeled. Some improvements had taken place, but further advances were imperative and the sanitary service of all the tropical colonies and possessions thoroughly organized. Judicious expenditure on this would pay from a monetary point of view.

Professor Ross then urged the members not to fall into the mistake of supposing that discovery, great or small, was the end of their duty as members of the Society of Tropical Medicine and Hygiene. Research, he said, was not a mere academical amusement and did not consist altogether in producing elegant articles adorned with colored plates. They had not only to teach, but to beseech, to demand and even to command. They must not take too haughty a view of their scientific work and stand apart from the throng of men for whom their work was done. It was for them to descend and go personally into the battle, to fight hand to hand in order to save their fellow men from grave and imminent dangers.

At the Royal Society on the 24th ult. Dr. Ch. Russ reported the results of a preliminary investigation which he had made to ascertain whether, during electrolysis of certain salts, suspended bacteria would pass to either electrode, with a view that if such were the case the fact might be employed for the detection of tubercle bacilli in the urine. He found that some bacteria under a suitable current did aggregate at one or other electrode. This aggregation varied with the electrolyte employed and might be due, perhaps, to affinity of the organisms for the products of electrolysis. The aggregation took place with dead as well as living bacteria, and the differences of behavior of different bacteria suggested to him that possibly this method might be utilized for specific discrimination. But as to this the data he had hitherto obtained were not sufficient to warrant a definite conclusion.

The annual meeting of the Poor Law Medical Association took place on Tuesday at the guild hall, when the Lord Mayor extended a kindly welcome to the members. Surgeon-General Evatt presided and lamented that there is no Minister of Health in England. Papers were read discussing the position of Poor Law medical officers in reference to the reports of the commission. Some approved the majority report, but others appeared to prefer that of the minority and there was a suggestion of cruelty made as to the latter. It was generally agreed that proper safeguards must be demanded for the profession as well as for the ratepayers. It was resolved that there ought to be a distinct service for the sick poor, so that they could be treated with economy but without pauperization. Surgeon-General Evatt was re-elected president and an invitation to meet at Halifax next year was received. At the dinner in the evening the president repeated his regret that there was not a Minister of Health in the Cabinet. Sir Walter Foster, Sir Dyce Duckworth, Sir Shirley Murphy, and many others took part.

The tragic death of Dr. Lalcaca in his attempt to prevent the murder of Sir Curzon Wyllie will be known to you. No doubt the particulars reached you as soon as they were known here. I will only say, therefore, that he was well known and highly esteemed here by a large circle of professional admirers and friends, who lament his untimely decease.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

TREATMENT OF GONOCOCCIC SEPTICEMIA—SUTURE OF VESSELS, TRANSPORTATION OF ORGANS, AND GRAFTS OF LIMBS—REACTION OF FIXATION IN THE DIAGNOSIS OF HYDATID CYSTS OF THE LIVER—DELAYED PSYCHIC TROUBLES FOLLOWING INJURIES OF THE SKULL—FULGURATION IN CANCER.

PARIS, July 10, 1909.

PROFESSOR DIEULAFOY gave a study of two cases of gonorrheal septicemia ending in cure and immediately followed by typhoid fever. Every individual attacked by gonorrhea, no matter how simple, may at any moment develop gonorrheal septicemia. Gonorrhea is not simply a local affection, but the gonoccus, once diffused in the blood, may produce various and very severe lesions. The most frequent localization of gonorrheal septicemic poison is in the joints and simulates articular rheumatism. Gonorrheal endocarditis almost always attacks the left heart, and the lesion is more frequently at the aortic than at the mitral orifice. The gonococcus likes the endocardium and produced in it ulcerative and vegetating lesions liable to create embolisms. Bronchopneumonia has been observed, and Dieulafoy cites a case observed by himself in which the gonococcus was found in the sputum. Gonococcic pleurisy is far from exceptional in the course of gonorrheal septicemia. The evolution of gonorrheal septicemia has a great resemblance to typhoid fever, and the differential diagnosis is extremely difficult; it should be made by cultures of the blood, which will show the gonococcus in pure culture, mixed with other microbes. In the patients mentioned by Dieulafoy the cultures had been made and had given positive results; the patients appeared quite well following subcutaneous injections of antigonococcic

vaccine, and Dieulafoy advises these injections in generalized gonorrheal septicemia.

Pozzi brought back from a trip to America, when he went to attend the Centenary of Ovariotomy, personal observations made by himself on the interesting work of Carrel. As a result of his work, suture of vessels has become a practical operation for the physiologist and surgeon. Surgical applications of this new knowledge are at present rare and hesitating, but the laboratory results are precise. Pozzi reports a case of grafting of the abdominal aorta with a piece of peritoneum in a dog of medium size, which lived two years after the operation and was in perfect health. The transplantation of fresh veins, which has been carried out in dogs, may be applied in surgery in the treatment of aneurysm.

Lejars and Parvu reported to the Surgical Society a reaction which seems destined to render great service in the diagnosis of hydatid cysts, which has been studied by Weinberg and practised by him. In five cases observed by the author indications have been made easy, and the conclusions have been verified four times by operation. In the presence of any visceral tumor the diagnosis of which is difficult to make by the usual methods of exploration, clinical and laboratory, this procedure is indicated. Unfortunately it involves a special technique.

Auvray has made a study of delayed psychic troubles following traumatisms of the skull, which show themselves under various forms—mania, hallucinations, tendency to suicide, delusions of persecution, and general paralysis. It is an undoubted fact that in a great many cases of dementia there are found at autopsy the traces of old traumatisms under the form of exostoses, sequestra, and meningitis. The interesting question is whether the mental troubles observed take their origin entirely from the traumatism, or whether the traumatism acts as an additional cause in a predisposed subject. Sebileau believes that the wound is generally a coincidence with the insanity, and that we should not accept the second as a consequence of the first. Quenu believes that the exclusive influence of traumatism in certain psychic states is undoubted. Delorme believes that the influence of traumatism on psychic troubles is considerable, but that it is necessary to take into account also other causes: syphilis, alcoholism, and individual predisposition. Picque believes that the traumatism produces diffuse lesions of the brain, prepares the soil, and creates circumscribed lesions: but, since the soil is only prepared by the lesions which the traumatisms cause, we may affirm that the latter create psychic troubles in all cases without its being necessary to invoke predisposition.

Nélaton reports a case of cancer of the rectum treated by fulguration, in which the action of fulguration has been nil, not to say bad. Quenu believes that it is necessary to operate first and apply fulguration after it. Sebileau has very little confidence in fulguration for cancer. Tuffier believes that fulguration has no pronounced action on cancerous tissue and that its action will not be effective at more than two milimeters depth; consequently its application is very limited. It is rather an agent of cicatrization than a destructive agent upon neoplastic tissues. Guinard thinks that we must make a wide operation of the cancer and then apply fulguration, for he has never seen any severe accident result from fulguration. Legueu has also convinced himself that the action of fulguration on cancer cells is nil, but that fulguration acts above all on the subjacent tissues. Fulguration appears to be a modifying agent for cancerous tissues in the same way as hot air, but without specific action, without curative action. Marion concludes that fulguration does not seem to aggravate the operative prognosis in point of view of large removals when they can be made. Ricard recognizes that fulguration has not lessened the limits of surgical interference, has not in any way ameliorated the cancer situation, and that inoperable cases still remain inoperable. Neither does fulguration lessen the liability to recurrence over surgical procedures. Jean Louis Faure has great confidence in the action of fulguration, and makes use of this procedure in all bad cases or even moderate cases, even though it seems to him to aggravate the operative diagnosis. Fulguration appears to have a sure and powerful action on the cicatrization of wounds, and he thinks that it should be extended to the treatment of all losses of substance rebellious to cicatrization. Schwartz has been struck by the rapidity of the cicatrical evolution of wounds following fulguration. He employs fulguration after taking care to remove surgically the largest possible amount of cancerous tissue from the entire region. Pozzi believes that the indications for the application of fulguration in cancer are very limited. On the other hand, he believes that fulguration should have an important application in the treatment of atonic wounds of various origin. Rochard thinks that fulguration as a method of treatment should not be rejected. Thanks to it, we can operate on and cicatrize cancerous wounds which were formerly considered inoperable.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 15, 1909.

Aural Complications in the Exanthemata.—Charles R. C. Borden emphasizes the following points: (1) In scarlet fever children are quite liable to middle ear inflammation, which may or may not involve the mastoid cells. Adults are much less so and rarely have mastoiditis. (2) In measles both adults and children are very susceptible to middle ear involvement and adults are especially in danger of mastoiditis. (3) In cases where there is a tremendous discharge present for more than two or three weeks the mastoid operation should be seriously considered as a means of providing drainage, other than through a small pin-hole perforation in the delicate membrana tympani. (4) Occasionally a case will arise in which the diagnosis may be difficult. If, after carefully ruling out every other possible cause by exclusion and the mastoid remains in doubt, and if the symptoms of the patient are at all serious, operate. The danger is greatest from waiting. (5) If, after the acute symptoms of scarlet fever and measles had subsided, pus in the middle ear is kept active by profuse nasal or nasopharyngeal discharges, examine the patient for adenoids. If the growths are present, remove them thoroughly. This procedure in the course of diphtheria, however, is questionable. (6) General practitioners should regard aural discharges as a menace to hearing and occasionally to life, and not as a more or less common complication without special importance. In a series of 1,164 cases previously reported by the author in children up to sixteen years of age, having aural diseases, 31.6 per cent. had chronic purulent otitis media of long standing.

Treatment of Chronic Suppurative Nasal Conditions by the Use of Lactic Acid Bacteria.—J. L. Goodale presents a brief summary of the results noted. The cases included conditions of atrophic rhinitis with ozena, and chronic suppuration of the various sinuses. From a study of the cases reported he believes that a distinct effect has been produced by the culture in some cases of ozena, characterized by general crust formation. The results appear to be comparable to those produced by argryol, which has hitherto seemed to be one of the most reliable applications. It remains, however, to be seen whether more than a temporary effect is produced. In localized chronic suppurative sinusitis, attended by hypertrophy and polyp formation, no effect could be detected. This negative result would naturally be expected in view of the extensive changes in the mucous membrane.

New York Medical Journal, July 17, 1909.

Diagnosis of Intestinal Tuberculosis.—Joseph Walsh presents a study on one hundred cases which came to autopsy in the Phipps Institute; they were in no way selected. The average age was thirty-one. Seventy-six showed ulceration of either the small or large intestine or both, and twenty-four no ulceration. In conclusions he says that (1) the symptoms, diarrhea, abdominal pain, tenderness, and rigidity, mean very little or nothing in the diagnosis of intestinal tuberculosis; (2) the presence of an ischiorectal abscess in an advanced case adds to the probability of intestinal ulceration; (3) the diagnosis of intestinal tuberculosis cannot be made with the slightest degree of certainty from our present known symptoms, and since the condition carries with it such an unfavorable prognosis, in order to reassure the patient, the nurse, and the physician himself, the diagnosis should not be made so that the patient will have a better chance for hopeful treatment.

Remissions in General Paralysis.—Morris J. Karpas makes this report. Two of the cases were tabetic and one was cerebral. Two were decidedly elated and

grandiose and one showed a definite depression, with general slowness in action and thought. Remissions lasted one year in one case, two years in the second and more than five months in the third. In no case were heredity or psychotic traits demonstrated; the remissions did not occur at the time of infection or suppuration. Syphilis could not be satisfactorily ascertained, but doubtless it could not be excluded. The disease picture, save for the remission, presented no anomalous traits and in each instance the diagnosis of general paralysis could be made without reservation. The question as to what are the probable factors which determine a remission in general paralysis is difficult to solve. Is it explainable on the peculiarity of metasyphilitic process? Or is it attributable to a special kind of bacterium paralyticum? These are purely theoretical speculations.

Pneumococcic Arthritis.—Alfred Strickler says that a study of the collected statistics shows that pneumococcic arthritis occurs once in about 800 cases of pneumonia. He reports the case of a Russian, twenty-five years of age, housewife, who was admitted to the hospital complaining of swelling and pain in the right knee and inability to walk. The family history was negative. Four months before admission she had pain in her right knee; the pain was dull in character, unattended with redness or swelling, but there was tenderness. The pain was worse on motion. She soon recovered. Two months previous to admission she gave birth to a child. Three weeks after her labor she again had pain in the right knee, with no redness nor swelling. The following day, however, the knee was red and swollen. On admission to the hospital the joint was tapped and six drachms of a reddish fluid was obtained. Examination of this fluid showed pneumococci in abundance. The physical examination revealed nothing abnormal except the knee, which was swollen, red, tender, and painful on motion. The temperature and pulse were normal throughout her illness, except for an attack of amygdalitis, during which febrile phenomena were present, but subsided rapidly after three days. Bier's treatment was resorted to for two hours daily, also evaporating lotions, with marked improvement. Later, passive motions, Scotch douches, and massage did the patient much good. She recovered from her arthritis, but some ankylosis resulted.

Journal of the American Medical Association, July 17, 1909.

Traumatic Neuroses.—The divergent opinions held by physicians and lawyers in regard to what are called traumatic neuroses are noticed by E. E. Gaver. Owing to the tangled condition thus caused, he thinks worthy persons often fail to get just compensation, while unworthy ones sometimes recover damages. While he does not believe that the German system of insurance against accident is a perfect solution of the problem involved, it is, he says, a great improvement over no system at all, as is the case here. The special features of the three cases he reports are as follows: The first was diagnosed as an organic case and operated on for brain abscess which was not found. Later it was diagnosed as a case of traumatic neurosis of the hysterical type, which it proved to be, and the patient recovered entirely, after obtaining damages from the city where the accident occurred. The second case was one of hysterical traumatic neurosis manifesting a rather fragmentary dissociation of personality, and the third was a temporary insanity from head injury, with former dissipation as a possible contributing factor. There are few cases of traumatic psychosis in which some such preceding factor, or heredity, can be absolutely excluded.

Underdeveloped Lower Jaw.—Two cases of underdeveloped lower jaw are reported by V. P. Blair of St. Louis. One of them, he believes, is unique in its pathology, and the procedures resorted to for their relief, advancing of the lower portion of the ramus to bring the teeth in better apposition and to allow a freer movement of the jaw and a wider opening of the mouth as well as improve the profile, have, so far as he knows, not been heretofore resorted to. In one of the cases a second operation had to be resorted to; a curved piece of cartilage one and a half inches long was taken from the eighth costal cartilage and inserted, to make up a bone deficiency. Some suppuration occurred, but the cartilage stayed in place, though the bony structures did not reform so satisfactorily as was desirable. Considerable dental prosthetic work was also done by Dr. F. A. Niehoff. The conditions are illustrated and the surgical history is an interesting one.

Ectropion and Entropion.—S. L. Ziegler recommends and describes a method which he has employed for many years with success in entropion and ectropion and some other conditions of the lids. It requires but two instruments which are figured, a short galvanocautery point and a lid clamp. He usually employs local anesthesia with 4 per cent. cocaine on the conjunctival surface, but in nervous, sensitive patients it is necessary to employ nitrous oxide, bromide of ethyl, chloroform, or ether. If ether is used it must be removed before the approach of the hot cautery point. The lid clamp is adjusted with its straight bar 6 mm. from the lid margin. The galvanocautery point is applied to the surface with considerable pressure. The button on the handle is pressed down to turn on the current, while the point is quickly pushed through the cartilage and as quickly withdrawn. The punctures are made 4 mm. from the lid margin and separated from each other by an equal interval of 4 mm. These should be made on the side on which we wish the contraction to take place, namely, the conjunctival surface in ectropia and the skin surface in entropion. If necessary we can repeat in a few weeks. From one to three sittings will accomplish as much as would a plastic operation. He has seldom seen any reaction follow, but if there is a little cellulitis and puffing of the lid the use of continuous ice-pads for a day or two will control it. Two or three repetitions are generally required, at intervals of from two to four weeks, according to the case. The procedure is perfectly under control. In repeating the operation it is well to alternate the punctures locating the second series between the first. The eschar of the cautery causes no disturbance and usually clears off in about a week. Fourteen cases are briefly reported, showing the effects of the procedure in the class of cases for which it is adapted. The article is illustrated.

Occupation Neuroses.—J. Madison Taylor gives his personal experience in the treatment of over forty cases of sensory and motor disabilities of the arm, due mostly to a neuritis. His object is to offer to practitioners measures which each one can readily apply and effect prompt and permanent cure. Success is largely dependent on the appreciation by the physician of the underlying condition, and the treatment in his cases was carried on along the lines of (1) constitutional regulations, using of drugs, etc., adapted from the interpretations of Dr. Sajous; (2) relief of psychic hypertension or misdirection by educative persuasion, relaxation of the whole organism, and teaching of economy in the expenditure of force; (3) quieting of the irritated vasomotor subcenters and improvement of their nutrition. The underlying conditions of neuritis are due chiefly to agencies affecting the normal defensive power of the blood. There is often a history of previous constitutional disease which reduces the functions of the pituitary body, according to Sajous's teaching, which Taylor follows. The phenomena are usually those of hypocatabolism, acidosis, and autointoxication. Among the exciting causes the most common is cold, especially when one is exhausted, and also infectious disease. The measures to be taken against these factors are drugs causing vasodilatation, such as the bromides and chloral; drugs that cause vasoconstriction by stimulating the sympathetic centers, such as morphine, atropin, etc., and local remedies causing local reflex vasoconstriction; measures which directly deplete perineural arterioles, such as venesection, cupping, and hot applications, etc.; measures which tend to eliminate the causes of the neural congestion, such as laxatives and dietetic regulation, and lastly to combat the gouty state by stimulation of the adrenals. As regards the second point, relief of psychic hypertension, his experience is that the value of persuasion and educative measures cannot be underestimated in the treatment of these cases. He goes into detail in regard to the manual methods and manipulations and the importance of the physician's tactile dexterity in determining the degree of irritations and relieving them by frictions and pressure along the nerve courses. Stroking lymph channels with the affected nerve paths is, chronologically, one of the first of the indicated procedures. It should be performed centripetally and slowly, gradually increasing the pressure and taking about two minutes' time, and followed by squeezing of the entire limb from the extremity to the shoulder. He is enthusiastic as to the value of the application of judicious and graduated stretchings, along with torsion, which can only be safely done by the physician, gradually increasing the force until, after two or three weeks, the patient can stand a good deal

of force without marked discomfort. He thinks this is one of the most efficacious methods of relieving pain, aches, heaviness, and of restoring vigor. The re-education in coordination required should be carried on for months or years. After each passive treatment it is well to direct the patient to extend the arm and fingers with increasing force, and to hold the tension at the end of the act for three or four seconds, and to repeat the procedure, followed by rotation in various directions. This series of active movements should be insisted on for months, to be used three times a day. Occupation neuroses are generally the outcome of overuse of the arm in a flexed position, long maintained, and this kind of training in extension give the normal physiological relief.

Local Sweating.—Grover W. Wende and Frederick C. Busch report three cases of a peculiar sweat reflex which they have not found recorded in the literature. The fact, however, that after the first case was seen two others were met with would seem to indicate that the condition is not so rare as would appear from the lack of records. In all three cases the sweating either starts from a definite localized facial area or is confined to such. The reflex involved apparently includes on the afferent side the olfactory and possibly also the gustatory nerves, and on the efferent side the secretory fibers of the sweat glands of the face. Heredity is undoubtedly a factor in the causation, the condition having existed in one or more members of the family in one case for four generations and in the other two cases at least for two generations. In all cases the individuals are of a nervous type, with sensitive skin and mucous membrane. In the first case, tomatoes, strong tea, pickles, and roast beef brought on the reflex. In the second, onions was the cause, and in the third, pungent and peppery food as well as acids and condiments. In the first case the sweating began on the nose and forehead and spread to the whole face. In the second the infraorbital region only was affected. In the third, the region of the eyes, forehead, and upper lip. The authors offer the following conclusions: "1. Heredity is a decided factor in all these cases; in one the condition was traced through four generations. 2. The condition is not congenital, since it has not appeared in any of the cases before puberty. 3. Localization of the sweating is identical in all members of the same family. 4. The same stimuli produce the condition in all members of the family."

The Lancet, July 10, 1909.

Ionic Medication in the Treatment of Some Obstinate Cases of Pelvic Disease in Women.—Samuel Sloan says that ionic medication is the application of electrochemistry to therapeutics. All of the septic cases in which he has employed this treatment have done equally well, with the exception of one. What has impressed him during the practice of ionic medication has been the rapid improvement in cases of cervicitis. The discharge having been mucopurulent and copious has become milky and of small amount, while the gaping os has become normal in size, with the everted mucous membrane drawn in and erosions have rapidly healed. No case of hemorrhage has failed to yield at once to the treatment by ionic medication, with one exception. He has had only one case of bacteriuria in women which proved intractable. Since he began to treat pelvic affections by means of ionic medication he has treated fewer cases of septic endometritis by curettage, and he is satisfied from a long experience in the treatment of pelvic affections, inflammatory and septic, that in a large number of cases no other form of treatment will give results in any way approaching those to be obtained from ionic medication. A description of the solutions used, with pictures of the different electrodes, accompanies the article.

Spontaneous Cure of Thoracic Aneurysm.—Herbert S. French performed an autopsy upon a woman, seventy-four years old, who came under observation nine hours before her death suffering from acute dyspnea, associated with râles and rhonchi all over both lungs, and yet with so little available history that a precise diagnosis could not be made. She died apparently of acute edema of the lungs; at the post mortem it was found that she had typical granular kidneys, adherent pericardium, and a healed thoracic aneurysm. It was difficult to say for certain whether the aneurysm itself accelerated death, but had there been no aneurysm at all one would have been content, from the post-mortem appearances, to diagnose acute edema of the lungs, the result of atrophic red granular kidneys. The aneurysm was about the size of a tennis ball and was entirely filled with a hard, laminated, fibrinous clot, which was somewhat adherent to the wall of the sac and very hard. The contents of the sac came right up to the level of the wall of the aorta, so that the aneurysm could be truly said to have been spontaneously cured. The aneurysmal sac was partly within and partly without the pericardium, and it was adherent to both pleuræ, more especially the right. It did not obstruct either the right or left bronchus, the main pulmonary artery, nor the left pulmonary artery. It projected into the lumen of the right pulmonary artery, partly obstructing it.

An Unusual Case of Goiter.—H. Neville Crowe reports the case of a woman, fifty-four years old, who suffered from cellulitis of the neck and dyspnea due to a goiter the size of the clenched fist. The goiter was first noticed when she was seventeen years old and was treated with counterirritants until she was thirty-two, when she was admitted to the hospital, where she remained four months. The goiter was tapped and four fluid ounces of fluid were withdrawn, but a subsequent tapping a fortnight later was negative. Two weeks later tincture of iodine was injected into the substance of the growth, which produced much constitutional and local disturbance; when this had subsided a seton was introduced into the middle of the neck and remained *in situ* for five weeks. As this caused no diminution in the size of the swelling, she was advised to return home, as the case was incurable. Since leaving the hospital twenty-two years ago the sinus made by the seton has been continually discharging and she had been subject to what she describes as "shivering fits." These always came on in the morning, the patient feeling at first very cold and shivering, followed in about an hour by a profuse sweating stage with vomiting lasting a further hour, and then by forty-eight hours of extreme prostration. She stated that she had had as many as two of these attacks in a fortnight and they were worse just before her menstrual periods. She noticed that the attacks always came on when the discharge from the goiter ceased and were followed and relieved by a discharge of blood and pus from the sinus. Complete extirpation of the goiter brought about a radical cure. She has had no shivering fits since the operation.

British Medical Journal, July 10, 1909.

Treatment of Chronic Degenerative Lesions of the Heart and Aorta.—James Barr says that the ultimate causes of these degenerative lesions are frequently set down to toxins in the blood, but he has shown that at least in a large number of these cases there is an increase in the effete material in the blood as evidenced by the lower freezing point. Of all toxic conditions perhaps syphilis is the disease most frequently associated with these changes, and Dr. Bramwell thinks that it acts through the vasa vasorum, thus impairing the nutrition of the vessel. Among the other toxic agents he mentions typhoid fever, intestinal toxins, septicemia, influenza, gout, myxedema, diabetes, lead, ergot, and other pressor agents, as caffeine, theobromide, digitalis, adrenalin, purin bodies. The general opinion would seem to be that these toxic agents act directly on the walls of the aorta, producing the degenerative lesions, but it is his opinion that they act indirectly by raising and maintaining the blood-pressure at a high level, thus destroying the elasticity and impairing the nutrition of the vessel walls. Were it otherwise the pulmonary artery would be affected as often as the aorta, which is not the case. The dependent arteries of the lower extremities have a higher blood-pressure than in the upper extremities, and the former are usually much more affected with sclerotic changes than the latter. He then considers how this high blood-pressure in the aorta is maintained. If the systolic and diastolic pressures be both high, with a gentle gradient, you can depend upon it that the cardiac muscle is still fairly healthy and the aorta fairly elastic. You should therefore lessen their work by devoting your attention to the periphery. Vasomotor relaxants are here of not much value except as temporary expedients. If the patient have gouty kidneys, the purin bodies and other nitrogenous elements of food should be cut down and there should be a free administration of the benzoates. If there is too much lime in the system, all milk foods and jellies should be eliminated from the diet, and decalcifying agents should be freely used. The action of the skin should be encouraged and graduated exercises should be taken. With high systolic and moderate or low diastolic

pressure the elasticity of the aorta is becoming impaired. When there is a difference of 40 mm. of mercury it is high time to think of effecting repairs. The patient should be kept on a light, dry, nonstimulating diet, with little or no salt. Decalcifying agents as a rule are useful and moderate catharsis should be produced. When there is a high systolic and a low diastolic pressure, a dilated heart, and high intraventricular diastolic pressure, the diet should be dry and nitrogenous if the kidneys are healthy; the bowels should be kept open and a course of digitalis, squills, and nux vomica or strychnine is beneficial. These are not the cases for mountain climbing, but for moderate exercise on the level. When there is high systolic and low diastolic pressure, with aortic regurgitation, the result is largely influenced by the amount of elasticity left in the aorta. The diet should be light, dry, and nitrogenous, and the exercise should be moderate. A course of phosphorous acid and strychnine often answers well. When the systolic pressure is failing, with a relatively high diastolic pressure, the cardiac muscle is getting much impaired. In these cases the question of the free calcium ions in the blood must be considered. In such cases small doses of glycerophosphate of calcium and large doses of phosphoric acid are of benefit. When the systolic and diastolic pressures are failing and there is edema of the extremities, a temporary rest is highly beneficial. The diet should be light, dry, and nutritious, and nitrogenous if the kidneys be fairly healthy. Sodium chloride should be eliminated and a course of cardiac tonics prescribed. In many cases of myocarditis the right coronary artery is much more affected than the left. A good cardiac tonic in such cases consists of glycerophosphate of calcium, strychnine, and phosphoric acid.

Pain in Mucous Colitis and in Irritable States of the Colon in General.—T. Stacey Wilson speaks of a pain which seems to be usually due to a peculiar and hitherto little recognized form of muscular activity, which is associated with a varying degree of hardness of the bowel, combined with a varying amount of increase in its transverse diameter. This peculiar change is due to the development of abnormal tonic activity in the muscular coat. After explaining his theory of bowel tone he considers the etiology of bowel pain. Where the transverse colon is mainly involved the pain is more apt to be felt across the epigastrium above or below the level of the umbilicus, that is, directly over the bowel itself. A very common situation for the reference of colon pain is in the hips over the twelfth dorsal or the first four lumbar segment areas. Pain is very often referred to the sacrum over the situation commonly associated with uterine disturbance. It is very common for colon pain to be referred to the flanks or to the gastric area, or sometimes below the scapula, and to the lower dorsal segment areas. Sometimes colon pain is all referred to one spot 1½-2 inches across, just above the pubes; sometimes it is referred to a spot within the pelvis, between the base of the bladder and the obturator region. Sometimes it is referred to the region of the sciatic notch and sometimes down the leg even to the feet. Sometimes the pain is referred to a fixed spot over the upper lumbar vertebra. The pain arising in any part of the colon may therefore be all referred to some single skin area. When the upper part of the rectum is especially involved the pain is apt to be felt in the sacral region and it may be felt down the backs of the legs and even into the feet. The pain is very apt to occur in relation to the taking of food. It is not uncommon for the pain to come on before the meal is commenced. The pain may come on in relation to defecation. Or the pain may come on at irregular intervals without any definite relationship to the functional activity of the colon being traceable. Another characteristic of the pains resulting from irritation of the colon is the fact of its occurrence as the result of mechanical stimulation. These pains are greatly aggravated at the menstrual period.

Empyema Associated with the Bacillus Coli; Treatment by Antitoxin.—J. Sidney Pearson reports such a case occurring in a boy of seven years. Streptococci and *Bacillus coli* were found in the pus. Polyvalent antistreptococcic serum was given by the mouth and later anticolon serum was administered with excellent results. He has tried the anticolon serum in one case of acute gangrenous appendicitis, but without obvious result either before or after the operation; yet he believes that investigation in this direction is desirable. In no case was the antitoxin given hypodermically; children take the serum very well when administered with about double the quantity of warm milk. He has never known a dose to be vomited.

Berliner klinische Wochenschrift, June 28, 1909.

Observations on a Dog after Extirpation of the Duodenum.—Bickel reports some observations he has made on a dog from which he had resected the duodenum and sutured the gall duct and pancreatic duct to the abdominal wall, the pylorus being closed and a gastrojejunostomy made. The purpose of the experiment was to learn whether the secretion of bile and pancreatic juice which usually follows stimulation of the duodenum would also occur from stimulation of other parts of the intestinal canal. Ten minutes after 100 c.c. of olive oil had been put into the stomach a decided flow of both bile and pancreatic juice appeared. A profuse secretion of pancreatic juice, also, followed quickly upon the ingestion of hydrochloric acid into the stomach. It was therefore proven that stimulation of other parts of the intestine than the duodenum were able to cause secretion from the liver and pancreas. An interesting find at autopsy on this dog was the presence of several typical peptic ulcers in the jejunum. The author believes that the intestinal mucosa while resistant to ferments in an alkaline medium is unable to withstand digestion by an acid juice, a fact which has been shown by the autodigestion occurring in a section of intestine implanted into the stomach wall, and that the absence of the normal intestinal alkalinity due to the bile and pancreatic juice being emptied externally, accounted for the digestion of the jejunal wall by the acid gastric juice in the present case. He concludes that absence of the normal alkalinity in the intestines may be a cause, though not necessarily the only cause of peptic ulcers of the intestines.

The Influence of Radium Emanations on Metabolism in Man.—Silbergleit reports some experiments on two young adults in which he investigated the general metabolism by means of the Zunlz-Gebbert respiration apparatus. He studied the effect of drinking water containing from 5,000 to 50,000 units of "radium emanations." In both cases metabolic activity was distinctly increased.

Münchener medizinische Wochenschrift, June 22 and 29, 1909.

A Study of the Origin of Tumors of the Uterus.—Theilhaber has analysed 228 cases of myoma and 133 of carcinoma of the cervix, according to the social standing of the patients, and has found that myoma is much more common among the better classes, whereas carcinoma prevails more among the poor. He further shows that among Jewesses myoma is common and carcinoma very rare. He discusses fully the various conditions which predispose to myoma and carcinoma, as age, marital history, location of tumors, general nutrition of the patients, etc., and says that the predisposing cause behind the etiology of carcinoma is poor nourishment, either general or local. Myomata occur in the fat, carcinomata in the thin. Carcinomata are common in the cervix, the seat of scar tissue, while myomata are very rare there. Myomata occur during the active sexual life. Carcinomata at the age of atrophy of the uterus. Carcinomata of the urerine body are rare among young women, occurring only after many pregnancies, with their resultant scar formation, and consequent poor nutrition.

The Treatment of Skin Diseases by the Internal Use of Calcium Salts.—Bettmann refers to the good results reported from England of the use of calcium in diseases of the skin, and then reports his own experiences in treating 70 cases. He used a five per cent. aqueous solution of calcium lactate, giving one to two teaspoonfuls thrice daily, one hour before meals. In many cases he got no results. One case of purpura which had withstood all treatment for two years, recovered in four weeks and remained well. Two cases of long standing urticaria recovered promptly. A case of angioneurotic edema failed to respond. Several cases of pruritus senilis recovered quickly. In localized pruritus, especially pruritus genitalis, good results were obtained. In three children with prurigo and others with lichen strophulus quick recovery occurred. One case of herpes gestationis in which the patient in two previous pregnancies had suffered until the end of pregnancy cleared up after four weeks calcium lactate treatment. The treatment was also tried in eczema, lichen ruber, chronic herpes, pemphagus, etc., without results. The author concludes that we cannot place much reliance on calcium lactate as a therapeutic agent; we cannot state any one disease which it will cure with regularity. On the other hand very striking results may be obtained in isolated cases.

Serum Treatment of Epidemic Meningitis.—Bruno Leick reports his results in treating cerebrospinal menin-

gitis with the Kolle-Wassermann serum. In sixty-two cases treated without serum or with the serum subcutaneously twenty recovered, a mortality of 67.7 per cent. The cases treated with the serum were diagnosed bacteriologically with the exception of three in whom the organisms could not be found. Of the thirty-four cases treated with the serum, eleven died, a mortality of 32.4 per cent. Of these five were moribund when treated. Disconsidering these there were twenty-nine cases with six deaths, a mortality of 20.7 per cent. In most of the recovery cases the recovery was complete. Once there was deafness; once partial deafness. One nine-year-old boy had a partial hemiplegia, and one of four and a half years was left mentally deficient. The author concludes that the serum is of great value, that the mortality was reduced from 67.7 per cent. to 20.7 per cent., and that the serum is without danger.

A Case of Tumor of the Liver with Levulosuria.—L. Borchardt states that it has been shown that levulose is made into glycogen exclusively in the liver, whereas dextrose is converted in the muscles as well. Nevertheless no case of spontaneous levulosuria had been reported in connection with gross liver disease. He then reports a case of a woman of 44 years of age, who in association with a rapidly growing hepatic tumor had a constant levulosuria. The urine was studied carefully for two weeks. There was an increase of the ammonia quotient, urobilinuria, and albuminuria, as signs of hepatic insufficiency, and constant levulosuria. The ingestion of levulose increased the levulosuria while dextrose did not effect it. There was no autopsy.

The Bacterial Content of Normal Organs.—Conradi has devised a method of taking cultures from organs which makes contaminations most unlikely. The tissue in pieces of about 50 grams weight are cut from the organ immediately after death with sterile instruments. These are dipped for from one-half to one minute in oil heated to 200° C. and then placed for four hours in a 2 per cent. bichloride solution. Then they are placed in sterile dishes, of which the covers are made air tight by means of wax, and the dishes placed in the thermostat for twenty hours at 37° C. The pieces of tissue are then cut in two and the central portions removed. These are cultivated both anaërobically and aërobically. The author investigated by this method 162 pieces of tissue taken from 150 animals, oxen, cows, calves, and pigs. The animals were all well nourished and had been to all appearances healthy. From 72 of the 162 specimens organisms were grown. They were most commonly found in the liver, namely, in 42 out of 63 cases. Of 59 pieces of muscle 18 contained organisms; of 19 pieces of kidney, 6; of 5 lungs, 4; of 4 lymph glands, 1; and of 11 spleens, 1. The aërobic organisms identified were *B. coli communis, B. lactis aërogenes, Streptococcus acidi lacti, B. mesentericus, B. fluorescens non liquefaciens, Diplococcus pneumoniæ Fraenkel and B. suipestiferus.* The hog cholera bacilli were found in healthy animals. Anaërobic organisms were common. Of the 72 positive cases 30 were anaërobic.

The Significance of Intraperitoneal Hemorrhage in Penetrating Wounds of the Intestines.—Gutzeit reports a case of traumatic rupture of the intestines and concludes from his findings that in cases of injury to the intestines the hemorrhage is more rapid than the extravasation of intestinal contents, and that the blood may wall off the peritonitis and prevent a general infection. On the other hand, the abdominal spasm, the distention and paralysis of the gut due to the peritonitis may, by increasing the intra-abdominal pressure, control the hemorrhage. In this way each condition assists in controlling the other.

The Moro Reaction.—Bullinger describes his experience with Moro's reaction with tuberculin ointment. He used 5 c.c. old tuberculin in 5 gm. anhydric lanoline. The patients varied from 16 to 65 years of age. His results were as follows: In 48 cases of suspected tuberculosis, 35 were positive and 13 negative. In 19 cases of first and second stage tuberculosis 15 were positive and 4 negative. In 6 cases in the third stage 1 was positive and 5 negative. In 11 cases supposedly tuberculosis free, 1 was positive and 10 negative. He concludes that the reaction is a valuable aid in the diagnosis of early tuberculosis, that its use is simple, even for the practising physician, and that the course of the reaction is harmless and in general not disagreeable to the patient.

Deutsche medizinische Wochenschrift, June 24 and July 1, 1909.

Infantile Tabes in a Ten-Year-Old Girl.—R. Halben reports this case. The child of 10 years had been under observation for some time without showing any nervous symptoms. Then he noticed bilateral loss of pupil reaction to both light and convergence. There was loss of patellar reflex, some impairment of pain and temperature sensation, but no anesthetic zones. No Romberg symptoms, no ataxia. Vision normal. There were no other signs of tabes or syphilis. The father had progressive paralysis; the mother had died of tabes dorsalis. The Wassermann reaction was doubtful.

Estimation of Proteolytic Ferments in the Stools.—Döblin has applied the casein method of estimating pepsin to the stools. His method is as follows: The fresh stool is mixed with an equal amount of water, filtered and preserved with an equal volume of glycerin. The casein solution is made by dissolving, with gentle warming, 0.5 casein in 10 c.c. of water to which a drop of 10 per cent. sodium carbonate solution has been added and the solution raised to 500 c.c. with water. A few drops of xylol is added to preserve it. It will keep at most three days. The purpose of the test is to find how much of the stool solution is required to digest 5 c.c. of the casein solution in six hours at a temperature of 37° C. In each of ten tubes is put 5 c.c. of the casein solution and amounts of the stool extract varying from 0.1 to 5.0 c.c. To each tube is then added distilled water to 10 c.c. After six hours in the thermostat the tubes are examined to see in which the casein has been digested. The author found that in infants' stools the ferment was in many times greater amounts than in the adults. The method is still far from perfect for clinical use.

A New Method of Exact Estimation of Tubercle Bacilli for Injection Experiment.—Rabinowitsch summarizes his results as follows: (1) The mass of bacteria is allowed to stand for twenty-four hours in a thermostat at 37° to 40° C., in which is placed a glass of water to insure a constant moisture. (2) After twenty-four hours the desired amount is weighed on the chemical scales and injected directly into the animal.

Percussion in Pleural Effusion.—Gantz discusses the accepted ideas as to the percussion line of dullness along the upper border of pleural effusions with especial reference to the paravertebral triangle of Grocco. He concludes from examination of a large number of cases that: (1) the highest point of dullness is not at the vertebra but at the angle of the scapula; that (2) from this point the line of dullness falls steeply to the spinal column, making a triangle with its base upwards, and more gradually forward; and (3) in this triangle the percussion note is clearer than over the fluid, sometimes even tympanitic.

The Question of Intestinal Pneumonoconiosis.—Tsunoda discusses the literature of the work which has been done to show that pneumonoconiosis is due to absorption of dust, etc., from the gastrointestinal tract, and not to direct inhalation. He then describes a series of experiments on rabbits in which he put emulsion of ink into the stomach by means of a stomach tube. His experiments were in three series, according to whether the ink was given in one large dose, in small doses over several weeks, or into the fasting stomach. In none of his rabbits did he find that the ink had reached the lungs. In only a few was there a slight pigmentation of the mesenteric lymph glands. He concludes that from his studies he has proved that the mechanism which regulates the occurrence of pneumonoconiosis is in no way analogous to the theory of Behring and Calmette that pulmonary tuberculosis is of digestive origin.

The Provocative Action of Bichloride on Syphilis.—Buschke and Harder show by the study of a series of patients that a single large dose of mercury given to a patient in the first stage of syphilis will often precipitate the appearance of secondary symptoms. They examined in all 46 cases, and obtained this reaction to mercury in 20 of them. The reaction occurs only towards the end of the second incubation period. They tried to find some constant relationship between this phenomenon and the Wassermann reaction, but were unable to do so.

Dyspnea Following Nasal Installation of Menthol Oil.—A. Delille, in a paper read before the Société de Pédiatrie in Paris reported the case of an infant in whom a nasal instillation of menthol oil, 1 per cent., was immediately followed by violent spasm of the glottis. After fifteen minutes the child recovered. Guinon had observed several similar cases. Marfan had never seen one. Comby thought 1 per cent. was too strong. He used menthol oil 1-300.—*The British Journal of Children's Diseases.*

Book Reviews.

The Elements of Hygiene for Schools. Compiled by Isabel McIsaac, late Superintendent of the Illinois Training School for Nurses; Collaborator of the "American Journal of Nursing"; Author of "Primary Nursing Technique" and "Hygiene for Nurses." New York: The Macmillan Company, 1909.

By far the greater part of this book is a reprint of the same author's work on Hygiene for Nurses, noticed in the Medical Record of December 12, 1908. Fortunately, the pages on "the duties of medical inspection of schools" are omitted, but a new chapter on bacteria is here included, and the author tells us that the time is fast coming when a textbook, and not a single chapter, will be devoted to bacteriology in all schools. The book is well written, but much of it will prove to be beyond the class for which it is avowedly intended.

A Manual of Practical *X*-Ray Work. By David Arthur, M.D., D.P.H., Medical Officer in Charge of *X*-Ray Department, West London Hospital, and Lecturer on Radiology, West London Post-Graduate College; and John Muir, B.Sc., M.B., Ch.B. and B.Sc. (Pub. Health). With about 120 illustrations. New York: Rebman Company, 1909.

This book is intended for readers who want a practical understanding of radiology with just sufficient detail to enable them to operate an ordinary installation. Considerable space has been devoted to apparatus, but the principles of construction have been emphasizel rather than details which are likely to vary. So, too, the care and working of accumulators and of induction coils are described quite fully. With the aid of this small volume the worker will obtain a knowledge of the apparatus required, the methods and detail of its operation, and a help to an intelligent interpretation of the finished radiogram. The work is a practical manual based on the personal experience of the authors, and is likely to be very useful. The arrangement, print, illustrations, and general get-up of the book are all excellent.

Infant Feeding. By J. S. Fowler, M.D., F.R.C.P.Ed., Physician to the Royal Hospital for Sick Children, Edinburgh; Joint Clinical Lecturer on Diseases of Children, University of Edinburgh. London: Oxford University Press, 1909.

This little book is a practical guide to the feeding of infants in health and disease. It is well written, and gives in clear terms the essentials of the various methods in use, frequently going into details where these are of importance. While naturally laying especial emphasis on the author's favorite methods, it also gives clearly the American percentage method, the German calorie method, and the Budin system, and is exceptional among works on the subject in being fair to all. An appendix gives the composition of the commoner infant foods, and of the various animal milks, schedules for feeding, recipes, and percentage feeding tables. It is well printed, in clear type, on heavy paper. This little book is sure to be well received by those who want directions for the ordinary care and feeding of infants. If printed with a slightly smaller type, on thinner paper, it would make an ideal pocket manual of infant feeding.

Surgery: Its Principles and Practice. By Various Authors. Edited by William Williams Keen, M.D., LL.D., Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia, and John Chalmers DaCosta, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume IV. With 582 illustrations, 22 of them in colors. Philadelphia and London: W. B. Saunders Company, 1908.

The fourth volume of this system is devoted to a series of subjects comprising some of the most important in the whole domain of surgery, and its excellence is evidence of the merit of the entire work. Among the topics discussed are hernia, rectal surgery, the surgery of the entire genitourinary system, surgery of the intestines, surgery of the eye and ear, military surgery, naval surgery, tropical surgery, and the influence of race, sex, and age in surgical affections. One of the most important chapters from the practical standpoint is that by Dr. David L. Edsall on the examination of the urine in relation to surgical measures, in which the true value of the more elaborate laboratory methods is clearly explained and some prevalent misconceptions as to the diagnostic infallibility of many of them are pointed out. The passages relative to the subject of urea determinations as ordinarily carried out are especially to be commended to those still under the ban of this fetish. Other chapters of more than usual interest are those on military and naval surgery, by Surgeon-General Robert M. O'Reilly, U.S.A., and Surgeon-General P. M. Rixey, U.S.N., respectively, in which the material offered by the various recent wars has been fully utilized in elaborating new principles and methods for future application.

Atlas and Epitome of External Diseases of the Eye. By Professor Dr. O. Haab, of Zurich. Edited, with additions, by Geogre E. de Schweinitz, M.D., Professor of Ophthalmology, University of Pennsylvania. Third Revised Edition. Philadelphia and London: W. B. Saunders Company, 1909.

This edition of Haab's Atlas, like its predecessors, presents the subject in a thoroughly up-to-date manner. The numerous and excellent colored plates, presenting as they do, a very true representation of the actual conditions, cannot fail to be attractive, instructive, and very valuable to the student of diseases of the eye. Some addition to the text and a few new colored plates have been included in the new edition of this work.

Life's Day. Guideposts and Danger Signals in Health. By William Seaman Bainbridge, A.M., M.D. New York: F. A. Stokes Company, 1909.

This is another volume in what one may call "The Twentieth Century Life Series." The interest of the public in the problems of health and disease seems to be on the increase if the wide reading of works such as this may be taken as an index. There is, of course, no denying the need for such books in cultivating a wholesome optimism in these strenuous times in which we live. They are likely to do no harm, and may accomplish a great good. Dr. Bainbridge's volume is based on a series of lectures which he has been giving each summer at Chautauqua. They are philosophic rather than dogmatic, and serve to show how the basic principles of heredity, environment, and function interact upon the individual for good or ill according as he does or does not cultivate a proper attitude toward external things. The author considers his subject under the various headings of Dawn, Morning, Midday, Twilight, and Night, and has something helpful to say of each of these periods of life. He has drawn largely from all sources, ancient and modern, and his brilliant vivacious style makes the book thoroughly readable.

Thérapeutique Médicale et Médecine Journalière. Par G. Lemoine, Professeur de Clinique Médicale à la Faculté de Médecine et de Pharmacie de Lille, Médecin de l'Hôpital Saint-Sauveur. Cinquième Édition. Paris: Vigot Frères, 1909.

This book is of great practical usefulness. The author gives a satisfactory résumé of every common disease seen in daily practice, and then proceeds to discuss the various methods of treatment in detail, exhibiting finally that which has served him best. The volume is, therefore, an exhaustive *vade mecum* on internal medicine. Clinical considerations hold a prominent place throughout, the author confessing the desire to make, not a work of science, but something useful to those who are lost in the great detail by which therapeutics is encumbered, and who desire to know the clinical indications for those means which they employ. A great number of formulæ are given, chosen from among many for their utility and ease of administration. Electrical methods of treatment receive special mention, but only those which the author himself has used. He believes that physical agents have an important place in therapy, and that proper knowledge of them is indispensable to the practitioner. Dr. Lemoine's book is an extremely valuable one to all internists, moreover it is interesting to read.

Die wichtigsten Bakterientypen der Darmflora beim Säugling, ihre gegenseitigen Beziehungen und ihre Abhängigkeit von äusseren Einflüssen. Von Dr. Paul Sittler, Privatdocent für Kinderheilkunde an der Universität Marburg. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1909.

The writer has investigated the manner in which the various types of bacteria find their way into the intestinal tract of the infant and their subsequent growth. He finds that there is a considerable difference between the flora of the upper and the lower portions of the alimentary canal; and that the first infection takes place within the first four or five days of infant life. Certain bacteria also find their way into the upper portions of the tract, during the progress of labor, from the mother's vagina. The book presents a very concise description of this important subject.

Society Reports.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting held at Philadelphia June 3, 4 and 5, 1904.

THE PRESIDENT, DR. C. B. G. DE NANCREDE OF ANN ARBOR IN THE CHAIR.

Address of the President.—Dr. C. B. G. DE NANCREDE of Ann Arbor, Mich., selected extirpation of the scapula as the subject of his address. He said that the statistics dealing with this operation were misleading, because cases in which the disease was primary in the scapula and secondary in the soft parts, those which were done in two stages, and those performed for benign growths, for caries, injury, and tuberculous disease, were all included in the statistics usually given. Indeed, in one paper, an operation in which the scapula was removed after death was included. There was no discrimination in any of the tables between operative recovery and the end results, investigation showing that a large number of subjects reported as having recovered had later died of recurrence of the trouble. The three-year rule had been ignored in like manner, for it was well known that this was utterly unreliable for any form of malignant disease. In one case there was an inoperable relapse at the end of five years, yet this was included by the reporter as a recovery. Careless examination of the patient and the expectation of finding marked difference between the physical signs in the two lungs often led to the opinion that pulmonary metastases had not occurred, the true explanation being that metastases were so numerous and so small and finely distributed that the physical examination was unreliable. The death rate probably was now lower with the new methods of operating, saving blood and preventing shock, and it was possible, therefore, that some of those who died in the past from shock and hemorrhage might have shown a few permanent cures if they had survived. It was a matter for future investigation to determine whether interscapulothoracic amputation would not give more permanent results. The usefulness of the upper extremity after the removal of the scapula was usually so marked that, of course, hesitation was felt about doing the operation just mentioned where the whole upper extremity was ablated. The details given in the tables seemed to warrant the above conclusions, which had proved to the author a surprise. There was only one case on record in which the details were obtainable sufficiently long to prove that it was really a cure, the patient being entirely well at the end of eight years. A few more were probably cured, although not under observation long enough to be past the time when a return of the growth might be noted. A vast number of those that were claimed as cured had been observed for from a few weeks to a few months only, and then lost sight of. Operations for pure enchondroma and other diseases demanding excision of the scapula presented very favorable results.

Chronic Intestinal Stasis.—Mr. W. ARBUTHNOT LANE of London, England, referred to his earlier communications on this subject, with special reference to the removal of the colon for chronic constipation, and described the technique of the operation. In nine cases he had removed the colon, and of this number one patient died from the bursting of a small abscess in the original cavity. In a number of private cases division of the ileum at its junction with the large bowel was effected, with no death from the operation *per se*. Removal of the large bowel was a serious operation; but the danger attending its performance varied with the degree of toxemia. He did not, however, recommend or advise such a radical operation until all other measures, medicinal and hygienic, had been tried. The danger of the operation could be reduced very materially by the subcutaneous injection of a large quantity of physiological salt solution immediately before operation.

Dr. J. C. BLOODGOOD of Baltimore said that chronic constipation had in some instances an anatomical basis. He would call attention to the use of the *x*-ray and injection of bismuth as a method of diagnosis in these cases. He believed this method would be used more frequently in the future in the class of cases under discussion, as it was used now in cases of aneurysms, bone lesions, etc. A day or two ago he operated on a patient who for three years had had pain in the lower abdomen. On exposing the right side some of the adhesions referred to by the essayist were found, and on exposing the left side the sigmoid could be lifted out of the abdomen as easily as one could lift out a loop of the small intestine. The anatomical lesion in this case was an enlarged sigmoid due to fecal matter. The sigmoid itself was normal. The mesentery was normal. These adhesions were separated with good results. In another case the adhesions were more pronounced. In this case the bowel was not resected, the patient being relieved by medical treatment. There was no difficulty in resecting the intestine and performing lateral anastomosis.

Dr. THOMAS W. HUNTINGTON of San Francisco said that it had seemed to him for many years that very many of these cases of enteroptosis, bearing especially on the large bowel, could be avoided by two things: (1) Careful attention in early life to the emptying of the bowel. It was a fact that in a large number of people in the hands of the average general practitioner a more or less permanent accumulation of fecal matter in the large bowel had been overlooked. (2) He believed this accumulation of fecal matter was due to a definite cause. Take, for instance, an appendix which had not given rise to the ordinary symptoms of appendicitis, but had caused sufficient irritation to interrupt the peristaltic wave and to bring about a condition of the bowel which was extremely disastrous in the carrying of residual material. Careful attention in early life to the emptying of the bowel would obviate the possibility of the occurrence of prolapse of the sigmoid, and by loosening up the large bowel and changing its environment or its relation we might avoid early operation for a pathological condition which existed. Careful study and search for the pathological condition, as an obscure appendix, would enable us to escape from the later consequences which the author had portrayed.

Dr. ARTHUR DEAN BEVAN of Chicago said that, as he understood the essayist, he made a plea for operative intervention in cases of chronic constipation. He would insist upon intestinal obstruction before he would undertake such an operation as the removal of a part or the whole of the colon for chronic constipation. The large and small bowels performed their functions admirably sometimes in spite of the presence of extensive adhesions. That was evident after many operations. They should discuss this as a sort of borderline subject in which in their cases they should call into consultation the internists. What would internists think of surgeons if they took the position of treating chronic constipation by resection of the large intestine or by anastomosis? Most of these cases could be very much better handled by internists by exercise, hygiene, etc., than by extensive surgical operation. Personally, he protested against advocating an operation so extensive as the removal of the colon for chronic constipation itself, and should insist upon reserving the operation for absolute intestinal obstruction.

Dr. JOHN F. BINNIE of Kansas City, Mo., understood Mr. Lane as advocating this operation for chronic intestinal stasis only after all other measures of treatment had failed. Personally he had practised cecostomy in a number of these cases with very fair temporary results, but had not observed them sufficiently long to determine whether or not the results were permanent.

Dr. JOHN B. ROBERTS of Philadelphia agreed partly with

what Dr. Bevan had said, because of some recent experience he had with intermittent obstruction of the bowel due to kinks and various other causes; but he realized that the essayist did not propose to open the abdomen of everybody for the relief of chronic constipation. After the internists had failed to afford relief to these patients by exercise, medical, and dietetic measures, surgical operations might do good. He was greatly pleased with the broad philosophical view which Mr. Lane had given of the whole question.

Dr. Maurice H. Richardson of Boston said that we must approach the surgery of the large intestine in cases of this kind, as Dr. Bevan had said, from the symptomatology of chronic intestinal obstruction. We all saw cases of complete chronic intestinal obstruction which demanded a most thorough radical operation. In one of his cases of complete volvulus of the sigmoid which threatened life, the sigmoid filled the whole abdomen, producing an acute obstruction of the bowel which necessitated immediate operation.

Dr. W. B. Coley of New York said that every severe case of acute intestinal obstruction required operation, and the operation was attended with great danger. Of nine cases operated on, death followed in all. He had reported to the New York Surgical Society a case of volvulus of the sigmoid, which was preceded by attacks of chronic intestinal obstruction, ending with an acute obstruction. He operated on the patient on the ninth day, when he was almost moribund, with great distention of the abdomen, high pulse, elevated temperature, etc. He opened the abdomen under cocaine anesthesia (as the patient could not stand a general anesthetic) over the sigmoid, relieved the obstruction, and the patient recovered.

Mr. Lane, in closing, wished to be distinctly understood that this form of operative treatment was suggested only after all other measures had failed.

The Fecal Origin of Some Forms of Post-Operative Tetanus.—Dr. Rudolph Matas of New Orleans, in a paper on this subject drew the following conclusions: (1) Notwithstanding the vast increase in our knowledge of the etiology, pathology, and prophylaxis of tetanus since the discovery of the drumstick bacillus of Nicolaier, a certain, not fully determined, number of post-operative deaths from this infection occurred in seemingly clean surgical cases which had not been satisfactorily accounted for. (2) While it had been fully and irrefutably demonstrated that the regional liability of the exposed parts of the body to tetanus (feet, hands, legs, forearms, arms, face, neck, etc.), was directly proportional to the degree of surface contact with tetanus-bearing (tetaniferous) matter (earth, manure, dust), the origin and regional distribution of accidental and post-operative tetanus in the concealed parts of the body (protected from surface exposure) had not been sufficiently investigated or recognized, surely not sufficiently insisted upon in accounting for post-operative deaths in which the rules of surgical asepsis had been apparently well observed. (3) Abundant experience had shown that while the risk of tetanus infection could be absolutely eliminated in all operations upon sterile tissues in which a rigorous postoperative asepsis could be maintained until healing had occurred, this liability could not be removed in those regions in which post-operative asepsis could not be secured. (4) In order of importance, next to the feet and hands and other exposed parts of the extremities, the injuries and surgical operations in those regions of the body which were most exposed to fecal contamination were the most liable to tetanic infection. In this category he would place the anorectal region, perineum, female genitourinary tract, male genitals, especially scrotum, lower pelvic region, including buttocks, sacrococcygeal region, groins, thigh, knee, upper leg, on their posterior surfaces especially; after operations on the intestines, artificial anus, etc., in all of which post-operative fecal contact was either constant or unavoidable, on account of proximity to the intestine. In considering this topographical distribution he excluded the direct but unconscious transmission of fecal matter to distant parts of the body by the soiled fingers of the patient himself or of his attendants. (5) The careful attention to the sterilization of instruments and the disinfection of the hands compelled by the rules of modern surgical, obstetrical, and veterinary practice had enormously reduced the liability to tetanic infection, even when those parts of the body were involved which were most exposed to fecal contact, by eliminating the direct inoculation of wounded surfaces with contaminated instruments and hands. However, the occasional post-operative deaths which occurred from time to time in the practice of competent and clean surgeons clearly pointed to another source of danger which was not dependent upon defects of technique or contaminated material, *e. g.*, imperfectly sterlized catgut, but to other sources of infection outside of and apart from the operative act itself which had not been adequately appreciated. (6) This hitherto unrecognized or disregarded factor in the causation of post-operative tetanus, at least in regions liable to fecal contact, was the direct contamination of the alimentary canal and its contents with living tetanus bacilli and their spores, swallowed in raw, uncooked vegetables, berries, and other fruits which were cultivated in fertilized or manured, *i. e.* tetanized soil. (7) It might be a mere coincidence, but it was a fact, that in all the cases of post-operative tetanus occurring after operations in regions liable to fecal contact which had been investigated by the author (two in his own practice), the patients had eaten copiously of uncooked vegetables immediately before the operation. The vegetable menu in these cases corresponded with the laboratory findings in regard to the vegetables found most frequently contaminated with tetanus germs and spores, viz., celery, lettuce, chicory, watercress, cabbage (cold slaw), radishes, turnips, carrots, tomatoes, and other green vegetables, strawberries, blackberries, and other berries and fruits which were grown in the soil or brought in contact with it, and which were largely consumed raw in an unavoidable contaminated state. (8) The tetanus bacillus and its spores were known to survive the passage through the intestinal canal of the domesticated animals, especially the herbivorous horse and cow, and the dung of these animals was a perpetual culture medium for the tetanus bacillus, swallowed constantly with the grass of the pasture and the fodder of the stable; not only were the bacilli ejected alive, but their virulence and activity were probably intensified by their temporary residence in the favorable conditions of the lower intestinal tract. This survival of the tetanus germ in a virulent state was fully demonstrated by the experiments of Sormani, Sanchez, Toledo, Veillon, Hoffman, and others, who demonstrated that the diluted excrement of the horse and cow, injected subcutaneously and otherwise, would kill rabbits in from five to six days with all the symptoms of this disease. These and other authors had fully demonstrated that the spores of the drumstick bacillus resisted the action of the digestive juices. It had also been demonstrated that the tetanus-laden feces of the healthy horse and cow were capable of producing fatal tetanus when brought in contact with wounded surfaces in these animals. (9) In view also of the fact that 5 per cent. of all normal men harbored the tetanus bacillus or its spores in an active state in the intestinal canal, and that the percentage of contaminated individuals was increased to 20 per cent. in hostlers, stablemen, dairymen, drivers, etc., the possibility of tetanus from fecal contact must always be kept in mind, especially when operating upon the anorectal region, perineum, and genitourinary organs of both sexes in unprepared subjects. (10) The author fully recognized that the normal defenses of

the organism against intestinal infection were, in healthy individuals, usually sufficient to protect it, even if the living tetanus bacillus had been freely introduced into the alimentary canal with the ingested food. It was only through the salutary and preservative influence of the protective mechanism, which largely neutralized the most virulent infections in the alimentary canal, that we could account for the great numbers who escaped when operations were performed in the recognized tetanogenic regions. It was evident, however, that even if tetanus infection was a comparatively rare post-operative sequence, it was well worth the observance of the simple precautions required to avoid this deadly accident. Precautionary measures would be more than justified if only one in ten thousand operative cases could be saved from the almost certain death which followed when this form of inoculation occurred after operation. (11) In accordance with the preceding statements, and his own convictions, the author had taught and insisted in his own practice, since his last and second post-operative death from tetanus occurred five years ago (perineoplasty and hemorrhoids), that no patient should be brought to operation without antitetanic preparation, whenever an operation was to be performed upon parts in which fecal contamination was unavoidable (hemorrhoids, fissure, fistula, stricture, etc.). (12) This antitetanic preparation was very simple and consisted of (*a*) purgation three days before the operation; (*b*) the suppression of all raw, uncooked food, especially green vegetables, berries, and other fruit for the same period of time before the operation. In emergencies, when dietetic preparation was impossible, 10 c.c. of tetanus antitoxin was injected subcutaneously at the time of the operation, while the patient was still under the anesthetic.

Dr. John E. Owens of Chicago wished to mention the case of a woman he saw a few years ago, past middle age, suffering from tetanus. She had no appearance of a wound, but two or three days before she consulted him she had a tooth pulled. Before the attack of tetanus began she had been eating celery, of which she was very fond, and he had no doubt the attack resulted from eating the uncooked celery.

Dr. Nathan Jacobson of Syracuse, N. Y., recalled one case in which tetanus developed after an operation for hemorrhoids, which was performed by a so-called rectal specialist, the so-called injection method having been resorted to. It was thought the tetanus was due to carbolic acid or to the ligature material that was used. In other cases of tetanus he had seen following operations on the anorectal region trismus was a late manifestation.

Dr. W. H. Hutchings of Detroit, Michigan, had treated three cases of post-operative tetanus: In one the tetanus followed an abortion; in another tetanus followed injuries to the hand; in a third tetanus followed an apparently clean operation for suprapubic shortening of the round ligaments; it developed twelve days after operation, but the wound healed by primary intention. All three patients recovered.

Dr. Joseph Ransohoff of Cincinnati, Ohio, a few years ago did considerable anorectal work, but never saw a case of post-operative tetanus, with one exception, and that was in the practice of a colleague. The patient had been curetted, and fuming nitric acid introduced into the uterus. Acute tetanus developed; but there was not trismus, but an open mouth, a symptom he had not seen before. In every case the alimentary tract should be thoroughly emptied.

Dr. Maurice H. Richardson of Boston had never seen a case of post-operative tetanus. It must be very rare when we considered infections through the alimentary canal, as acute appendicitis cases, enterostomies, and other operations by which the large intestine was opened.

Dr. Arthur Dean Bevan of Chicago asked if it was not possible that tetanus varied considerably in different localities.

Dr. Arpad G. Gerster of New York said that thirty-two years of surgical practice in two hospitals had failed to produce a single instance of post-operative tetanus to his knowledge.

Dr. Beverly Macmonagle of San Francisco, Cal., in an experience extending over thirty years, had seen but one case of tetanus following operation. In this case a trachelorrhaphy was done; catgut was used, and he had no doubt infection came from the catgut. He had operated in the houses of Italians and Spanish, who had horses, pigs, or cows adjoining their rooms, yet he had not had a case of infection from the tetanus bacillus in any of those bad surroundings.

Dr. Edmond Souchon of New Orleans remembered distinctly losing a young girl upon whom he operated for hemorrhoids. She died on the eighth day after the operation from tetanus.

Dr. F. H. Gerrish of Portland, Maine, some twenty-five years ago, had in close proximinity to one another two cases of post-operative tetanus. One patient was a child in the teens, and tetanus followed an operation for necrosis of the tibia; in the other tetanus developed after ligation of hemorrhoids. Tetanus seemed to come in waves. In the year in which these two cases occurred tetanus was quite prevalent. Three years ago they had in the hospital with which he was connected sixteen cases of tetanus in the course of eighteen months, and they were still in doubt as to the occasion for those cases.

Dr. J. Collins Warren of Boston thought it ought to be said in this discussion that tetanus was to a certain extent a tropical disease; that latitude had some influence upon the growth of the bacillus of tetanus, and that in the tropics it grew more luxuriantly than in temperate zones.

Dr. S. Stillman of San Francisco could see how there was danger of tetanus developing after ligature operations for hemorrhoids. That was the experience of Lane in the navy on the Pacific Coast, at Panama, and in the early days in San Francisco. The danger was a real one at that time, and as his experience was extensive in those days, it also happened in his own work a number of times; but no particular precautions were taken to guard against tetanus developing.

Dr. Albert Vander Veer of Albany, N. Y., said that his experience did not bring to his mind a single case of tetanus in connection with operations upon the rectum. The cases of tetanus seen in army practice generally resulted from shell wounds in which there was a great deal of dirt carried into the wounds; the wounds were badly lacerated, and they saw many cases of tetanus.

Dr. George E. Brewer of New York saw no objection to using serum as a prophylactic in these cases. They used it at the Roosevelt Hospital in all cases of injuries to the hands and feet. Seven years ago they had 16 cases of tetanus occur in about two months in the summer, following injuries of the hands and feet, and after that they made a definite rule in such cases to give them an immunizing dose of antitoxin, and since they had adopted that practice they had never had a case of tetanus develop there.

Dr. Dudley P. Allen of Cleveland, Ohio, said that they had a number of cases of tetanus at the Lakeside Hospital in Cleveland from the use of toy pistols. In every case where the wound was opened early and packed the patient recovered. The patient whose wounds were not opened early and packed died.

Dr. C. B. G. De Nancrede of Ann Arbor said that there were certain sections of the country where tetanus was unknown, while in others a few miles distant the disease was rife; at least, the germs of the disease could be found in the soil. For the past eleven years in his lectures he

had warned his students against the dangers of unripe fruit as possible source of tetanus.

Dr. Robert G. Le Conte of Philadelphia said that some fifteen years ago tetanus developed in a case that was operated on by a colleague in Philadelphia. The disease appeared on the eighth day following an operation on the perineum and resulted in death. At the Pennsylvania Hospital they formerly had a number of cases of tetanus, but since they had made it a rule to give patients with injuries of the hands and feet, or patients with suspicious-looking wounds, an immunizing dose of the antitetanic serum, they had not had tetanus develop.

Dr. Matas, in closing, said that at the Charity Hospital, New Orleans, there was no case of railroad injury that was contaminated with dirt that was not given antitoxin or antitetanic serum. In answer to Dr. Bevan, as we approached the tropics the prevalence of tetanus was increased. It was less prevalent in northern than in southern latitudes.

The Parathyroid Question.—Dr. Charles H. Mayo of Rochester, Minn., said that for more than fifty years reference had been made by various authors to peculiar gland bodies that were quite regularly associated or connected with the thyroid glands. As stated by careful observers, the glands were four in number, usually without the true capsule of the thyroid gland. They were six to seven mm. long, three to four mm. wide, and two and five-tenths mm. thick. The pathological changes were of simple type, *i.e.* degenerations, hemorrhages, cysts, and seldom tumors. In fact, there were but few tumors of the parathyroid reported, most of these being found at autopsy, and all were benign, mostly adenomata. From such reports, it would appear that these glands, as compared with other organs and lesions, were singularly free from serious diseases, especially those of a surgical nature. The association of function of the glands like the thyroid, parathyroid, thymus, suprarenal, and others became more marked as continued investigation disclosed the various changes consequent on disease or removal of the various glands. It was quite possible that the human being with four parathyroids had some to spare, and that if those on one side were preserved, no untoward consequences would follow. This phenomenon had been noted in other double structures—the kidneys, ovaries, etc. Operations upon cases of hyperthyroidism were usually confined to one side, and, the blood supply being free, there was but little danger of subsequent hypothyroidism, the greatest danger occurring from operations on both sides and from secondary operations on the remaining side in single goiter. Should tetany follow the removal of the parathyroids, the indications were to administer calcium salts to maintain life until parathyroid glands could be secured, transplanted and function obtained, as by this means it might be possible to tide the patient over into a chronic state which might later become a cure. In nearly 1,200 operations for goiter they had seen no tetany.

(*To be continued.*)

THE AMERICAN THERAPEUTIC SOCIETY.

Tenth Annual Meeting, Held at New Haven, Conn., May 6, 7, and 8, 1909.

F. H. Gerrish, M.D., of Portland, Me., President, in the Chair.

Thursday, May 6—First Day.

The proceedings of the opening session included an address of welcome by President Arthur Hadley of Yale University, with response by Dr. Thomas E. Satterthwaite of New York; a report on The Quality of Fluid-extract of Ergot at Present on the Market, by Horatio C. Wood, Jr., of Philadelphia, Secretary of the Standing Committee on Therapeutic Research, and an obituary of Dr. Robert Reyburn, a former President of the Society, prepared by Dr. Howard H. Barker and read by the Secretary, Dr. Noble P. Barnes of Washington, D. C.

President's Address: The Therapeutic Value of Hypnotic Suggestion.—Dr. F. H. Gerrish of Portland, Me., said that as psychotherapy had not previously been discussed at the meetings of the Society, as it was important that every practitioner should be well grounded in its principles and familiar with its practice, as its presentation was almost invariably a grotesque mixture of truth and error, and as most physicians and some neurologists knew little or nothing about it, the time seemed opportune for a serious, scientific study of the subject by the Society. Therefore, a symposium had been arranged, and eight experts engaged to present various aspects of psychotherapy, while he himself had taken Hypnotism as a Remedial Agent for the subject of the present address. When in general practice he had used hypnotic suggestion extensively, and he wanted the profession to do this method of treatment justice and appreciate its practical usefulness in daily medical work. Everybody was at all times more or less amenable to suggestion, and the hypnotic state was induced, not because it was curative, but because the condition was peculiarly favorable to the reception and retention of suggestions. Having described in detail a method of inducing hypnosis, the speaker said that this kind of treatment was especially valuable in so-called functional diseases of the nervous system, such as those characterized by pain, insomnia, abnormal nervous irritability, depression of spirits, phobias, obsessions, neurasthenia, moral obliquity, spasm, nausea, sexual perversions, and drug-habits; and an illustrative case was given under each of these heads. The principal erroneous opinions concerning hypnotism were then generally taken up and discussed; after which he said that hypnotism was often but little understood by men who affected to instruct the profession about it. None, however, had displayed incompetency in this regard quite so conspicuously as Dubois, whose work had been much commended by some physicians. This authority disparaged hypnosis, while admitting that he used it, and he showed conclusively that he had no understanding of the psychological principles of hypnotism. In conclusion, Dr. Gerrish said that the employment of psychotherapy is not incompatible with the use of physical agents of any description. The wise physician takes advantage of every available means, or combination of means, that will help his patient.

The Standardization of Materia Medica Products.—Dr. F. E. Stewart of Germantown, Pa., said that this subject embraced a much wider scope than was usually realized, and that many problems were involved, scientifically, professionally, and commercially. Having given a review of what had thus far been accomplished, he concluded by advocating the establishment of a strong central committee or bureau of materia medica, representative in character, which should have for its functions the co-operation, classification, and standardization of the newer materia medica, the censorship of advertising, the promotion of professional and commercial interest, and the protection of the public from dishonest commercial exploitation.

Dr. Wood said that he once thought Dr. Stewart's plan a very valuable one, but such a bureau was now unnecessary, on account of the national Food and Drugs Act and the similar laws passed by the different States. The thing which was required was some means of determining between good drugs and bad drugs, and this matter now depended on the authors of the U. S. Pharmacopœia and the enforcement of the law by the Government, which had made the Pharmacopœia the legal standard.

Dr. S. L. Dawes of Albany, N. Y., thought that a large number of useless drugs should be weeded out of the

Pharmacopœia. The first thing to be done was to find out by physiological experiment what drugs were really efficient, and then it would be a simple matter to standardize the few which were left.

Symposium on Diabetes.—Experience with Oatmeal Diet.—Dr. A. C. Crofton of Chicago said that the oatmeal treatment was the only notable advance in the therapeutics of diabetes within recent years. Its adoption had been purely empirical, but the clinical evidence now accumulated seemed to entitle it to a more important place in the treatment of certain types of the disease than had as yet been conceded. There were no bad effects if the diet was properly administered, with careful observation of certain important precautions. The most brilliant results had been noted in the case of children, particularly if the oatmeal cure was commenced as soon as possible after the discovery of the diabetes.

Drugs Useful in the Treatment of Diabetes.—Dr. D. Olin Leach of Washington, D. C., said that, while he believed, with many others, that there was no drug which has a curative effect, there were a few which act as palliatives, and in some selected cases control to a large degree the output of sugar, render the patient fairly comfortable, and prolong his life. Opium and its derivatives, notably codeine sulphate, hold first place in the opinion of many practitioners, while many consider alkalies as important as opium in the treatment. Sodium bicarbonate in large doses (8 to 10 drachms daily) should be given in cases showing diacettic acid or oxybutyric acid in the urine, and especially if diabetic coma was impending. Gold and arsenic bromide were highly thought of, and some noticeable results were reported from the use of this agent in combination with enzymes of the islands of Langerhans. The salicylates were extensively used, especially in the case of children. Grude recommended calcium for improving the general condition and as a prophylactic against boils and carbuncles, and Wilcox, uranium nitrate, especially in combination, with codeine, for retarding the transformation of glycogen into sugar. Other remedies worthy of mention were eugenia jambolina, potassium permanganate, potassium iodide, and emulsions of mixed fats. In cases believed to be due to ptomaine poisoning mercuric chloride had sometimes been used with good effect. Diet had been well designated the corner-stone of treatment in diabetes, and we could expect no beneficial results from drugs without careful and constant attention to this.

Surgical Features Relating to the Effect of Gallstones, and the Question of Operation in the Presence of Diabetes.—Dr. Robert T. Morris of New York said there were two special objections to operating upon the subjects of diabetes: (1) The phagocytes did not properly perform their protective function; (2) repair was not carried on well, because the reparative cells were disabled. The reason for this was on account of the cells being deprived of the water essential to their activity by the hygroscopic action of the sugar in the circulation. It had been observed that if gangrene appeared in a case in which diabetes had developed rapidly, the process was likely to go on. On the other hand, on a patient who had had diabetes for years, even if there had not been much reduction in the sugar, we could operate much more boldly. In cases of gallstone disease in which operation was indicated there came up the question of comparative danger. Was the greater danger to be apprehended from operation or from the continuance of the condition without surgical interference? In certain cases the formation of gallstones would appear to precipitate diabetes; and so of other sources of continued irritation. Glycosuria, like cough, was a symptom, not a disease, and in cases where there was no such evident cause as the changes accompanying arteriosclerosis a careful investigation should always be made, with a view to finding out the possible presence of some peripheral causative factor.

The Treatment of Diabetes as an Infectious Disease.—Dr. Arthur King of Portland, Me., said that the idea that diabetes might be an infectious disease was not new. Leo believed that it was due to a toxic agent, and had produced glycosuria in dogs by administering both fresh and fermented diabetic urine; while Sir Almroth Wright had thrown out the suggestion that there might quite well lie at the root of pancreatic diabetes a bacterial infection which might perhaps be amenable to vaccine therapy. About the middle of January last Dr. King became impressed with the idea that diabetes was a fungous disease, and an examination of the feces of a diabetic showed the presence of the yeast fungus, *Saccharomyces cerevisiæ*, in the alimentary canal. After the use of a solution of sodium citrate and sodium chloride, to prevent coagulation of the blood, he had been able to get a pure culture of this fungus from every case of diabetes which he examined. The next question to settle was, Did the fungus do its work in the alimentary canal or in the blood? This was easily answered, for one case on a liberal diet was taken with a profuse diarrhea, and the filtered discharge showed no glucose. The problem had now resolved itself into this: Could a yeast fungus, existing in such abundance that a culture could be obtained from less than a drop of blood and producing enzymes which would change glycogen and various sugars into glucose, be the cause of diabetes? In considering carefully all the pathological conditions met with in diabetes he could find nothing to oppose the theory that it was an infectious disease, while all other theories had encountered serious obstacles. During the last two months sixteen patients had been examined, and, as stated, a pure culture of the yeast fungus had been obtained in every instance. There had been no mixed culture. The solution alone on the culture media gave no growth. Cultures were quickly obtained on glucose agar, plain agar, or blood serum. The next question, What was the resisting power of the diabetic to this fungus? was answered by the use of Wright's method of taking the opsonic index. The examination of these sixteen cases showed three things: (1) The existence of innumerable yeast fungi in the blood of each one; (2) a disturbed power of resistance to this germ; (3) that the opsonic index registered a fair indication of the general physical condition of each. As to the value of vaccine treatment, he had been able to study its effect on but six patients, and that for less than two months, but the results were of considerable interest. Having given some details of these cases, the speaker went on to say that because diabetes was a disease of fermentation, because the yeast fungus was found in the blood, because its actions explained all the symptoms, as well as the pathological conditions, because the patients showed a disturbed power of resistance to this fungus, and because this lowered resistance was increased by treatment with vaccines, he believed that this yeast fungus was the cause of diabetes and that it should be treated as an infectious disease. The indications for treatment were to restore the lowered power of resistance, destroy or remove the cause, and prevent, relieve, or remove the complications which might arise. He was quite aware that he had not proceeded far in his investigation, but he trusted that he had gone far enough to make his paper worthy of the thoughtful consideration of the members of the Society.

Friday, May 7—Second Day.

The Therapeutics of Solution of Calcium Creosote.—Dr. L. Kolipinski of Washington, D. C., said that this preparation possessed all the medicinal virtues of creosote and none of its objectionable actions. Among the conditions in which he had found it valuable were pneumonia, pleuro-pneumonia, typhoid fever, cholelithiasis, scrofulous keratitis, nasal catarrh, tuberculous disease of the bones and joints, hemorrhoids, and the summer diarrhea of

infants. His colleague, Dr. A. J. Hall, had found it of service in appendicitis not demanding section. In pneumonia he claimed that calcium creosote cut short the disease, lowered the temperature, slowed the respiration and pulse, and apparently acted as a pulmonic antiseptic. Typhoid, he said, was very successfully treated with it. The average duration of all ages was fifteen days, and many cases yielded in seven to nine days. In tuberculosis of the viscera and of the mucous and serous membranes, and notably in pulmonary tuberculosis, he had not observed any beneficial effect on the progress of the disease or in the abatement of any of the severer symptoms; but in the pretuberculous state the remedy had proved very advantageous.

Time versus Pseudo-Opotherapy.—Dr. C. E. deM. Sajous of Philadelphia said that if ever our object to place pharmacology on a scientific basis was to be realized we should insist that whenever an agent was to be tried therapeutically there should be a preliminary determination of its identity as a chemical body. Thus only would it be possible for us to establish its physiological action on a sure footing. Just as opium contained various principles, the animal extracts contained a multiplicity of substances, cellular and plasmatic, and also products of cellular metabolism capable of provoking physiological effects; but here very little effort had been made to isolate the truly useful principles. Hence the confusion and empiricism which had always surrounded the use of these agents. It was unquestionably a fact that we had, among the twenty or more animal extracts which had been proposed, a few at least which were capable of affording relief in certain conditions where no other class of agents would act; and by "true" agents he meant those which could be used intelligently; that is, with knowledge of the physiological effects produced, because their active principles were known. Thyroid extract belonged to this class, since we knew that its action was due to the iodine its secretion contained in organic combination. Adrenal preparations likewise were included, because their active principles, whether epinephrin, suprarenalin, or adrenalin, were also known. Conversely, by "pseudo" agents he meant those animal extracts which were used blindly, without knowledge of their components, in almost any disease related directly or remotely to the organ from which the extract was obtained. The speaker took up the study of four extracts, the testicular, ovarian, renal, and pituitary, and stated that the peculiar advantages which were no doubt to be derived from the use of the various animal extracts would only become available when the empirical employment of them now prevailing would have been rendered impossible through proper identification of those of their constituents which brought about beneficial effects, the natural precursor to a clear conception of their mode of action.

Symposium on Diet.—Chronic Constipation Clinically Considered.—Dr. L. M. Gompertz of New Haven read this paper. From an experimental investigation he concluded that the common practice of civilized man to discharge the feces in the morning was based on the physiological experience that the food and digestive residues of the previous day's intake have had abundant opportunity to traverse the alimentary tract. After classifying the most frequent causes of constipation, he said that concerning diet as a cause, the unusual dryness of the stools had been explained by a too rapid absorption of the foodstuffs and water. Studies made in Prof. Mendel's laboratory had shown that whereas ordinary carbohydrates were very imperfectly utilized, a considerable number of unusual carbohydrates, such as occurred in many seaweeds, etc., were not attacked by the digestive enzymes. As a result of this investigation, agar agar was suggested as likely to prove of value in chronic constipation, and Dr. Gompertz, in order to test the matter clinically, had systematically given this substance to thirty patients, the majority of whom were unable to have an evacuation without the aid of medicine. The agar agar was taken morning and evening, beginning with 15-grain doses, and in most instances was eaten with milk or cream in the same way as an ordinary breakfast food. After regular movements of the bowels were secured the quantity was gradually reduced. The effect of the agar agar on the stool confirmed Mendel's theory, as in all cases there was a pronounced increase in the volume of feces passed, and, instead of the small, hard, dry, scyballous masses, the evacuations were well formed and of a dough-like consistency.

The Etiology and Pathology of Chronic Looseness of the Bowels.—Dr. A. D. Blackader of Montreal said that this condition might be dependent, primarily, upon (1) excessive propulsive peristaltic action, (2) an abnormal increase in the amount of secretion from the mucous membranes and secretory glands of the canal, and (3) defective absorption; and these might work in a vicious circle. Closely associated with these conditions was an abnormal development of bacteria in the alimentary tract. In considering the etiology clinically we noted first that loose evacuations might be occasioned by the mechanically irritating character of the food. The exact effect on peristalsis of intestinal indigestion due to insufficiency in the secretion of bile and pancreatic juice could not be stated positively. In conditions of impaired intestinal digestion the clinical investigator must always bear in mind that in some individuals the intrinsic nervous mechanism of the intestines was particularly susceptible to impulses received from the great central nerve centers. Diarrheas attributable to this excessive nervous irritability were not infrequently seen in Graves' disease, hysteria, and neurasthenia. Loose evacuations were occasionally due to a vicarious elimination of toxic products in the blood. The diarrhea of Bright's disease was well known, and a diarrhea of elimination might also occur in malaria, pneumonia, septicemia, and various infectious fevers. In gouty attacks any checking of the arthritic manifestations might induce a diarrhea. Lastly, we might have loose evacuations due to disturbances of the blood or lymph circulation, as in the congestion associated with a failing right ventricle or with a blocked thoracic duct.

The Relation of the Foodstuffs to Alimentary Functions.—Dr. Lafayette B. Mendel, Professor of Physiological Chemistry in Yale University, in place of the usual discussion of the effect of the digestive processes upon foods, considered the relations from a different and somewhat reversed viewpoint, namely, the influence of the foods upon various alimentary functions, and pointed out that such influences were worthy of consideration for their possible therapeutic significance. He reviewed the modern theory of hormones, or chemical excitants, and presented the facts bearing on the importance of such agents in exciting secretory functions and regulating glandular activities. Special attention was devoted to the formation of a gastric secretagogue, gastrin, by the action of certain food substances, like meat extracts, dextrin, etc., on the pyloric portions of the stomach. He pointed out that the clinician could provoke the flow of gastric juice by appropriate selection of foods, and repress it likewise (as by the use of fats) in dietetic as well as nervous ways. The sequence of effects which follow stimulation of secretory glands, along the digestive tube was reviewed, and the interrelation of such activities discussed. The speaker further considered the secondary consequences of variations in secretory activity which were induced by dietetic factors. Examples of such were found in the relation of the gastric sphincters to acid contents in the stomach, intestinal putrefaction, and other similar phenomena. He touched upon the possibility of regurgitation reactions as

well as other peristaltic actions which were related indirectly to the nature of the food intake, and considered the question of adaptation of glands and their secretions to specific diets with a rather unfavorable critique. He also discussed the relation of food intake to intestinal functions from the standpoint of both Metchnikoff and Finkelstein and their followers. In conclusion, Prof. Mendel made a plea for an earnest consideration of the possibilities of dietotherapy, in distinction from that type of feeding which was guided by chance or ruled by tradition.

The Present Knowledge of the Action of Cathartic Drugs.—Dr. F. P. Underhill, Assistant Professor of Physiological Chemistry in Yale University, in a paper on this subject, arrived at the following conclusions: It was apparent that cathartics might act upon the alimentary tract in a variety of ways, involving physical, chemical, and physiological activities. With the saline cathartics the essential factor was the production of an intestinal secretion by nerve stimulation, with a simultaneous inhibition of absorption. Peristalsis was secondary, and the consensus of evidence indicated that osmosis played but a subsidiary rôle, while mechanical irritation was absent. Most of the vegetable cathartics were peculiar in that they would produce their characteristic effects by whatever channel introduced, although their subcutaneous injection might be followed by untoward results. It was possible that the proposed derivatives of phenolphthalein would obviate this difficulty. Unlike the saline cathartics, presence in the blood appeared to be the essential factor of the action of vegetable purgatives. The principal effect of this class of agents was the production by local irritation of a very active peristalsis, which hurried the intestinal contents along the canal. From recent observations we had learned that different drugs might act upon entirely different portions of the alimentary tract. Thus the purgative oils, according to their condition (presence or absence of decomposition products) might influence the movements of the stomach and intestine or of the intestine alone, while a drug like senna showed no action until the large intestine was reached. Peristalsis and purgation were not synonymous terms. Peristalsis might be of two distinct types, either pendular movements without progression of the intestinal contents or peristalsis by which the contents were passed along; and it was the latter type which was effective in purgation. In complications where it was very desirable to induce hypersecretion along the alimentary canal the salines should be avoided. On the other hand, they were indicated in conditions of sluggish secretory activities. Since secretory activity necessitated increased blood supply to the parts involved, the drawing of blood from other portions of the body might or might not be desirable. The increased secretion poured into the alimentary canal accounted for the efficacy of the salines in removing fluid from the body in edematous conditions. The employment of vegetable cathartics was contraindicated in conditions where the canal was already in a state or irritation, for these bodies were primarily irritants. They were indicated where the intestinal movements were sluggish, and certain of them might be given when specific portions of the tract needed stimulation.

(To be continued.)

Skin Grafting with Frog Skin.—J. H. McVay of Toledo, Ohio, reports the case of a child severely burned, on whom he used frog skin instead of human skin for the purpose of grafting. The frog was immersed in 1 to 500 bichloride solution and then in saline. Held in sterile gauze by the nurse, strips of skin were taken from the belly and applied to the child. The dressing was first rubber tissue, then gauze moistened with warm saline solution, cotton, and bandages. The grafts "took" well.—*Cleveland Medical and Surgical Reporter.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

University of the State of New York.

February 2, 3, 4, and 5, 1909.

ANATOMY.

Answer any ten of the questions on this paper but no more.

1. Give the gross structure and the physical properties of bone.
2. Describe the clavicle and give its articulations.
3. Mention the muscles attached to the patella. Describe the origin and the action of *one* of the muscles mentioned.
4. Describe the pulmonary artery.
5. Give the boundaries and the contents of the popliteal space.
6. Give the origins and the terminations of the lymphatic vessels.
7. Describe the lacrimal apparatus.
8. Describe the pancreas and give its location.
9. Give the gross anatomy of the spinal cord (medulla spinalis).
10. Describe normal lung tissue.
11. Give the structure, blood supply and nerve supply of the uterus.
12. Mention the important ductless glands and describe *one* of them.
13. Give the structure of the urinary bladder. What is the distance between the orifices of the ureters in the bladder of the adult?
14. What are the coverings of a femoral hernia from without inward?
15. Outline fetal development at the beginning of the fourth month.

PHYSIOLOGY.

Answer any ten of the questions on this paper but no more.

1. In what marked particular does living matter differ from lifeless matter? What is metabolism?
2. State (*a*) the amount of blood in the adult human body, (*b*) the average temperature of the blood. Where in the body is the temperature of the blood highest? Why?
3. Describe the valves in veins and state their function. In what veins are valves absent?
4. Explain in detail the mechanism of normal inspiration.
5. What physiologic processes are involved in the manifestation of a fever?
6. Describe in detail an intestinal villus. What are the functions of the intestinal villi?
7. What substances are absorbed in the stomach? What effect has alcohol on stomach absorption?
8. What important functions of the body are dependent on the presence of NaCl in the body? Describe the preparation of normal salt solution.
9. Describe the function of the urinary bladder and of the sphincter vesicæ.
10. State the function of *each* of the following parts of the spinal cord: (*a*) white substance, (*b*) gray substance, (*c*) anterior cornua, (*d*) posterior cornua.
11. Describe the course of a motor impulse from its source in the cerebral cortex to the calf of the leg.
12. Describe the physiological function of the organ of Corti.
13. In what structures is the sense of taste located? Give the nervous mechanism of the sense of taste.
14. Describe the physiologic phenomena of lactation.
15. Explain the physiologic mechanism involved in a chill.

CHEMISTRY

Answer any ten of the questions on this paper but no more.

1. Define (*a*) chemistry, (*b*) atom, (*c*) compound, (*d*) mixture, (*e*) ion.
2. Define and illustrate (*a*) diads, (*b*) tetrads, (*c*) pentads.
3. Explain the uses of the spectroscope in chemical analysis.
4. Give the occurrence in nature, the preparation and the properties of (*a*) oxygen, (*b*) nitrogen.
5. How is boric acid prepared from borax? State the properties of boric acid.
6. State the uses of phosphorus. Give the treatment of phosphorus poisoning.
7. What is the principal source of iodine? Give the preparation of KI.

8. Give a chemical equation showing the preparation of ferrous chloride.
9. State the usual source and give the properties of (*a*) tannic acid, (*b*) tartaric acid.
10. Give the details of procedure in examining the stomach in a case of death from suspected poisoning by arsenic.
11. Give in detail a test for (*a*) indican in the urine, (*b*) albumin in the urine.
12. Define (*a*) alcohol, (*b*) aldehyd, (*c*) carbohydrate.
13. Describe human milk as to (*a*) composition, (*b*) reaction, (*c*) specific gravity.
14. State the source and give the chemical composition of any *one* of the following: (*a*) pepsin, (*b*) ptyalin, (*c*) bilirubin.
15. Give the names and the formulas of *three* substances used for disinfecting purposes. Explain the chemical action that makes any *one* of these substances valuable as a disinfectant.

HYGIENE AND SANITATION.

Answer any ten of the questions on this paper but no more.

1. What sanitary regulations should be enforced by health boards to prevent milk infection?
2. How long does a diphtheritis patient remain infective? How may it be shown that the infective period of diphtheritis has passed?
3. What are the most reliable sources of a pure water supply? Mention the objections to the use of river water for drinking purposes.
4. Is heredity a factor in disease? Illustrate.
5. Discuss the relative merits of disposing of the dead by burial and incineration.
6. Give the management of a case of heat prostration.
7. What diseases ordinarily render the subject immune from subsequent attacks of the same diseases?
8. Define and illustrate a nuisance under a public health act.
9. How may soil become polluted? What method may be adopted to neutralize the evils likely to result from polluted soil?
10. What is the normal proportion of CO_2 in air? What proportion of CO_2 in air is dangerous to health?
11. Mention the requisites for an indoor sanitary water closet.
12. Mention the infectious varieties of mosquitos. Describe the manner in which malarial infection is conveyed by the mosquito.
13. Give reasons for concluding that breast-feeding for infants is more hygienic than artificial feeding.
14. State methods of disinfection by (*a*) heat, (*b*) liquid chemicals, (*c*) gases. Illustrate in each case.
15. Describe a method of intermittent filtration of sewage.

SURGERY.

Answer any ten of the questions on this paper but no more.

1. Describe *two* methods of producing local anesthesia and state to what conditions each method is adapted.
2. With what disease is gangrene frequently associated? Describe the treatment of moist gangrene of the foot.
3. Give the symptoms and the surgical treatment of abscess of the liver.
4. Describe the treatment of (*a*) a bullet wound of the leg, (*b*) a wound of the hand made by a toy pistol.
5. What is a dermoid cyst? Give the symptoms and the treatment of a subcutaneous dermoid cyst.
6. Describe an approved method of disarticulation at the shoulder joint.
7. Give the symptoms and the treatment of acute osteomyelitis.
8. Define empyema of the pleura and describe an operation for its relief.
9. Describe the treatment of a penetrating wound of the abdomen with injury to the viscera.
10. Define (*a*) thrombosis, (*b*) embolism. Describe the symptoms of venous thrombosis of the leg.
11. Describe morbus coxarius as to (*a*) early symptoms, (*b*) later symptoms.
12. Describe the treatment of a stricture of small caliber in the deep urethra.
13. What symptoms indicate the need of operation on the mastoid bone?
14. Give the symptoms of adenoid growths of the nasopharynx and describe an operation for their removal.
15. What is lupus? What measures should be adopted in its surgical treatment?

OBSTETRICS AND GYNECOLOGY.

Answer any ten of the questions on this paper but no more.

1. What conditions of the internal organs of generation are liable to cause abortion? State the reasons for such liability.
2. Define ectopic pregnancy. Mention the varieties of ectopic pregnancy and state the management of each variety.
3. State the essential causes of pernicious vomiting of pregnancy. What should be the management of such a condition?
4. What principal causes operate to delay labor in the first stage? What should be done to overcome the difficulties causing the delay?
5. Mention the indications for the induction of premature labor at the eighth month. Describe the most available effective operation.
6. Mention the varieties of placenta prævia and give the management of each variety.
7. Give the management of the perineum during pressure of the head and delivery.
8. Relate in detail prophylaxis of ophthalmia neonatorum.
9. Define puerperal phlebitis and give its etiology and its treatment.
10. Give the diagnostic indications of retrodeviation of the uterus complicating pregnancy and outline a corrective procedure.
11. Differentiate vaginitis and vaginismus. Give the management of each condition.
12. What are the dangers to the female from latent gonorrhea? How should the resultant infection be treated?
13. How may uterine carcinoma affect gestation and delivery? Illustrate.
14. What are the causes and the results of atresia of the vagina? How should the resultant conditions be managed?
15. Differentiate menorrhagia and metrorrhagia. Give the management of each condition.

PATHOLOGY.

Answer six questions, but no more.

1. Describe the vesicle of variola. What are the secondary lesions of variola?
2. What are the lesions of infantile scurvy (scorbutus)?
3. Describe the macroscopic and the microscopic appearances of syphilitic gummata.
4. Enumerate the histoid (simple) tumors and state the tissue of which each is composed.
5. Define (*a*) plethora, (*b*) active hyperemia, (*c*) passive hyperemia, (*d*) edema, (*e*) anemia.
6. What are the usual evidences of death from abortion as revealed by an autopsy?
7. Describe (*a*) retention cysts, (*b*) exudation cysts.
8. Describe the lesions of the kidney cortex in acute diffuse nephritis.
9. Describe the microscopic appearances of the tissues affected in tuberculous pleuritis.

BACTERIOLOGY.

Answer four questions, but no more.

1. Describe the microgametes or flagella of the plasmodium malariæ.
2. State briefly a method of obtaining a pure culture.
3. Define coccus. Give an example of a pathogenic coccus.
4. Describe the process by which bacteria multiply.
5. State cultural characteristics that differentiate the colon bacillus and the typhoid bacillus.
6. What is the supposed microorganism of cerebrospinal meningitis? How is the bacteriological diagnosis of this disease made?

DIAGNOSIS.

Answer any ten of the questions on this paper but no more.

1. Differentiate lung hepatization and pleuritis with effusion.
2. Describe the condition known as catalepsy.
3. Mention the varieties of casts found in the urine and state the diagnostic significance of each.
4. State the distinctive characteristics of mastoiditis requiring an operation.
5. How does eczema differ from herpes zoster?
6. State the significance of hemorrhage by diapedesis.
7. Describe puerile respiration and state its causes.
8. What changes take place in the heart in mitral regurgitation?
9. What is the clinical significance of (*a*) an excess of sodium chloride in the urine, (*b*) a diminution of sodium chloride in the urine?
10. State the value of the ordinary leucocyte count in differential diagnosis.
11. State the course of the temperature in (*a*) incipient tuberculosis, (*b*) typhoid fever, (*c*) tonsillitis.

12. What are the plantar reflexes? What is the diagnostic value of the plantar reflexes?

13. Give the character of the cough and of the expectoration in acute catarrahal bronchitis.

14. What are the symptoms caused by a biliary calculus from its first manifestations till its voidance *per vias naturales?*

15. State the diagnostic value of a macroscopic examination of the vomitus. Illustrate.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

UNIVERSITY OF THE STATE OF NEW YORK.

February 2, 3, 4, and 5, 1909.

ANATOMY.

5. THE POPLITEAL SPACE is *bounded*: *Above, and externally* by the Biceps; *above, and internally* by the Semimembranosus and Semitendinosus; *below, and externally* by the Plantaris and external head of the Gastrocnemius; *below, and internally* by the inner head of the Gastrocnemius.

Contents: Popliteal vessels with branches, external saphenous vein, external and internal popliteal nerves, small sciatic nerve, lymphatic glands, and loose areolar tissue.

6. The *lymphatic vessels originate* in: (1) The lymph spaces, interstices between the cells and fibers of almost all tissues; (2) within the villi; (3) in the so called perivascular spaces; (4) in the stomata in the walls of various serous cavities, the peritoneum, pleura, and pericardium. They terminate in the thoracic duct and right lymphatic duct, which enter the venous system at the junction of the internal jugular and subclavian veins on the left and right sides of the neck respectively.

11. UTERUS. *Blood Supply*: The uterine and ovarian arteries and veins.

Nerve Supply: The third and fourth sacral nerves, and the inferior hypogastric and uterine plexuses.

12. The important *ductless glands,* are: Spleen, thyroid, thymus, suprarenals, parathyroids.

The *spleen* is situated in the back part of the left hypochondriac and epigastric regions, being covered by the ninth, tenth, and eleventh ribs, on the left side. It is of an oblong, flattened form, the external surface being convex; on the inner surface is a vertical ridge dividing it into two parts, the posterior of which is applied to the outer surface of the left kidney, while the anterior one receives the tail of the pancreas, and lies against the cardiac end of the stomach. Near this ridge is a fissure, *the hilum,* where the vessels enter. The anterior border is notched, and the lower end is pointed and rests on the costocolic ligament, situated in the left hypochondriac region. It is covered by peritoneum, except at the hilum, where it passes forward and inward in a double line enclosing the vessels, as the gastrosplenic omentum, to the fundus of the stomach. It usually measures 5 by 3 by 1 or 1½ inches, and weighs about 7 ounces.—(From *Aids to Anatomy.*)

13. The distance between the orifices of the ureters in the bladder is a little less than two inches.

14. The *coverings of a femoral hernia,* from without inward, are: Skin, superficial fascia, cribriform fascia, crural sheath, septum crurale, subserous areolar tissue, and peritoneum.

PHYSIOLOGY.

1. Living matter differs from lifeless matter in possessing the capacity for nutrition, reproduction, sensibility, motion, and evolution. In a word, living matter is capable of metabolism; lifeless matter is incapable of metabolism.

Metabolism is the entire series of changes that occur in a cell or organism during the processes of nutrition. It is of two kinds: (1) Assimilative, or constructive (anabolism), and (2) destructive (katabolism).

2. (*a*) The amount of blood in the adult human body is about one-thirteenth of the body-weight.

(*b*) The average temperature of the blood is about 100° F. The temperature of the blood is highest in the hepatic vein; this is due to the oxidation and metabolism occurring in the liver.

3. The valves in veins are a reduplication of the internal coat with some connective tissue and elastic tissue to give them strength. They are much like the semilunar valves of the heart, but their free margins are turned towards the heart. They are generally arranged in pairs. They allow the blood to pass towards the heart, but prevent it passing in the opposite direction; they thus aid in the venous circulation.

Valves are absent from the following veins: The venæ cavæ, hepatic veins, portal vein and its branches, renal, uterine, ovarian, pulmonary, cerebral, spinal, and umbilical veins. The sinuses of the skull and very small veins are also without valves. These veins, not being liable to pressure, do not require the action of the valves, the chief function of which is to prevent a reflux of blood back towards the capillaries.

7. Substances that may be *absorbed* in the *stomach* are: Water, alcohol, salts, sugars, and dextrins that may have been converted from starch by the ptyalin of the saliva, and proteoses and peptones resulting from peptic digestion of proteids.

Alcohol "promotes the absorption of accompanying substances (sugar, peptone, potassium iodid), and stimulates the flow of the gastric juice. In this matter it acts as do other condiments (salt, pepper, mustard, peppermint), but if there be too great an irritation of the mucous membrane there is less activity (dyspepsia). The rapid absorption gives to alcohol its quick recuperative effect after collapse, and its value in administering drugs, especially antidotes. Alcoholic beverages combining alcohol and flavor promote gastric digestion and absorption, but often stimulate the appetite in excess of normal requirements. Alcohol is burned in the body, but may also be found in the breath, perspiration, urine, and milk."—(*American Text-Book of Physiology.*)

8. Sodium chloride aids in the processes of endosmosis, and so of absorption, and hence of metabolism in general. It aids in the splitting up of the proteids: it holds in solution the globulins; it also, by means of chemical decomposition, provides the chlorine which goes to form the hydrochloric acid of the gastric juice and the potassium chloride of the blood corpuscles and the muscles.

Normal salt solution is prepared by dissolving six grams of sodium chloride in one liter of sterile water.

10. In the spinal cord: (*a*) The white substance simply conducts nerve impulses: (*b*) the gray substance contains groups of cells which act as centers for and distributors of nerve impulses, and are also concerned in reflexes; (*c*) the anterior cornua have a motor and trophic function; (*d*) the posterior cornua are sensory.

11. The motor impulse would start in the cerebral cortex (upper part of the precentral convolution), pass through the corona radiata, internal capsule, crus, pons, medulla, crossed and direct pyramidal columns, to the motor cells in the anterior cornu of the spinal cord; thence down the spinal cord to the lumbosacral cord, through sciatic nerve, to internal popliteal nerve (which supplies muscles of the calf of the leg).

12. The organ of Corti is the receptive apparatus for hearing; it analyses sounds, and translates the vibrations of physical sounds into physiological nerve stimuli. But *how* this is accomplished is not known.

13. The sense of taste is chiefly located in the tongue (papillæ or dorsum, posterior part, edges, and tip); also in hard and soft palate, tonsils, fauces, uvula, epiglottis, and pharynx. The taste buds and cells are terminations of the gustatory nerves.

The nerves concerned in taste are: (1) The glossopharyngeal, which is distributed to the posterior third of the tongue, is said to be concerned with the sensation of bitterness; (2) the lingual branch of the trigeminus, which is distributed to the anterior two-thirds of the tongue, and is said to be concerned with sweet and acid tastes. The chorda tympani is also believed to be involved with the sense of taste in this part of the tongue.

The center for taste is supposed to be in the uncinate gyrus.

CHEMISTRY.

1. (*a*) *Chemistry* is that branch of science which treats of the composition of substances, their changes in composition, and the laws governing such changes.

(*b*) An *Atom* is the smallest quantity of an element that can enter into chemical action, or that can enter into the composition of a molecule.

(*c*) A *Compound* is a substance made up of two or more elements, chemically united, in definite proportions.

(*d*) A *Mixture* is the product obtained by uniting into a more or less homogeneous whole, two or more substances whether elements or compounds, in any proportions, and without chemical union.

(*e*) An *Ion* is the primary product of electrolysis.

2. (*a*) *Dyads* are elements (or radicals) which have a valence of two; as oxygen, sulphur. CaO; H_2S.

(*b*) *Tetrads* are elements (or radicals) which have a valence of four; as, carbon, silicon. CH_4; SiO_2.

(*c*) *Pentads* are elements (or radicals) which have a valence of five; as nitrogen, phosphorus. NH_4Cl; PCl_5.

4. (*a*) Oxygen. *Occurrence in nature:* Free in the air and in combination in water, rocks, minerals, etc. It is more abundant than any other element, forming about 40 per cent. of the total weight of the earth.

Preparation: Oxygen may be prepared by heating a mixture of equal parts of potassium chlorate and manganese dioxide. The latter remains unchanged, while the former gives up all of its oxygen, according to equation:

$$2KClO_3 = 2KCl + 3O_2.$$

Properties: Oxygen is a colorless, odorless, tasteless gas, slightly soluble in water, heavier than air. It has a strong tendency to combine with other elements, and forms binary compounds with all elements except fluorine and bromine. Oxygen is necessary to the processes of life and combustion.

(*b*) Nitrogen. *Occurrence in nature:* Free in the air, in combination in nitrates, ammonia, and in many organic substances.

Properties: A colorless, odorless, tasteless gas, it neither burns nor supports combustion nor respiration, it has no tendency to unite with other elements.

Preparation: Nitrogen may be prepared by heating ammonium nitrite:

$$(NH_4)NO_2 = 2H_2O + N_2.$$

5. Boric acid is prepared from borax by slowly decomposing a boiling concentrated solution of borax with an excess of sulphuric acid, and allowing the acid to crystallize:

$$Na_2B_4O_7 + H_2SO_4 + 5H_2O = Na_2SO_4 + 4H_3BO_3.$$

Properties of boric acid: White, glistening plates, unctuous to the touch; odorless; having a slightly bitter taste, and without corrosive or poisonous action; soluble in water. It is a valuable antiseptic. When heated to 176° F. it loses H_2O and forms metaboric acid, HBO_2; and at 212° F. it forms tetraboric or pyroboric acid, $H_2B_4O_7$, whose sodium salt is borax.

6. The *chief uses of phosphorus* are in making matches, rat paste, and phosphor bronze. It is also used in medicine in cases of osteomalacia, rickets, and as a nerve tonic.

6. In *poisoning by phosphorus,* give an emetic such as copper sulphate or apomorphine hydrochloride; then old French oil of turpentine should be administered; avoid giving oils and fats; a weak solution of potassium permanganate has also been recommended.

7. The *principal source of iodine* is the ashes of seaweed, known as kelp.

KI is prepared by saturating a solution of potassium hydroxide with iodine, then evaporating, and calcining the resulting mixture of iodide and iodate with charcoal:

$$6KHO + 3I_2 = KIO_3 + 3H_2O + 5KI$$

8. Preparation of ferrous chloride:

$$Fe + 2HCl = H_2 + FeCl_2$$

9. (*a*) Tannic acid. *Usual source:* Nutgalls.

Properties: A light, amorphous, astringent powder, soluble in water, forms a precipitate with ferric salts and also with albumin and the alkaloids.

(*b*) Tartaric acid. *Usual source:* The juice of the grape; also fruits and vegetables (where it usually occurs as the potassium or calcium salt).

Properties: Colorless crystals, soluble in water and alcohol, acid taste, odorless.

11. *To examine for indicanuria:* "The urine is mixed with one-fifth of its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess."

To examine for albumin in the urine: "The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered.

"The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of nitric acid."

12. (*a*) An *alcohol* is the hydroxide of a hydrocarbon radical, and capable of reacting with an acid to produce an ester and water.

(*b*) An *aldehyde* is the first oxidation product of a primary alcohol.

(*c*) *Carbohydrates* are compounds of C, H, and O, the two latter being generally in the proportion to form water; until recently they were of unknown constitution. This, while avowedly inaccurate, was generally accepted as a definition. A more modern definition is: "All aldoses and ketoses of the polyhydric alcohols which contain a HO group attached to the C atoms neighboring the aldehyde or ketone groups, as well as their anhydride-like condensation products."

13. Human milk. (*a*) *Composition:* Water, about 88+ per cent.; solids, about 11+ per cent. The latter are: proteins, about 1 to 2 per cent.; fats, about 3 to 4 per cent.; sugar, about 6 to 7 per cent.; and inorganic salts, a trace.

(*b*) *Reaction,* alkaline.

(*c*) *Specific gravity,* about 1029 to 1033.

14.

	SOURCE.	CHEMICAL COMPOSITION.
(*a*) Pepsin.....	Gastric juice.	Not known.
(*b*) Ptyalin.....	Saliva.	Not known.
(*c*) Bilirubin.....	Bile and biliary calculi.	$C_{32}H_{36}N_4O_6$.

15. (1) Hydrogen dioxide; H_2O_2. (2) Mercuric chloride; $HgCl_2$. (3) Potassium permanganate; $K_2Mn_2O_8$. Potassium permanganate acts as a disinfectant by oxidizing the organic matter with which it comes in contact.

HYGIENE AND SANITATION.

2. A diphtheritis patient remains infective while any membrane, discharge, or albumin in the urine remains, and while any bacilli can be found on bacteriological examination; generally about four weeks. The infective period may be believed to have passed when the patient is free from all signs of congestion or rhinitis, and when continued bacteriological examination is persistently negative.

3. The most reliable sources of a pure water supply are: Deep well water; rain water (theoretically); and water from large fresh-water lakes, provided it is taken from a point sufficiently distant from the shore to escape all danger of contamination from sewage.

The objections to the use of river water for drinking purposes are: The danger of its being polluted by sewage and refuse from houses, land, and factories. It is also liable to be impregnated with the minerals to be found in the soil over which it flows.

5. There is nothing to be said in favor of burial over cremation; it is sentiment rather than science or logic which prevents the entire abolition of burial.

The advantages of cremation over earth burial are: (1) Economy; cremation is very much cheaper, and there is no need for the community to purchase large tracts of valuable land for the accommodation of the dead. (2) Health; it is said that earth-burial causes the air to become poisoned, the burial grounds to become offensive, the soil to become laden with disease germs of every description, water to become poisoned, and diseases to be directly originated or propagated. (3) Body-snatching and desecration of tombs will be impossible.

7. As a rule one attack of the following diseases conveys immunity: Whooping cough, rötheln, scarlet fever, typhoid, typhus, smallpox, varioloid, chickenpox, yellow fever, mumps.

8. A *nuisance* is anything that injuriously affects the health or comfort of any members of a community. *Examples:* Carpet beating, tanning, square-wheeled cars.

10. The normal proportion of CO_2 in air is about four parts in 10,000. The exact proportion of it which is dangerous to health depends partly upon the amount of oxygen that is also present. From 1.5 to 2 per cent. of CO_2 produces headache, giddiness, and faintness; from 5 to 10 per cent. is fatal.

12. *The infectious varieties of mosquitos* are: (1) *Anapheles,* which conveys malaria; (2) *Stegomyia fasciata,* which conveys yellow fever; (3) *Culex,* which conveys filaria.

Manner in which the malarial infection is conveyed by the mosquito: "During the course of all the malarias there are formed in the blood oval spherical or crescentic bodies, some of which are flagellated, others non-flagellated. These are sexual elements of the parasites, the flagellated forms constituting the males, the non-flagellated, the females. Union of these in the blood, however, for some unknown reason, does not take place, but in the stomach of different species of mosquitos of the genus anopheles, which suck up the malarial parasites when biting. In the mosquito's stomach, coalescence (copulation) of the sexual elements occurs and a new organism is formed. The new parasite in turn forms other organisms in large numbers, which pass

from the mosquito's stomach to its body cavity and thence collect in its salivary glands; from this situation they find their way into the blood of man again when the insect bites. The forms thus inoculated give rise to malaria."—(From Langfeld's *Infectious and Parasitic Diseases.*)

SURGERY.

1. Local anesthesia can be caused: (1) By applying a mixture of salt and ice, or by spraying the part with ether or with ethyl chloride. (2) Cocaine hydrochloride, in watery solution of about 5 to 8 per cent., can also be applied to a mucous surface, or in a one per cent. solution it can be dropped into the eye. The same drug can be used hypodermically in solution of from 1 to 4 per cent., but it does not act on inflamed tissues. When injected into a finger or toe its action can be increased by the application of a tourniquet, which prevents the solution from being carried away in the blood current.

The freezing is adapted only to superficial operations, as opening an abscess. Cocaine can be used for amputation of fingers and toes, circumcision, etc.

7. Osteomyelitis. *Symptoms:* Sudden onset; pain, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; septicemia or pyemia may be present.

Treatment consists in relieving the constitutional symptoms and preventing the bone from necrosing. An incision down to the bone is made; if pus is beneath the periosteum, the latter is also incised; a piece of bone is removed by chisel or trephine, pus is removed, the endosteum is hurt as little as possible, the wound is irrigated with hot bichloride solution and packed with gauze; the soft parts are closed and the wound well drained. In case this fails, amputation may be necessary.

11. Morbus coxarius. *Symptoms of first stage:* Night cries; lameness in the morning; a slight limp; tendency to become tired on slight exertion; wasting; spasm; pain; swelling; and deformity (either real or apparent).

Symptoms of second stage: Abduction, limping, pain, which is worse at night, apparent lengthening of the limb, abscess, atrophy of thigh muscles, flexion of thigh, effusion into hip joint, and there may be crepitation in the joint.

Symptoms of third stage: Flexion, adduction, and shortening of the limb, the joint may be dislocated or ankylosed, or suppuration may occur.

15. *Lupus vulgaris* is a tuberculous infection of the skin; it is generally found upon the face, particularly the nose and cheeks. It begins as a pinkish nodule which is painless, and spreads to other nodules and generally ends in ulceration with destruction of mucous membrane or cartilage.

Treatment: In the early stages the small nodule may be excised. If not seen till later curettage with a sharp spoon, followed by cauterization with pure carbolic acid, has been recommended. This can be repeated at intervals of three or four weeks if necessary. Finsen light and tuberculin have also been used.

OBSTETRICS AND GYNECOLOGY.

8. *Prophylaxis of ophthalmia neonatorum:* Whenever there is the possibility of infection, or in every case, wash the eyelids of the newborn child with clean warm water, and drop on the cornea of each eye one drop of a 1 or 2 per cent. solution of nitrate of silver, immediately after birth.

11. *Vaginitis* is a condition of inflammation of the vagina. It is characterized by redness, swelling, pain, heat, irritation, and increased secretion. There may be frequent and painful urination. *Treatment* consists in rest, cleanliness, douches, the application of soothing lotions, and removal of any cause; salines and anodynes are also indicated.

Vaginismus is a condition of painful and spasmodic contraction of the vaginal orifice, which renders coitus either painful or altogether impossible. The slightest touch causes painful spasms, and examination may be impossible without an anesthetic. Its *causes* are irritable hymen, ulcer, or fissure anywhere in the immediate vicinity, urethral caruncle, caruncle myrtiformes, a long perineum with vaginal orifice placed too anteriorly. The *treatment* consists in removing the cause when possible, tonics and general constitutional treatment, dilatation of the vaginal orifice; local application of a 5 per cent. solution of cocaine will relieve the hyperesthesia and allow coitus. The condition is sometimes incurable.

15. *Menorrhagia* is an excessive loss of blood at the menstrual periods.

Metrorrhagia is a hemorrhage from the uterus at other than the menstrual periods.

It is very often impossible to differentiate the two conditions.

Treatment: Remove the cause, if possible; treat abnormal conditions that are present; vaginal douches, tampons, and curettage have been recommended; also ergot, hamamelis, hydrastis, and viburnum prunifolium; rest in bed is necessary. Intrauterine applications of astringents or of adrenalin have been used.

PATHOLOGY.

3. *Syphilitic gummata* are firm, elastic, yellow or whitish nodular masses, varying in size from a tubercle to an orange. Their shape and outline are irregular, owing to fibrous processes which go through them; they often have a kind of capsule consisting of fibrous-looking but translucent material, which fastens them firmly to adjacent structures. On section they are mucoid or gelatinous, and vascular. *Microscopically,* they consist of round cells and giant cells, nuclei, fat granules and cholesterin; around this portion will be found epithelioid cells, and an outer layer consisting of leucocytes, giant cells, and epithelioid cells. There is some intercellar material; and blood-vessels are present.

5. (*a*) *Plethora* is the name given to the condition in which the total quantity of blood is (or was) supposed to be excessive.

(*b*) *Active hyperemia* means excess of arterial blood in a part, with, as a rule, acceleration of flow.

(*c*) *Passive hyperemia* means excess of venous blood in a part, with retardation of flow.

(*d*) *Edema* is the name given to the condition in which the liquid within the tissues is increased in quantity.

(*e*) *Anemia* denotes a condition in which there is a reduction of the quantity or quality of the blood (generally used with reference to the red corpuscles).

7. (*a*) *Retention cysts* are cysts which result from the retention of normal secretions; such as a sebaceous cyst.

(*b*) *Exudation cysts* are cysts which occur in cavities which have no excretory duct, and which are due to excessive secretion; such as a hydrocele.

BACTERIOLOGY.

2. *To make a pure culture:* "All that is necessary is to inoculate the liquefied gelatin with the mixture of bacteria, and after thorough agitation so as to separate each cell from its neighbor, to pour the liquid on to the surface of a sterile plate. The gelatin now solidifies and imprisons, as it were, the separated cells. Each of these now multiplies and reproduces its kind; eventually, in the course of a day or two, a small growth, perhaps of the size of a small pinhead, appears. This is called a colony, and since it is derived from a single cell it constitutes a pure culture. Such is the principle of the dilution method for obtaining pure cultures. The isolation once accomplished, all that is necessary is to transplant the colony to sterile culture media so as to keep up the growth."—(*Reference Handbook of the Medical Sciences.*)

3. *Cocci* are spherical bacteria. The gonococcus (a diplococcus) is a pathogenic coccus.

4. Bacteria multiply by fission. A bacterium about to divide seems to be larger than normal, and if it is a coccus it becomes more ovoid; changes occur first in the nucleus, and the bacterium just falls in two. It has been calculated that a single bacterium could, by fission, produce two in one hour. Fortunately, they seldom obtain food enough to keep up this process for any length of time.

5. *Cultural characteristics that differentiate the colon bacillus and the typhoid bacillus:* (1) On gelatin plates, the colonies of typhoid develop more slowly than those of colon bacillus.

(2) The colon bacillus causes fermentation with production of gas in media which contain sugar; the typhoid bacillus does not.

(3) The colon bacillus produces a strong acid reaction and coagulates milk within twenty-four to forty-eight hours; the typhoid bacillus does not coagulate milk.

(4) In peptone solution the colon bacillus produces indol; the typhoid bacillus does not.

(5) The typhoid bacillus gives the Widal reaction with typhoid serum; the colon bacillus does not

DIAGNOSIS.

3. "*Casts* in the urine occur in nephritis, and different varieties are found in the different forms of that disease. *Hyalin* casts occur in all forms of nephritis, in congestion of the kidneys, in jaundice, and even in health. *Waxy* casts occur especially in chronic parenchymatous nephritis. *Epithelial* casts occur especially in acute parenchymatous nephritis. *Granular* casts are especially common in chronic nephritis, but they may occur in acute nephritis. *Fatty* casts occur chiefly in chronic parenchymatous nephritis. *Blood* casts occur in acute and chronic hemorrhagic ne-

phritis. *Pus* and *bacterial* casts are occasionally met with in suppurative nephritis."—(From Stevens' *Practice.*)

5.

HERPES ZOSTER.	VESICULAR ECZEMA.
1. Follows lines of nerves.	1. No special distribution.
2. Eruption often preceded by intense neuralgic pain.	2. Itching and burning attend outbreak of eruption.
3. Vesicles in groups.	3. No definite arrangement.
4. Vesicles discrete.	4. Generally confluent.
5. Vesicles large and tense.	5. Vesicles small, flaccid.
6. Vesicles do not rupture spontaneously.	6. Vesicles tend to rupture.
7. Eruption unilateral.	7. Usually symmetric.
8. Severe shooting pains during eruption.	8. Variable amount of itching and burning.
9. Tends toward spontaneous recovery.	9. Remains stationary or progresses.

—(From *Cyclopedia of Medicine and Surgery.*)

9. *Excess of sodium chloride in the urine* occurs in: polyuria and during absorption of serous effusions.

Diminution of sodium chloride occurs in: Several of the acute infectious diseases (particularly acute lobar pneumonia), nephritis, yellow atrophy, gastric carcinoma, gastric ulcer, anemia, chorea, idiocy, melancholia.

10. A *physiological leucocytosis* is found: In the newborn, after parturition, after exertion, after a cold bath or massage, during pregnancy, and during digestion.

A *polymorphonuclear leucocytosis* is found in all acute inflammatory diseases, in certain of the acute infectious diseases, and accompanying the cachexia of cancer.

A *lymphocytosis* is found in lymphatic leukemia, and sometimes in sarcoma and whooping cough.

Eosinophilia is found in trichinosis, some bone diseases, some nervous diseases, asthma, emphysema, and eczema.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. —
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 4
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Oct. 12
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	Aug. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Oct. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 9
Delaware	J. H. Wilson, Dover	Dover	Dec. 14
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Oct. 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 10
Georgia	E. R. Anthony, Griffin	Atlanta	Oct. 12
Idaho*	W. F. Howard, Pocatello	Boise	Oct. —
Illinois	J. A. Egan, Springfield	Chicago	Oct. 20
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 11
Iowa	Louis A. Thomas, Des Moines	DesMoines	Sept. —
Kansas	F. P. Hatfield, Olathe	Kansas City	Oct. 12
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct. 1
Maine	Wm. J. Maybury, Saco	Augusta	Nov. —
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 14
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept. 14
Michigan	D. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 12
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 5
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 12
Missouri	J. A. B. Adcook, Warrensburg	Kansas City	Sept. 20
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 5
Nebraska	E. J. C. Sward, Oakland	Lincoln	Aug. 3
Nevada	S. L. Lee, Carson City	Carson City	Nov. 1
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 4
New Jersey	E. L. B. Godfrey, Camden	Trenton	Oct. 19
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct. 11
New York	C.F.Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Sept. 21
N. Carolina	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grank Forks	Grand Forks	Oct. 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 14
Oklahoma*	F. P. Davis, Enid	Guthrie	Oct. 12
Oregon*	B. E. Miller, Portland	Portland	Jan. 4
Pennsylvania.*	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. 14
Rhode Island*	G. T. Swarts, Providence	Providence	Oct. 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	Jan. 12
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Greenville	Nov. 9
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Oct. 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 11
Virginia	R. S. Martin Stuart	Richmond	Dec. 15
Washington*	K. Turner, Seattle	Seattle	Jan. 4
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan. 11
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 20

* No reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular state.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of July 24, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	437	155
Diphtheria	198	24
Measles	423	23
Scarlet Fever	58	6
Smallpox	—	—
Varicella	16	—
Typhoid Fever	71	8
Whooping Cough	49	10
Cerebrospinal Meningitis	3	4
Malarial Fever	..	..
Totals	1,255	230

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending July 23, 1909:

SMALLPOX—UNITED STATES.

			CASES.	DEATHS
Georgia, Macon	July	4–11	2	.
Indiana, Fort Wayne	June	26–July 3	1	.
Kentucky, Lexington	July	3–10	2	.
Newport	July	3–10	1	.
Louisiana, New Orleans	July	3–10	2	.
Michigan, Grand Rapids	June	5–12	1	.
Kalamazoo	July	3–10	1	.
Minnesota, Duluth	July	2–9	5	..
Montana, Butte	June	24–July 1	5	..
Oregon, Portland	May	1–31	9	..
Texas, Fort Worth	June	1–30	4	..
Washington, Spokane	June	26–July 3	1	..
Wisconsin, La Crosse	July	3–10	1	..

SMALLPOX—FOREIGN.

Brazil, Bahia	May	21–June 4	4	1
Rio de Janeiro	May	23–June12	22	12
Canada, Halifax	June	26–July 3	1	..
Egypt, Cairo	June	3–10	2	5
France, Paris	June	19–26	4	..
Great Britain, Liverpool	June	19–26	2	Imported
India, general	May	28–June 5	1,986	1,698
Bombay	June	8–15	..	10
Calcutta	May	29–June 5	..	18
Madras	June	5–11	..	4
Rangoon	May	29–June 5	..	1
Indo-China Saigon	May	22–29	1	1
Italy	June	20–27	20	3
Mexico, Monterey	June	27–July 1	9	..
Portugal, Lisbon	June	26–July 3	7	..
Russia, Riga	June	26–July 3	6	..
St Petersburg	June	5–12	23	6
Siberia Vladivostok	May	21–28	1	..
Spain, Barcelona	June	21–28	..	5
Straits Settlements, Singapore	May	15–22	1	..
Switzerland, Geneva Canton	June	5–12	1	..
Tripoli, Tripoli	May	22–June 19	30	10

YELLOW FEVER.

Brazil, Bahia	May	21–June 18		7
Manaos	June	12–19	..	2
Ecuador, Guayaquil	May	28–June 12	..	6

CHOLERA.

India, Bombay	June	8–15	..	22
Calcutta	May	29–June 5	..	61
Indo-China, Saigon	May	22–29	3	2
Russia, Archangel	June	26–July 1	10	4
Chmalysk	June	25	1	..
Cronstadt	June	28–30	5	1
Estland	June	27	1	..
Pleskov	July	1	..	1
Riga	July	1	1	..
St. Petersburg	June	25–July 1	11,581	203
St. Petersburg, govt	June	25–26	36	12
Straits Settlement, Singapore	May	15–22	..	1

PLAGUE.

Brazil, Bahia	May	21–June 4	4	3
Rio de Janeiro	May	23–30	1	..
Ohio, Canton	May	22–June 5	90	70
Ecuador, Guayaquil	May	28–June 12	..	8
Egypt	June	10–July 1	81	25
Alexandria	June	17	1	1
Port Said	June	15–17	2	2
India, Bombay	June	8–15		35
Calcutta	May	28–June 5	..	77
Rangoon	May	28–June 5	..	16
Indo-China, Saigon	May	22–29	1	1
Japan, Tokyo	June	22	2	..
Yokobama	June	12–19	2	.
Venezuela, Caracas	June	22	1	..
	June	28	2	..

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WHO ARE THE UNFIT?

By CHAS. E. WOODRUFF, M.D.,

SURGEON AND MAJOR, U. S. A.

THE expression "survival of the fittest" has been widely misunderstood. It does not mean survival of the best, but merely those fittest for survival, and they may not be fit for much else. Consequently, when physicians have seen pneumonia and typhoid carry off the robust and leave the feebler, or tuberculosis end the careers of men of great mental ability while stupid dolts recover, or when they contemplate how modern medicine saves weak infants who in former ages invariably perished, there grew up the habit of speaking of the survival of the unfit—a contradiction of terms. Nature is not concerned with the methods chosen, one is as good as another providing the end is attained—survival. Nothing succeeds like success. Consequently, organisms which learn to live at the expense of others, undergo favorable changes fitting them to parasitism and it is the same process of survival of the fittest for survival in that form of the struggle for existence.

It makes no difference whether a man is big or little, stupid or brilliant, if he survives and leaves offspring who in their turn leave descendants, he is fitter for survival than those who perished without leaving offspring. Mere length of life, then, is not the only way of judging of the fittest for survival. Some families may persist even if every member dies before 40 or even 30.

The whole trend of civilization is to preserve every baby born, whether it is strong or weak. In former ages only those who resisted disease could survive as the fittest, and in time a whole race becomes immune to each organism. That form of evolution still continues, though mostly among savages and the lower orders of the higher races, but if a man produces an artificial immunity in lieu of a natural one, he is just as fit for survival. The higher races are being filled up with types which survive by reason of the artificialities of civilization —a process which has been going on ever since clothing replaced body hair, and implements replaced teeth and claws. Therefore, bodily weakness, and inability to withstand attacks of any enemies without artificial assistance, is no proof of unfitness for survival. Indeed, the future race may be mere weaklings compared to present man, and the rage for physical development may be futile, as it creates muscular masses of no special use, except to win harmful marathons, and stand tests of endurance.

There is one form of unfitness which is causing dreadful disability wholly unnoticed—unfitness to climate when there is a migration to a climate markedly different from the ancestral one. Physicians have been so much occupied with those who through infectious disease are unfit to struggle for existence, that they are inclined to overlook the curious states of exhaustion which unfit one for labor and drive the sufferer into vagrancy, crime or pauperism, and it has therefore escaped notice that many of these cases are climatic and differ in no respects from the loss of energy following long residence in the tropics. As we are all far from our ancestral home, it behooves us to study the failures among us, so that we can discover the causes and prevent similar disasters to our grandchildren, if the causes can be avoided.

Previous studies of the nervous and insane have shown that those most out of adjustment to this sunny climate, that is, the blondest, do furnish a higher percentage of cases than they should, or than they do in cloudy places like Scotland. The new studies of criminals and paupers show that there is the same factor at work here too, among the myriad other causes of these unhappy types of human rejects. Similar studies among European criminals have not shown anything of this nature, because the populations are not migrants but are found where they have been from time immemorial. Indeed, in Europe, it has always been customary to think of the criminal type as brunet—burglars, pirates, villains of the drama and "black hags."

Of course, complexion of itself has nothing to do with criminality, yet there is a reason for the popular tendency to consider the offender class as brunet, and the upper types as lighter. The southern drift of population in Europe has always caused an overlaying of brunet southern types, by the bigger, blonder northener who have been the world's brainy races for so long a time, and who have been the aristocrats and law makers.

The poor peasant, then, always had an overload of lighter complexion than himself. The lady in the castle was blonder than the peasant woman in the hut. Centuries and perhaps thousands of years of these conditions, have had the effect of creating the curious impression that what is above us is blonder than we and that which is beneath us is darker. Art and literature have been at work crystallizing it in painting and poetry.

The princess is pictured as a blond, though many of them are dark brunets, good fairies and angels are almost always given yellow hair, and even dolls "made in Germany" are blonds as a rule. The artist paints Christ as a blue-eyed blond, though such types probably did not exist in Palestine. The same rule is found in ancient times. Homer's gods and men were frequently fair, and Venus is generally blond, though occasionally given dark eyes. Milton's Eve was a blond. Greek sculptors quite frequently painted light hair on their statues. Havelock Ellis, in one of his works, mentions many illustrations, showing the admiration for blue-eyed

blonds, among poets, painters and aesthetic writers, from the Renaissance to modern times, not only in Italy but in Spain, France and Germany. The same tendency is shown in the mural decorations of public buildings in America.

The blond being reserved for the ideal in all the virtues, it left the brunet type to represent the lowly and criminal. Mary Magdelane is never a blond, but the Virgin generally is, the thieves on the cross are brunets, but Christ in their midst is blond —and there is a wealth of illustration in folklore art and literature that dark types are used for the villains.

There may have been a basis for this at one time, for the law makers were of a separate blond class from the brunet law breakers. Dr. John Beddoe, the great anthropologist, in his famous Huxley lecture on Color and Race, asserted that there was even now a preponderance of dark hair and brown eyes among English criminals—and England has been noted for the large number of blonds in the aristocracy and the brunetness of the lower layers of society. The ancient *yarl* or *carl* was blond but the *churl* was brunet, and the lower classes filled the prisons as a matter of course, then as now.

In a visit to Clinton Prison, of New York State, where the worst classes of criminals are confined, and where I expected to see the place full of modern "black beards," I was astounded at the large number of blonds—some of them of very light type. It seemed as though the facts as to the brunetness of criminals were the reverse of the popular idea on the subject. Through the kindness of the State Superintendent of Prisons, and the Prison Chaplain, Rev. F. H. Pierce, I was furnished with statistics which confirmed the first impression of the marked blondness of the incorrigible or habitual criminals of this part of the country.

Of the 279 white men whose eye color is mentioned, 144 had blue eyes, 40 gray, hazel and light brown, and only 95 dark shades of brown. The detailed figures show even more conclusively still, that these criminals do not tend to brunetness.

Light blue	6
Blue	17
Dark blue	121
Light gray	1
Gray	11
Dark gray	6
Hazel	2
Light brown	20
Brown	57
Dark brown	34
Black	4

In tabulating these remarkable statistics it was found that the proportionate numbers in each page of figures were practically the same, so that the percentages of the various types would be the same if 1,000 were studied instead of 279. The hair color of 253 was available for comparison and shows a general correspondence with the eye color. There were 19 with very light hair, 61 with light brown and brown, 61 dark brown and only 112 black. The details were as follows:

Chestnut	2
Blond	2
Light blond	2
Sandy	6
Red	7
Light brown	16
Brown	45
Dark brown	61
Black	112

It is quite difficult to classify men as to their relative pigmentation. Indeed, medium types would be called brunet by one observer and blond by another. Taking everything into consideration, it would perhaps be safe to classify them as follows:

Light blond	16
Blonds	116
Light brunets	107
Dark brunets	41
Very dark brunets	6

If the very dark brunet is classified as 10, and the lightest yellow-haired blond as 1, they would fall into the following classes:

Class.	Number.	
1	0	Light blonds.
2	3	
3	13	
4	17	Blonds.
5	30	
6	69	
7	61	Light brunets.
8	46	
9	41	Dark Brunet.
10	6	Very dark brunets.

Thus the two extremes, of very dark brunets and very light blonds, such as the typical swarthy Italian and the yellow-haired Scandinavian, are in a decided minority, but the medium types tend strongly to blondness.

There are no reliable statistics by means of which these criminals may be compared with the general population. It is safe to say, nevertheless, that blonds do not constitute anywhere near half of our population, which is notoriously brunet with brown or gray eyes and dark hair in decided preponderance.

The explanation of this local phenomenon is as follows. Criminologists are quite of opinion that there is no criminal type, but that there is an instability of the nervous system or neurasthenia which is the basis of habitual crime. Hence in America we find more nervous instability among the blond types and more of them drift into crime as a result. In many other ways they prove their unfitness for these southern climates, notably an increased susceptibility to disease—particularly tuberculosis. In Clinton Prison 83 per cent. of the tuberculous criminals are native born.

Light affects the young far more than it does the parents. Hence blond adult immigrants may remain in fair health, but the deterioration begins in the next generation. Therefore we should not expect to find very many foreign born among these blond criminals. The report of the Superintendent of New York prisons shows that only 22 per cent. of the criminals in Clinton Prison are foreign born, and most of these foreigners are from brunet countries like Italy, Poland and Russia. Very few come from blond countries, for only five were born in Scotland, one in Sweden, and none in Norway. The native-born therefore furnish the great majority of the blue-eyed professional habitual criminals in New York.

This is in marked contrast to the fact that the standard of morality is vastly different among the blond types of northern Europe than it is among the brunets of the Mediterranean, where crimes of violence seem to be everyday affairs. These brunets do not furnish their share of habitual criminals, but they do furnish a large proportion of the first offenders in Sing Sing where 43 per cent. are foreign born—double the percentage in Clinton Prison. In Sing Sing these foreigners also are to a large extent from brunet countries like Italy and Russia. The blond countries furnish very few. Norway, 2;

Sweden, 7, and Scotland, 7, in a total of 533 reported. Hence crimes against the person predominate in Sing Sing, but in Clinton Prison, where there are so many native born, crimes against property greatly predominate. That is, the neurasthenic, blue-eyed native criminal cannot stand the stress of the struggle of existence and resorts to crime to live. The foreign born, though constituting 26 per cent. of the population of New York State in 1900, commits too many crimes of violence and constitutes nearly half of Sing Sing, but it does not resort to crime as a profession or habit so often as the native born.

The tendency to blondness is not confined to the older criminals but is found also in the young offender, for his criminality is a positive indication of family degeneration—the types which for one reason or another, are failing in the struggle for existence. The new immigrants are still healthy, as they have not had sufficient time to deteriorate even if they will at all. Consequently we find that 70 per cent. of the young criminals admitted to the Elmira Reformatory are native born, and over half of these had native-born parents. As most of the committments (82 per cent.) are from Greater New York, with its tremendous foreign population, it is quite evident that the young natives are committing far more than their share of crime.

That their abnormal conduct is due to degeneration of dying families is quite evident from the statistics published. Thirteen per cent. were orphans, 36 per cent. had lost father and 30 per cent. mother. An enormous number had physical defects or diseases and 30 per cent. were mentally defective, over half were intemperate, three-fourths used tobacco and 2½ per cent. used drugs. Among their parents, 10 per cent. had mental disease, about one-third were drunkards and one-half had little or no education. The children were about the same as the parents, or worse, perhaps, for 62 per cent. had little or no education, and less than 5 per cent. were able to reach the high school.

It takes time for the environment to cause such degeneration, consequently the young criminal comes from the types which have been here the longest, and these are much blonder than the foreign born, as a class. The following are statistics of about 5,000 men, whose average age was less than 21 when admitted to Elmira. The data have been kindly furnished me by the resident physician, Dr. Frank L. Christian. As 30 per cent. are foreign born and about 35 per cent. are natives born of foreign parents, and as these two classes are notoriously black-haired, dark-eyed brunets, the statistics should show a great preponderance of brunets—but they tend to the opposite. The blond native born, of native or foreign parents, seems to preponderate in accordance with the rule of decadence of the lighter types.

COMPLEXION		HAIR		EYES	
Sandy	52	Blond	318	Blue	1,305
Light	608	Red	90	Greenish	861
Medium	2,941	Sandy	103	Yellowish	276
Dark	940	Light brown	1,203	Gray	456
		Dark brown	1,449	Slate	430
	4,631	Black	1,400	Light brown	631
				Dark brown	505
			4,569	Black	68
		(Gray omitted.)			4,631

Out of 4,631 young offenders there are only 68 with black eyes and only 505 with dark brown. Even taking in the light brown, all these dark types constitute but one-fourth the total, the medium types of gray and slate are one-fifth and the light-eyed more than half.

In one prison in a Western State where there is a large foreign population, largely blond, nearly all the criminals are native born. Curiously enough, also, most criminals the world over come from healthy, respectable families.

Undue criminality is merely one of the many ways in which the blond types disappear when they migrate too far from their original home. It is regrettable that so little attention has been given to the underlying pathology of crime, for little headway can be made in prevention, as long as we all feel that it is a mere matter of teaching. Perhaps this study may stimulate inquiries as to the reason why the same unfortunate environment will make scoundrels of some boys and hard-working honest men of others, and why a moral home may turn out so many criminals. Too often it is a matter of defective development, from bad food and bad housing, but climatic factors are also at work as these statistics prove.

Old criminals are often incorrigible, but the young are generally curable if the causes are removed and normal development ensues, so let the causes be found.

The very worst of the unfit are the aged paupers who have no friends or relatives to support them, who have made no provision for old age, and who promptly perished in former times. A study of 602 on Blackwell's Island developed the following amazing results to eye color:

Light blue	220
Dark blue	125
Gray	170
Light brown	57
Dark brown	30
	602

Only one-fourth of these were native born, half were Irish, about one-fifth German and the rest scattering. Alcohol was almost invariably the determining cause of the disability, and it shows that the underlying nervous cause of alcoholism is far more prevalent in blonds than in brunets in New York City. I have learned of a study of some 40 or 50 healthy, strong Irish immigrants of the year 1840 whose descendants showed a dreadful record of alcoholism and who are rapidly dying out. The thirst for alcohol is merely the expression of a nervous weakness acquired under America's sunny skies, and resulting from excessive stimulation of light as one of the thousand other causes.

It seems remarkable that of 602 aged paupers of a notoriously brunet city, only 30 had dark-brown eyes, and it is evident that the brunet population is able to struggle for existence more successfully, and lay up funds for support in old age or raise families who are vigorous enough to support the old folks. The above statistics were kindly furnished me by the former Deputy Superintendent, Mr. Joseph D. Flick.

Of 90 paupers in Boston institutions, we find the same general trend in a city markedly more blond than New York; light blue, 27; dark blue, 25; gray, 22; light brown, 10; dark brown, 6.

It is to be hoped than when the new farm colony for vagrants is established, an effort will be made to determine what manner of men they are, so that preventive means may be adopted. At present we have nothing reliable in the way of statistics, beyond some very general observations in some parts

of our south, where the "low white trash," who are so lacking in energy and neurasthenic, seem to be much more blond than the normal, vigorous population.

Unfavorable climatic factors then are causing unfitness for survival in the types too far misplaced, and the process differs in no respect whatever from that found in all other species of migrated plants and animals. The unfittest for ultimate survival may be those which we formerly considered the best of our immigrants. The "worst" types from Southern Europe may survive permanently for they are not so greatly out of adjustment, indeed, the climate selection may not differ at all from the ancestral one. They may hold a carnival of murder and crimes of violence, but if they survive in health and are self-supporting, and keep out of the poor house, they are the fittest for survival and the brainy, brawny, disappearing blond the unfittest. If, on the other hand, the blond finds the causes of the lack of efficiency and higher death rate and avoids them, he is just as fit for survival as any one else, and will prove it by surviving. But the present production of paupers, criminals and nervous wrecks among them will continue as long as the medical profession scouts the idea that we are out of adjustment to this southern latitude—so vastly different from the cloudy ancestral home in northwestern Europe—and continues to sing the praises of the sunshine which causes the damage.

TUBERCULOSIS OF THE PERICARDIUM CURED BY INCISION AND DRAINAGE.*

By C. L. GIBSON, M.D.,

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The operative relief of any form of suppuration within the pericardial sac seems to be quite uncommon. Eliot (*Annals of Surgery*, January, 1909) says: "The literature of purulent pericarditis has been admirably collated by Roberts and C. B. Porter. By the former surgeon 37 instances of operation for that condition were tabulated from different sources in 1897, and to that number 10 additional cases reported in the literature between 1897 and April, 1900, were added by Porter." Eliot, in addition to his own case, reports 20 published since Porter's contribution in 1900. So that in the beginning of 1909 the recorded number of operations would seem to be only 68.

Operations, if any, for the relief of tuberculous percarditis must be rare, and the fact that a cure was obtained in the case here reported gives it special interest. No mention at all is made of tuberculosis in Eliot's contribution. The history is as follows:

W. B., negro, 26, married, laborer, entered St. Luke's Hospital July 13, 1908, service of Dr. Theodore C. Janeway. Family history for tuberculosis is negative. Past history is without features except for an ischiorectal abscess three months ago.

Present illness: For the past two months has had a heavy cough with slight expectoration. For the past two weeks dyspnea has been so bad that he could not lie down, sleeping in a chair. Swelling of the feet noted six days ago.

Physical examination showed: Colored man of fairly large frame, fairly well nourished. Breathing with some difficulty and with an expiratory grunt. Heart percusses 1½ in. to *right* of sternum and 6 in. to left. Sounds are of poor quality and hard to hear. Considerable bronchitis.

Blood examination: White blood corpuscles, 8,300; polynuclears, 69 per cent; lymphocytes, 29½ per cent; eosinophiles 1½ per cent. Temperature elevations up to 102°.

Five days after admission it is noted: "Pericardium was aspirated in fifth space, 4 inches to left of median line; 18 ounces of opaque, yellowish fluid were obtained. Before aspiration, heart dullness extended 5 inches to left in third space, 6½ inches to left in fifth space, 1½ inches to *right* in the third space, and 2 inches to right in fourth space. Area of cardiac dullness was greatly diminished by the aspiration. Blood pressure in early part of aspiration was 80 mm., subsequent to aspiration, 95 mm."

The report of the pathological laboratory was negative as regards the etiological source of the fluid.

The next day the patient's general condition showed improvement, but there was a rising temperature and rapid increase of cardiac dullness. Dr. Janeway kindly asked me to see him with a view to operative relief, to which I readily agreed as necessary to avert a fatal termination of the condition.

Operation, July 19, 1908: Attempts at local anesthesia were resisted by the patient; but it would be perfectly possible to perform this simple operation in a patient of ordinary self-control. Chloroform was given to the point of producing unconsciousness, then followed by ether.

Incision in the long axis of the left fifth cartilage, which with a bit of the rib was removed by rongeur forceps; more room seeming desirable and the patient's condition being satisfactory, the fourth cartilage was also removed. The exposure was admirable and made the subsequent steps simple and easy. Neither the presence of the pleura nor that legendary bugbear, the internal mammary artery, had to be considered. The greatly distended pericardium was seized between two Kocher clamps and a two-finger incision gave issue to a great volume of pus, probably a quart; but as the pulse at the same time weakened perceptibly the flow was checked by blocking the exit in part, with appreciable good effect. The sac must have contained some three quarts. The pericardial edges were sutured to the soft parts and a rubber drainage tube passed into each lateral cul-de-sac.

At the close of the operation the patient was in good condition, with improved quality of pulse. While remaining pretty sick for some days the patient improved steadily. The drainage was profuse. The tubes were removed in a week; Sept. 9, 1908, transferred back to the medical side. Wound entirely healed without sinus.

Since the operation his general condition has been poor, and he has been readmitted to the hospital several times. He is now (May, 1909) an inmate of the tuberculosis ward, the presence of a tuberculous process in the lung being now manifest. Tubercle bacilli were not found till recently, notwithstanding almost daily examination of the sputum.

The pericardial healing has persisted, evidences of an adhesive process being manifest. While no positive laboratory findings exist to confirm the diagnosis, there is the negative evidence of failure to cultivate other pus-producing organisms. The process did not develop as a sequel to rheumatism or pneumonia. It is not the incidental pericarditis

*Read before the American Surgical Association, June 4, 1909.

sometimes seen with extensive pulmonary tuberculosis, as the process in the lungs now present did not develop till some six months later. The character of the pus evacuated was obviously of tubercular nature in the opinion of all who saw it. The low leucocyte count with normal polynuclear percentage would also strongly favor a tubercular rather than one of the usual pyogenic infections.

That such a severe process can result in a cure in the face of an advancing tuberculous diathesis is certainly remarkable, and this experience should justify us in applying surgical measures to this condition.

THE OPHTHALMOTUBERCULIN REACTION.

By JOHN R. HICKS, M.D.,
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NEW YORK.

I HAVE applied the ophthalmotuberculin test for tuberculosis in a number of cases with varying results. After trying various methods of technique it seems to me that all methods I have seen are faulty in that no attempt has been made to sterilize the eye before using the test.

Practically all serum tests are made with sterile solutions applied in an aseptic manner.

Not rarely if a culture is taken from the conjunctiva planted upon the blood serum and encubated for twenty-four hours numerous forms of bacteria may be isolated and described. The *Diplococcus lanceolatus* occurs in the oral cavities and conjunctiva of about 20 per cent. of healthy persons and often it is the cause of ulcer of the cornea. Severe types of corneal ulcer have followed the tuberculin test, their description being a typical picture of an ulcer of the cornea produced by the *Diplococcus lanceolatus* of pneumonia. Other organisms known to produce corneal ulcer are *Staphylococcus pyogenes aureus, albus, citreus,* and *epidermidis albus,* the streptococci in their many strains, the gonococcus, and other microorganisms. If the eye is not sterile before applying the ophthalmotuberculin test I cannot see how one can say that there is a specific action on the conjunctiva of the tuberculin when pyogenic or other organisms are present, only waiting for some suitable soil, a congested or irritated membrane, made so by the solution of tuberculin, to develop and excite a severe inflammation of some part of the eye.

Tuberculin, wind, dust, or a minute foreign body, may be the starting point of a conjunctivitis or, more properly, a hyperemia of the conjunctiva, but no true inflammation or corneal ulcer will result unless pyogenic organisms are present. A sterile foreign body, as a small piece of cinder out of a furnace, will produce this severe irritation of the conjunctiva and cornea which by infection with pyogenic organisms may result in an ulcer, but a sterile cinder will not produce a true ulcer in a sterile eye.

Impaired nutrition of the cornea due to many general diseases, viz., tuberculosis, typhoid fever, measles, anemia, etc., may be complicated with corneal ulcer, but there will be no true ulcer unless there is true infection except in the so-called neuropathic conditions of the cornea due to disturbance of the trophic nerve supply.

I have sterilized the eye and applied the tuberculin solution in double the strength advised and have gotten no reaction, when on the other hand without sterilization I would get quite a violent reaction.

The method of sterilizing the eye preparatory to using the tuberculin test is as follows: For four days the patient's brow and face are washed with soap and water three times a day and 1-8000 solution of bichloride of mercury dropped into the eye after each washing. At the end of six days a culture is taken just as in diphtheria and incubated. If at the end of twenty-four hours or longer there are any colonies the bichloride solution is resumed for two days, then the eye is irrigated for two days more twice a day with physiological saline solution to wash away the bichloride and any organisms remaining. The next morning another culture is taken and incubated for twenty-four hours and cover slide preparations are made and examined and if no organisms are found the tuberculin test is made in the usual way. The eye after irrigation with saline solution is bandaged the afternoon before to keep foreign substances out. I have failed to get any specific reaction in a number of cases when the test is applied in the above way, when without sterilization I have gotten the reaction in Bright's disease when there was no reason to suspect tuberculosis.

It may be said that the bichloride solution prohibits the reaction, but it does not seem probable if the eye is irrigated with saline solution for two days before applying the test. I think this paper applies to the nasal test as well as the eye. It is very probable that the dangerous reactions are due to lack of cleanliness and secondary infection.

BRAIN TUMOR WITH UNUSUAL SYMPTOMS.

By J. E. DALE, M.D.,
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THE patient was a lad, 16 years old, a high school student, well nourished, of nervous, energetic temperament. He had had the ordinary diseases of childhood. His home surroundings were good, the father was healthy, the mother was neurasthenic; one brother, two years younger than himself, was perfectly healthy.

I first saw the patient July 7, 1908. The previous day he had suffered from what was apparently an attack of acute indigestion, vomiting repeatedly during the night and fainting on one trip to the bathroom. His mother stated that she had taken his temperature at this time and it was "above normal."

When seen on July 7, the pulse was 75, temperature 97°, occasional vomiting, abdomen tender to touch. There was no headache. After the bowels were cleaned out vomiting ceased, but the temperature remained subnormal. Further than this a careful examination was negative.

He was kept under observation for the following month, during which time no abnormality could be found except temperature which varied from 96° to 97.5°. The Widal reaction, and the ophthalmic tuberculin reaction were negative; the reflexes were normal; there was no headache. In August he developed an obstinate constipation, apparently due to lack of peristaltic action. On September 3 there was a second acute attack, similar to the first, only more severe; by September 4 there was marked dullness over the sigmoid flexure. On September 5 and 6 there was a very little occult blood in the

passages, with tenesmus and straining when bowels moved.

As soon as the colon was cleared by a high enema the patient improved and in a few days returned to school. During this attack the temperature did not at any time go higher than 97.5°. The pulse varied from 70 to 80. There was no headache at any time. Dr. Kickland, of this place, saw him in consultation at this time.

There were no further abnormal symptoms except subnormal temperature up to September 26, when the patient reported at my office about noon, saying he was well, but felt as if he could not breathe—as he expressed it: "I have to make myself breathe, and I feel as if I could not do it." A careful examination of the lungs and heart was negative. The temperature was 97°, the pulse 76, and the respiration 19. That evening at nine he was seen at his home. The temperature, respiration, and pulse were the same, but vomiting had begun, and he complained still more of the difficult breathing. The condition was unchanged on September 27. The bowels moved only by use of enema. The catheter was used once late on that day, when 10 ounces of normal urine were obtained. After this the urine was voided naturally. On the morning of September 28 the temperature, pulse, and respirations were practically unchanged; he still complained of difficulty in breathing; his expression was anxious. The patient was very nervous and there was occasional slight vomiting. Dr. Kickland again saw the patient; further consultation was asked for, and Dr. J. N. Hall, of Denver, was called, but death occurred before he arrived.

At 1.30 P.M. (the 28th) the temperature was 97°, the pulse 78, the respirations 20 and to all appearances normal, but the patient complained bitterly of difficulty in breathing. The pupils reacted promptly to light. The condition was unchanged up to 3 P. M., when the breathing very suddenly became more shallow and slower. The patient became unconscious in a few minutes. The left eye was closed, the pupil contracted, the right eye open, the pupil dilated. The mouth was drawn to the left. Marked cyanosis rapidly developed, becoming more and more intense. There was no further movement except slight twitching of the left side of the face. The pulse remained normal up to a few minutes before death, which occurred one hour after first appearance of paralytic symptoms.

Autopsy.—The brain was removed and sectioned. Attached to the roof of the fourth ventricle, slightly to the right of the median line and directly over a point in the floor slightly posterior to the center, was a growth about one centimeter in diameter, somewhat pedunculated, the surface rough, about the color of the surrounding tissue, macroscopically resembling a villous wart. In the substance of the cerebellum about the base of the tumor for a distance of two centimeters or more the outline of the arborvitæ was blurred and indistinct. The specimen was submitted to Dr. B. F. Kaup, pathologist to the Colorado Agricultural College, whose report is as follows:

"The growth is an endothelioma of the type in which the endothelial cells lie in close concentric rings about the blood-vessels. It does not involve the brain substance, but is confined to the membrane, the changes noted in the cerebellar substance being due to a leucocytic infiltration." The writer's thanks are due to Dr. Kaup for the examination.

Conclusions.—It will be noted that there was entire absence of the usual headache symptoms. The late effect on the respiratory center was to be expected from the situation of the tumor. In this connection it should be stated that the body had been injected with formaline before permission to hold an autopsy was obtained, and in all probability there was some shrinking or contraction of the growth from this agent. Unless from the leucocytic infiltration, the early and constant effect upon the heat centers is hard to explain.

140 West Oak Street.

MUMPS VS. TETANUS. A CLINICAL NOTE.

By DAVID I. MACHT, A.B., M.D.,

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ASSISTANT IN MEDICINE, JOHNS HOPKINS HOSPITAL.

The following interesting case is, I think, unusual enough to be worth reporting.

Patient, S. F., 22 years old, student, came to me on March 7th with an infection of the right hand. He gave a history of having some five or seven days previously stuck a dirty needle in his wrist. On examination it was found that the patient had a pretty extensive cellulitis of the dorsum of his right wrist. This was incised, drained, packed with iodoform gauze, and bandaged. The following day the wound was healing nicely but the patient claimed to have felt pretty sick and to be unable to attend to his studies. To this I paid no attention, as I attributed the trouble to nervousness and slight shock after the operation, without any local anesthetic.

On March 9th, the third day after the operation, and about ten days after the original infection, I was hurriedly summoned to see the patient at home. The patient complained of stiffness in the jaws and slight pain in neck and back. On examination, patient was found to have a slight fever. Temperature, 99.5, with pulse to correspond. Throat, negative; chest and lungs clear on percussion and auscultation; heart, negative; sounds, clear; abdomen, negative; liver and spleen, not enlarged. The jaws felt rather stiff, no tenderness; right-hand wound closing and healing nicely; no inflamed lymphatics; cubital and axillary glands not enlarged or tender.

The history of the case, the presence of a puncture-wound over a week old, and the symptoms developing, made me very anxious. The first thought was naturally of tetanus or lock-jaw. The patient was ordered to bed and the same afternoon I administered 1500 units of tetanus anti-toxin hypodermically in the skin of the abdomen. On the following day the patient began to show some interesting features: Temperature, 100.1° F.; pulse, 100. The region about the angle of the left jaw was distinctly swollen and tender, and there was a slight fullness on the right side. In a few hours the swelling increased and the patient presented a picture of a typical epidemic parotitis or mumps! The subsequent history of the case is not remarkable. The patient had rather slight fever and the swelling increased. There was a dysphagia. Patient was kept in bed and under ordinary treatment made an uneventful recovery in about a week's time. There were no complications.

The case is interesting because of the curious combination of two distinct infections, the puncture wound of the hand and parotitis. Of course, when either disease is fully developed tetanus and mumps

could never be confounded with each other. In tetanus we have no swelling of the parotids. There is merely stiffness of the jaw muscles and the muscles of the neck and back with an extreme hypersensitiveness of the nervous system. In mumps we have a distinct swelling and tenderness of the parotids which makes a picture of the disease easily diagnosible at a glance. But at an early stage, as in the present instance, great difficulty in diagnosis may occasionally arise, and the above case is but another instance of how the simplest diseases may sometimes cause the greatest anxiety to the general practitioner.

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THE UNRELIABILITY OF MEASUREMENTS OF ANCIENT SKULLS.

By A. L. BENEDICT, A.M., M.D.,

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The exploration of an ossuary of the Neuters, a tribe of Iroquois independent of the Five Nations, has recently again called my attention to the necessity of offering a criticism on various statistic and descriptive articles dealing with craniology and similar mensurative studies of ancient bones. This ossuary contained somewhere between 300 and 500 skeletons and represented one of the (probably approximately) decennial collections and interments of remains previously exposed on scaffolds and in trees. From the entire lack of implements, it is probable that the date of this ossuary was earlier than 1620, by which time articles of European manufacture were fairly common among the northeastern Indians, and this opinion was confirmed by the relatively greater degree of decay of the bones, as compared with skeletons found in graves of the period of European influence but adjacent to villages known to have been destroyed in 1687, the soil, climate, and depth of burial being approximately the same.

Any one who has had much experience in the exhumation of Indian skeletons is familiar with the fact that the pressure of the earth, alternate thawing and freezing, the moisture of the soil, and the drying after removal and storage in museums, produce considerable changes in the shape of the skull. In young subjects, the sutures are often more or less separated so as to allow molding of the cranium in various ways, and in infants and very young children the skull is usually pretty well disarticulated. Doubtless analogous changes occur in other bones, but they are not so conspicuous and are not so apt to be made the basis of pseudo-scientific articles. While gross anatomical features are often well preserved for many centuries, especially in cave burials, any nice determination of angles, ratio of diameters, etc., is fallacious.

In this connection, the attention of osteologists is called to the fact that no study on a sufficient scale has been undertaken to determine the ratio of the length of particular bones to the height of the body. It is well known that the ratio varies considerably, but it would be of value to ethnologists to know the maximum and minimum ratios and the percentage of instances in which an average ratio holds good, as applied, for example to the femur and the other long bones of the limbs. It may be stated that it is quite impossible to judge the height of the body from a reposition of the disarticulated skeleton and, as Indians were very seldom buried in full extension, the measurement from skull to feet, in the grave, is not available. However, it may be said that Indian skeletons are very rarely of great stature.

One of the skulls found at the ossuary mentioned (Sweeney farm, near Gasport, N. Y., May 18 and 19, 1909) afforded a basis for criticism of a very elaborate study of deviations of the nasal septum, based on Canadian museum specimens that appeared a few years ago. A large pebble had crowded the septum far to one side. On removing this, the septum was quite freely movable, as long as the skull remained damp, and even amenable to plastic manipulations. As pebbles and dirt are almost always found in the facial apertures of buried skulls, it is obvious that only the most careful investigation, at the time of exhumation, with elimination of extrinsic factors, could render any such study of value.

TABULAR REPORT OF CASES OF CANCER TREATED WITH TRYPSIN.*

By WILLIAM SEAMAN BAINBRIDGE, M.D.,

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In the cases which follow only such details are given as have a bearing upon the blood examinations. For all other data the reader is referred to the accompanying table, in which we have endeavored to give the essential facts concerning each case.

Case 33.—Carcinoma of Uterus and Abdominal Viscera. Patient was first given glycerin and sterile water injections for nine days, with no subjective or objective results. She was then given alternate injections of trypsin and amylopsin from December 21, 1907, to January 24, 1908, and from that time irregularly to February 20. Ten days after beginning the regular enzyme treatment the blood showed hemoglobin 60 per cent., few normoblasts, microcytes and pale red cells. Total white blood count 22,000. This ranged between 22,000 and 29,500 per cubic millimeter. Polymorphonuclear cells relatively and absolutely much increased, numbering 25,549 per cubic millimeter two weeks before death. There was a relative decrease in small mononuclears, the total number, however, varying from normal to 1,800 per cubic millimeter above normal. The eosinophiles steadily increased from 408 to 1408 per cubic millimeter one week before death. Hemoglobin at this stage 51 per cent. The rapid decline of the patient during the course of the treatment was doubtless due to the advanced stage of the disease rather than to the treatment.

Case 50.—Carcinoma of Breast; Operable; Operation Refused. Trypsin and amylopsin given alternately from December 7, 1907, to January 6, 1908. On account of an attack of acute influenza, with coincidental abscess formation at the site of one of the injections, treatment was suspended until February 11, 1908, when it was resumed and continued until February 26. Internal treatment with Holadin and ox-gall given continuously from December 7 to February 26. While on the treatment the total white cell count varied between 6,500 and 10,500 per cubic millimeter. The small and large mononuclears fluctuated relatively above normal. The eosinophiles, which were 78 per cubic millimeter in a count made before beginning the treatment, were 040 per cubic millimeter the day of discharge from the hospital.

Case 78.—Recurrent Carcinoma of the Left Breast, and Supraclavicular and Infraclavicular Glands, following amputation. Regular enzyme

*See Report of Enzyme Treatment of Cancer, Medical Record, July 17, 1909.

Case	Name	Sex	Age	Nationality	Color	Single Married	Occupation	Private or Hospital	Referred by or in Consultation with	Diagnosis: 1 Clinical 2 Microscopic	Location of Disease	Duration of Disease Previous to Enzyme Treatment
1	L. H. B.	M.	38	U. S.	White.	Married	Salesman.	Private.		1 Carcinoma 2 Squamous-celled carcinoma.	Primary: Tongue and glands of neck. Secondary: Floor of mouth and neck.	1½ years.
2	M. R.	M.	39	German-American	White.	Married	Cab driver.	Hospital	Wm. T. Bull, N. Y. City.	1 Carcinoma 2 Carcinoma	Tongue and glands of neck.	1½ years.
3	B. V.	M.	68	German.	White.	Married	Tailor.	Hospital.	Fred Wise, N. Y. City.	1 Carcinoma 2 Carcinoma	Bladder and prostate.	9 months.
4	I. L.	F.	38	U. S.	White.	Married	Housewife.	Hospital.		1 Carcinoma 2 Carcinoma	Right breast.	1 year.
5	T. E. W.	F.	44	U. S.	White.	Married	Housewife.	Private.		1 Carcinoma. 2 Carcinoma.	Primary: Uterus. Secondary: Abdominal viscera.	15 months.
6	E. M. P.	F.	56	U. S.	White.	Married	Housewife.	Private.	J. Walker, Brooklyn, N. Y.	1 Carcinoma. 2 Carcinoma.	Uterus, part of vaginal wall and bladder.	About 2 years
7	K. H.	F.	49.	U. S.	White.	Single.		Private.	Edward W. Peet, N. Y. City.	1 Carcinoma. 2 Carcinoma.	Primary: Left breast. Secondary: Contiguous skin, axillary glands, chest wall, neck, pleura, lungs, abdominal organs	About 3 years
8	W. K.	F.	72	U. S.	White.	Married	Housewife.	Private.	L. Nevin, Jersey City, N. J.	1 Carcinoma. 2 Carcinoma.	Uterus, broad ligaments and bladder.	About 1 year.
9	C. J. W.	F.	51	U. S.	White.	Married	Housewife.	Private.	E. O. Palmer, Hollywood, Cal.	1 Carcinoma. 2 Carcinoma.	Primary: Left breast. Secondary: Skin over primary seat; glands of neck and axilla; probably liver.	15 months.
10	J. L. S.	F.	51	U. S.	White.	Married	Housewife.	Private.	J. H. Jenkin, Shrub Oak, N. Y	1 Carcinoma. 2 Carcinoma.	Body of uterus, broad ligaments, glands of pelvis.	2½ months.
11	M. J. B.	M.	70	U. S.	White.	Married		Private.	A. V. Rockwell, N. Y. City.	1 Carcinoma.	Stomach.	6 months.
12	M. A. S.	F.	78	U. S.	White.	Single.	Teacher.	Private.	F. S. Emerson, Brooklyn, N. Y.	1 Carcinoma. 2 Carcinoma of scirrhus type.	Right breast, glands of neck and axilla.	9 yrs. small tumor in breast; 2 yrs active growth.
13	J. I.	M.	37	U. S.	White.	Married	Mason.	Hospital.	E. F. Gissler, Brooklyn, N. Y.	1 Carcinoma. 2 Carcinoma.	Primary: Lower lip. Secondary: Lower lip, lower jaw, glands of neck.	2½ years.
14	S. G.	M.	35	Russia	White.	Married	Tailor.	Hospital.	Max Einhorn, N. Y. City. Henry Franciscus, Brooklyn, N. Y.	1 Carcinoma.	Lower part of esophagus and stomach.	9 months.
15	J. V.	M.	44	German.	White.	Married		Hospital.		1 Carcinoma. 2 Carcinoma.	Primary: Lower lip. Secondary: Lower lip, glands of neck.	8 months.
16	J. K.	M.	43	Bohemian.	White.	Married	Bricklayer.	Hospital.		1 Carcinoma. 2 Squamous-celled epithelioma.	Penis and inguinal glands	6 months.

Previous Treatment	Condition When Enzyme Treatment Was Begun	Duration of Enzyme Treatment	Effect Upon: 1 Local Condition, 2 General Condition, 3 Fetor; 4 Pain, 5 Progress of the Disease.	Result
Antisyphilitic for 1 year (other physicians). Removal of glands of neck, Mar. 9, 1907; removal of left half and part of right half of floor of mouth and left half of tongue, Mar. 27, 1907 (Bainbridge).	Recurrence in floor of mouth and neck. Inoperable.	June 1, to July 12, 1907. Large doses, full regime.	1 Hastened breaking down of tissue, assisted in cleansing 2 None. 3 Slightly lessened. 4 None. 5 None.	Died Sept. 15, 1907.
Five operations for removal of glands of neck and part of tongue (Dr. W. T. Bull).	Recurrence in tissues of neck Inoperable.	Apr 25 to June 29, 1907. Large doses, full regime.	1 Wound became cleaner and diminished in size by one-third during early part of treatment 2 None. 3 Lessened. 4 None. 5 None.	Died July 10, 1907.
Internal medication and *x* ray (another hospital). Refused operation for three months while on enzyme treatment, then suprapubic cystotomy (another hospital). Leucodescent light concurrently with enzyme treatment.	Hematuria. Pain in region of bladder and prostate, very severe on urination; emaciated, weak	Feb. 27 to June 2, 1907. Large doses caused chills.	Negative in all respects.	Died June 12, 1907
Complete amputation of breast (another hospital).	Recurrence in scar; ulceration. Refused further operation.	May 2 to July 15, 1907	1 None. 2 Temporary marked improvement. 3 None. 4 None. 5 None.	Died Feb. 15, 1908.
Hysterectomy (Bainbridge), June 29, 1906.	Recurrence in abdominal viscera Constant pain; hemorrhage from rectum.	Apr. 23 to June 12, 1907. Large doses, full regime.	1 Temporary apparent improvement. 2 Gained in weight at first, temporary general improvement. 3 Lessened. 4 Lessened at first. 5 None.	Died June 18, 1907.
Trypsin powder locally, 1 mo.; curettage; trypsin and amylopsin in very small doses irregularly for 8 weeks; methylene blue for 2 mo. (other physicians)	Inoperable. Suffering from toxemia due to absorption of cancerous products. General condition very poor.	Dec. 11, 1906, to May 17, 1907. Full treatment.	Temporary improvement in both local and general condition, followed by rapid decline. Tendency to non-absorption of large doses of trypsin, resulting in a few so-called abscesses, which necessitated discontinuance of treatment for a few days at the time.	Died May 19, 1907
Removal of growth from left breast, June 4, 1904 (Dr. Edward W. Peet), radical operation refused. About 1 year later, 32 *x*-ray treatments (Dr. Wm. J. Morton); trypsin, 5 to 10 minim doses, Apr. 27 to Oct. 31, 1906 (Dr. Morton). Radical operation, Nov. 3, 1906, (Bainbridge). Removal of enlarged nodules and secondary deposits in skin, Jan. 22, 1907 (Bainbridge).	Full enzyme treatment instituted twenty-four days after radical operation. Recurrent; irremovable cancer of left side of chest and glands of neck, liver enlarged probably cancerous; general condition poor.	Nov 27, 1906 to Mar. 20, 1907. Full regime, with increasing doses of trypsin and amylopsin.	1 Ulcerated surfaces cleared up by lotio pancreatis. 2 None. 3 None. 4 None. 5 Did not prevent recurrence or otherwise influence the disease.	Died Mar. 23, 1907.
Curettage; small doses trypsin for 20 days (Nevin).	Irremovable cancer of uterus, broad ligaments and bladder.	Feb. 2 to Mar. 23, 1907.	1 Temporary apparent improvement. 2 Temporary apparent improvement. 3 Lessened at first. 4 Lessened at first. 5 None.	Died Mar 25, 1907.
Removal of primary growth in breast, Jan. 2, 1906 (another surgeon). Removal of glands of neck and axilla, Jan. 31, 1907 (Bainbridge).	Enzyme treatment begun immediately after removal of glands of neck and axilla. Liver enlarged probably cancerous. General condition very poor.	Jan 24 to Apr. 14, 1907.	Negative in all respects.	Died Sept 1, 1907.
"Kilmer" cancer treatment 4 weeks. Opiates.	Irremovable cancer	Apr. 14 to May 15, 1907	Negative in all respects	Died May 26, 1907.
Medical treatment . .	Usual symptoms of cancer of stomach.	Apr. 8 to 15, 1907 . .	Negative in all respects	Died Apr. 20, 1907.
Palliative. Refused operation for 15 mo. after active growth of disease. Removal of breast and enlarged glands, Apr. 27, 1907 (Bainbridge).	Operable cancer of right breast with area of ulceration about size of fifty-cent piece. Glands in neck and axilla enlarged.	Dec. 19, 1906 to Jan. 22, 1907. Returned home, treatment continued for 3 months.	1 Ulcerating surface cleaned. 2 Temporary slight improvement. 3 No fetor present. 4 No pain. 5 None	Died May 17, 1904.
Pastes, cauterization; removal of growth on lip; "Curry treatment" (other physicians). Trypsin, 10 minims every other day, June 15 to July 15, 1907 (other physician).	Large, discharging mass involving entire lower jaw and glands of neck.	July 15 to Sept. 1, 1907. Full treatment.	Negative in all respects	Died Sept. 20, 1907.
Radium for 3 weeks (another physician)	Emaciated, great pain, dysphagia Operation refused	Mar 24 to June 21, 1907.	Temporary improvement in general condition, dysphagia less marked. Later grew rapidly worse.	Died Sept 15, 1907.
Primary growth removed, Apr. 15, 1907 (another physician), secondary growth poulticed for 2 months (another physician)	Inoperable recurrent carcinoma of lip and glands of neck, mass in neck broken down and enlarging freely.	June 22 to Aug. 12, 1907.	1 Hastened breaking down of mass in neck. 2 Temporary improvement 3 None 4 None. 5 None.	Died Sept 7, 1907.
Internal medication and ointments locally (other physicians). Removal of left inguinal glands and high amputation of penis, Dec. 10, 1906 (Bainbridge).	Enzyme treatment begun immediately after operation.	Dec. 11 1906 to Apr 28, 1907. (100 minims of "Quadruple X" trypsin, alternating with amylopsin of same strength.)	Temporary gain in weight and improvement of general condition. Otherwise negative.	Died Jun 9, 1907

Case	Name	Sex	Age	Nationality	Color	Single Married	Occupation	Private or Hospital	Referred by or in Consultation with	Diagnosis: 1 Clinical 2 Microscopic	Location of Disease	Duration of Disease Previous to Enzyme Treatment
17	F. S.	F.	38	U. S.	Color'd	Married	Housewife.	Hospital.		1 Carcinoma. 2 Carcinoma.	Uterus	5 months.
18	M. D.	M.	57	Irish	White.	Married	Watchman	Private.	E. A. Miller, N. Y. City.	1 Carcinoma. 2Epithelioma	Tongue, floor of mouth, glands of neck.	6 months.
19	E. H.	M.	43	U. S.	White.	Married	Butcher	Private.	H. G. Bidwell, Jersey City, N. J.	1 Carcinoma. 2 Carcinoma ("rapidly growing and extremely malignant")	Rectum	3 months.
20	A. G.	M.	58	U. S.	White.	Married		Private.	W. R. Bagley, Duluth, Minn.	1 Carcinoma. 2 Carcinoma	Primary: Lower lip. Secondary: Right side neck.	Primary growth 10 years; recurrence (?) 6 weeks.
21	I. S.	F.	38	U. S	White.	Single.	Housework	Hospital.		1 Carcinoma. 2 Carcinoma.	Left breast; *en cuirasse*; axillary and supraclavicular glands.	4 months.
22	B. H.	F.	65	Irish	White.	Single	Cook	Hospital.		1 Carcinoma. 2 Carcinoma of scirrhus type.	Right breast	4 years.
23	N. S.	M.	54	Italian	White.	Married	Laborer.	Hospital.		1 Carcinoma. 2 Squamous-celled epithelioma.	Primary: Tongue. Secondary: Tongue, cheek, glands of neck.	9 months.
24	F. S.	F.	55	English	White.	Single.	Nun	Private.	G. V. Foster, N. Y. City.	1 Epithelioma (primary), carcinoma (secondary). 2 Carcinoma (secondary)	Primary: Vulva Secondary: Pelvic and inguinal glands, both sides; soft parts in femoral and inguinal regions.	5 years.
25	C. W. T.	M.	66	U. S.	White.	Married	Soldier	Hospital.		1 Carcinoma. 2 Carcinoma.	Primary: Floor of mouth and glands of neck. Secondary: Tongue, cheek, throat.	4½ months (secondary)
26	N. H. M.	F.	41	U. S.	White.	Married	Church-worker.	Private.	Mary H. Brown, N. Y. City.	1 Carcinoma. 2 Carcinoma.	Rectum	10 months.
27	M. F.	F.	66	U. S	White.	Single.	Teacher	Private.	Eliza M. Mosher, Brooklyn, N. Y.	1 Sarcoma. 2 Small and large spindle celled sarcoma.	Primary: Left breast Secondary: Scar of previous operation; axilla, involving axillary vessels.	2 years.
28	F. H.	F.	41	U. S.	White.	Married	Housewife.	Private.		1 Carcinoma. 2 Carcinoma epithelioma.	Primary: Uterus. Secondary: Vagina and pelvic glands.	1½ years.
29	K. H.	F.	41	Irish	White.	Married	Housewife.	Hospital.	Daniel Cook, N. Y. City.	1 Carcinoma. 2 Carcinoma epithelioma.	Uterus (recurrent)	1 year.
30	B. L.	F.	31	U. S	White.	Single		Hospital.		1 Carcinoma. 2 Carcinoma.	Primary: Right breast. Secondary: Sternum and soft parts covering it.	4 years.
31	L. C.	F.	19	U. S	White.	Single.		Private.	C. B. Meding, N. Y. City.	1 Carcinoma.	Glands of neck.	4 years.
32	H. L.	M.	59	Dane	White.	Single.	Laborer.	Hospital.		1Epithelioma 2Epithelioma	Right inferior maxilla and glands of neck.	5 months.

Previous Treatment	Condition When Enzyme Treatment was Begun	Duration of Enzyme Treatment	Effect Upon. 1 Local Condition 2 General Condition 3 Fetor 4 Pain 5 Progress of the Disease	Result
Internal medication and local treatment for leucorrhea (other physicians). Uterus curetted and packed with iodoform gauze; laparotomy, disease irremovable; ovarian arteries ligated.	Extensive cancer of uterus, uterus adherent to rectum; bladder involved.	Apr. 25 to June 3, 1907	1 Temporary improvement. 2 Temporary improvement. 3 Lessened at first. 4 Lessened. 5 Rapidity of growth apparently checked (improvement probably due to tying of vessels.)	Died June 24, 1907
Antisyphilitic treatment (other physicians).	Ulcerating mass involving right half of tongue; glands of neck enlarged; buccal cavity extremely foul.	Mar. 23 to June 2, 1907	1 Buccal cavity cleaned up somewhat. 2 Temporary improvement. 3 Lessened. 4 Lessened. 5 None.	Died June 3, 1907 (hemorrhage
Treatment for constipation, later for hemorrhoids (other physicians). Refused operation, when first seen. Later (Jan. 3, 1907) consented to removal of tumor from rectum (Bainbridge).	Enzyme treatment begun immediately after operation.	Jan. 5 to May 11, 1907.	Temporary improvement in general condition otherwise negative.	Died May 19, 1907
Removal of growth on lower lip (Bagley). Removal of glands of neck (Chas. Mayo). x-ray (Bagley).	Large mass in inframaxillary region; irremovable. General condition good.	May 23 to Aug. 2, 1907. Full treatment (Bainbridge). After returning home, regime continued and 8 injections (Bagley). 12 injections (Fahey).	1 Temporary slight improvement. 2 Temporary improvement 3 No fetor present. 4 None. 5 None.	Died Oct. 27 1907.
None.	Inoperable	Apr 3 to 29, 1908. . .	Negative in all respects.	Died May 8, 1908.
None. Refused operation. Operable	Ulcerating tumor of right breast	Nov. 10, 1907, to Jan. 26, 1908.	1 Ulcer became cleaner; some contraction. 2 Improved. 3 Lessened. 4 None 5 None.	Discharged Dec. 20, 1907. Admitted to City Hosp. service of Dr. E. M. Foote. Finally consented to removal of tumor Jan. 27, 1908. Transferred to Metropolitan Hos. Backwell's Is. on account of tuberculosis of lungs. May 15 1908. Lost sight of
Removal of growth on tongue, Feb, 1906 (another hospital).	Inoperable, recurrent carcinoma	Sept. 21, 1907 to Mar. 15, 1908.	Negative in all respects.	Died Mar. 17, 1908
Removal of growth on vulva, Aug. 15, 1906; removal of inguinal glands, curettage and packing of uterus, Oct. 16, 1906 (Bainbridge).	Patient convalescent from last operation; irremovable	Nov. 5, 1906 to Jan. 13, 1907.	Hastened breaking down of growth and ulceration into femoral vessels, resulting in death from hemorrhage.	Died January 16, 1907.
Antisyphilitic treatment 3 mo., mouth cauterized (another physician). Extensive removal of diseased tissue, Nov. 15, 1906 (Bainbridge).	Mass size of marble in left submaxillary region; induration in floor of mouth.	Jan. 2 to Mar. 10, 1907.	Negative in all respects. . . .	Died Sept. 8, 1908.
Ointments for hemorrhoids; osteopathy (other physicians).	Inoperable. Growth 3 inches from anus, extending up 6 inches.	Jan. 8 to July 26, 1907.	Marked temporary improvement in general condition (probably due to regime in hospital).	Died July 27, 1907
Removal of breast, Feb., 1906. Axilla not cleared. Recurrence in axilla within 2 weeks, incised, Mar. 5, 1906 (other physicians). First portion of subclavian artery tied in order to control severe hemorrhages, Mar. 26, 1907 (Bainbridge).	Irremovable, large, sarcomatous mass filling left axilla, fixed to chest wall, involving axillary vessels; mass size of large orange over scar of old operation hemorrhage profuse.	Apr. 3 to May 15, 1907.	Ulcerating surface cleaned up by lotio pancreatis; otherwise negative.	Died June 14, 1907.
Hysterectomy, Apr. 6, 1906 (another physician). Removal of as much as possible of recurrent growth, Feb. 26, 1907 (Bainbridge).	Cauliflower-like mass involving site of hysterectomy and fornices of vagina; pelvic glands involved; general condition very poor, suffering from sepsis.	Dec. 22, 1906 to Feb. 19, 1907	1 Improved for a time. 2 Markedly improved. 3 Lessened. 4 Lessened. 5 None.	Died, June, 1907.
Primary growth removed June 2, 1906 (another hospital).	Inoperable recurrent carcinoma of uterus.	Jan. 8 to Mar. 27, 1907.	Injections caused unusual pain. After a time trypsin was not absorbed promptly and several so-called "trypsin abscesses" were formed. Material removed from these proved to be unabsorbed trypsin. Negative in all respects.	Died Mar. 29 1907
Removal of right breast and axillary glands; skin grafting, Nov. 3, 1906 (Bainbridge).	Recurrence in sternum and soft parts covering it. Irremovable.	Mar. 13, 1908 to Apr. 11, 1908.	Negative in all respects	Died during the summer, 1908.
None	Enlarged glands in neck, neck measured 15½ inches	Mar. 24 to Apr. 12, 1907.	Injections so painful patient refused to take treatment longer. Negative in all respects.	Died a few months later.
Operation refused	Ulcerated mass size of hen's egg attached to angle of lower maxilla, submaxillary and sublingual glands involved, able to open mouth only slightly. Operable.	Sept. 17 to Dec. 20, 1907	Negative in all respects	Died Dec. 22, 1907

Case	Name	Sex	Age	Nationality	Color	Single or Married	Occupation	Private or Hospital	Referred by or in Consultation with	Diagnosis: 1 Clinical 2 Microscopic	Location of Disease	Duration of Disease Previous to Enzyme Treatment
33	H. G.	F.	38	German	White.	Married	Housework	Hospital.		1 Carcinoma. 2 Carcinoma.	Primary: Uterus. Secondary: Abdominal viscera.	2 years.
34	A. F.	F.	43	Irish	White.	Married	Housewife.	Private.	Edward F. Duffy, Yonkers, N. Y.	1 Carcinoma. 2 Carcinoma.	Primary: Right brest. Secondary: Left breast and skin. Uterine fibroid.	6 months.
35 Test Case	M. D.	F.	50	Canadian	White.	Married	Housewife	Hospital.	Emil Brunor, N. Y. City.	1 Carcinoma. 2 Carcinoma.	Uterus, broad ligaments, bladder, rectum, and pelvic fascia.	1 year.
36	I. S.	M.	44	Russian	White.	Married	Bartender.	Hospital.		1 Ulcer of stomach, probably carcinomatous.	Stomach	8 years.
37	S. S.	F.	42	Russian	White.	Married	Housewife.	Hospital.		1 Carcinoma. 2 Carcinoma.	Primary: Right breast. Secondary: Scar of operation, chest wall, axillary and supraclavicular glands, right side; left breast.	18 months.
38	E. S.	F.	36	Hungarian.	White.	Married	Housewife.	Hospital.		1 Carcinoma. 2 Carcinoma.	Uterus and broad ligaments.	7 months.
39	S. D.	F.	38	U. S.	White.	Married	Housewife.	Private.		1 Carcinoma.	Left breast and axillary glands.	5 years.
40	P. G.	M.	66	Irish	White.	Married	Engineer.	Hospital.		1 Carcinoma. 2 Carcinoma.	Abdomen (probably mesentery and omentum) and abdominal wall.	2½ years.
41	M. M.	F.	56	Irish	White.	Single.	Housemaid	Hospital.		1 Carcinoma. 2 Cacrinoma.	Stomach	16 months.
42	F. E.	M.	42	U. S.	White.	Married	Newspaper work.	Private.	F. R. Johnson, Llewellyn Hatch.	1 Epithelioma 2 "Typical epidermoid cancer."	Tongue and glands of neck.	8 months.
43	K. M. W.	F.	45	U. S.	White.	Married	Actress.	Hospital		1 Carcinoma. 2 Carcinoma.	Left breast (1905). Right breast (1908).	4 months (right breast)
44	G. U.	M.	47	German	White.	Married	Printer.	Hospital.		1 Carcinoma. 2 Carcinoma.	Left inguinal region and rectum.	9 months.
45	L. C.	F.	40	U. S.	White.	Married	Nurse.	Hospital.		1 Carcinoma. 2 Carcinoma.	Left breast and supraclavicular glands (recurrent).	2 years (primary), 3 months (secondary).
46	N. C.	M.	62	Italian	White.	Married	Restaurant keeper.	Hospital.		1 Carcinoma. 2 Carcinoma	Rectum	About 1 year.
47	R. A. P.	F.	39	U. S.	White.	Married	Housewife.	Private.		1 Carcinoma. 2 Carcinoma.	Primary: Left breast. Secondary: Scar and supraclavicular glands.	3 years.

Previous Treatment	Condition When Enzyme Treatment Was Begun	Duration of Enzyme Treatment	Effect Upon: 1 Local Condition 2 General Condition 3 Fetor 4 Pain 5 Progress of the Disease	Result
Curettage and packing of vagina (other physicians); curettage, Dec. 3, 1907.	Irremovable. Cachexia marked tissue involved very friabl General condition poor	Dec. 21, 1907 to Jan. 24, 1908.	Negative in all respects. Disease continued to progress, involving abdominal viscera, as shown by exploratory laparotomy Feb 26, 1908.	Died Feb. 27, 1908
Right breast removed, Aug. 13, 1907 (Duffy); X-ray twice a week for 2 mo. following operation Left breast, axillary and supraclavicular glands removed, Dec. 17, 1907 (Bainbridge). X-ray every other day for several weeks (H. G. Keith, Yonkers, N. Y.).	All external evidence of cancer removed. General condition p	Dec. 27, 1907 to Mar 11 1908. Continued several weeks by Dr James T. Gordon, Yonkers, N. Y.	1 Some of the secondary nodules disappeared and others decreased in size 2 Marked improvement. 3 No fetor present. 4 Apparently controlled, certainly not increased. 5 Did not prevent metastasis or recurrence.	Died June 16, 1908
Tumor of right breast removed in 1902 (another physician). Tubes and ovaries removed, both ovarian arteries tied, Dec. 5, 1907 (Bainbridge).	Irremovable carcinoma of structures involved.	Internal medication and hypodermic injections of glycerin and water, Dec. 13 to 29, 1907. Regular enzyme treatment continued by Dr. Emil Brunor. Nov. 26, 1907 to Apr. 26, 1908.	Under control treatment steadily improvement in general condition. Began to fail as soon as the injections of trypsin and amylopsin were begun. No metastases after beginning enzyme treatment.	Died Apr 27, 1908
Appendectomy, 1900; gastro-enterostomy, 1901; plastic operation for enlarging contracted gastro-enteric orifice, 1902, medical treatment for persistent vomiting, 1907 (another hospital). Exploratory laparotomy, gastro-jejunostomy, Mar. 30, 1908 (Bainbridge).	Persistent vomiting; pain in epigastrium. Chronic gastric ulcer with peritoneal adhesions.	Feb. 27 to Mar. 26, 1908.	Negative in all respects	Died May, 1908.
Tumor in right breast removed, Sept. 1905 (another physician). Radical removal of right breast and enlarged axillary and supraclavicular glands of right side; removal of small nodule from outer portion of left breast, Nov. 12, 1906 (Bainbridge).	Irremovable involvement of chest wall.	Nov. 11, 1906 to Feb. 6, 1907.	Improvement of general condition, attributable to operation. Progress of disease not checked.	Discharged from hospital, Feb. 6, 1907. Not able to trace subsequent history.
Curettage and application of zinc chlorid, Mar. 21, 1907 (Bainbridge).	Irremovable. Suffering from sepsis, cachexia marked.	Mar. 19 to May 24, 1907.	1 Improved. 2 Less septic, less cachectic. 3 Lessened. 4 None. 5 None. Improvement doubtless due to regime rather than to the injections.	Discharged from hospital, May 24, 1907. Unable to trace subsequent history.
Pastes. Refused operation.....	Large ulcerating tumor in left breast and one in axilla; arm very much swollen; pain intense.	Apr. 28 to May 27, 1907.	Complained of pain from injections. Negative in all respects.	Discontinued treatment at patient's request, May 27, 1907. Lost sight of.
Tumor incised, Aug., 1906 (another hospital).	Tumor extending from umbilicus to symphysis pubis, hard, irregular, slightly nodular. Just below umbilicus a discharging sinus resulting from operation.	May 5 to June 3, 1907..	Slight apparent improvement in general condition at first.	Discharged from hospital by request June 3, 1907 Lost sight of.
Internal medical (other physicians). Exploratory laparotomy, Feb. 11, 1907 (Bainbridge).	General condition poor. Operation showed large, hard growth connecting stomach, pancreas and colon.	Feb. 14 to Apr. 28, 1907.	Decided improvement in general condition.	Discharged by request, improved, Apr. 29, 1907. Lost sight of.
Antispecific treatment 3 mo.; 11 caustic applications (other physicians). Extensive dissection of broken down glands in neck and involved sheaths of vessels; internal jugular vein ligated, Nov. 3, 1906, both sides of neck curetted; facial, inferior maxillary division of fifth and posterior auricular nerves cut to relieve pain, Jan. 17, 1907 (Bainbridge).	Ulcerating cancer of tongue, too far advanced to warrant removal of tongue.	Dec. 11, 1906 to Jan. 14, 1907.	Apparent temporary improvement both local and general. Autopsy showed no metastases, despite extensive involvment.	Died Jan. 20, 1907
Tumor removed from left breast, 1905; radical removal of left breast and axillary glands, Sept., 1907 (other hospitals). Radical removal of right breast and axillary glands, Apr. 2, 1908 (New York Skin and Cancer Hospital).	Enzyme treatment begun two weeks after last operation, to prevent metastasis.	Apr 15 to 24, 1908. Large doses.	Negative in all respects.	Discharged by request, Apr. 25, 1908. Lost sight of.
Operation for fissure of rectum, June 6, 1907, exploratory laparatomy, left inguinal colostomy, July 15, 1907 (another hospital).	Tumor in rectum, 3½ inches from anus; left inguinal glands enlarged. Inoperable.	Jan. 10 to 31, 1908...	Temporary improvement in general condition. Otherwise negative	Discharged Jan. 31, 1908, steadily growing worse. Died later
Left breast and supraclavicular glands removed, July 16, 1906 (another hospital).	Recurrence in scar of breast amputation; arm and hand greatly swollen and very painful Operation refused.	Mar. 1 to May 7, 1908	Negative in all respects. Treatment painful when large injections were used.	Refused further treatment. Discharged Mar. 8, 1908. Lost sight of.
Hemorrhoids removed by cautery, Sept. 1906 (another physician). Rectum dilated, Jan. 19, 1907 (Bainbridge). Further operation refused.	Nodular masses for a distance of 3 inches in rectum; annular mass extending 2 inches further Pain constipation, bloody stools.	Nov. 18, 1906 to Apr. 16, 1907.	1 Discharge from rectum freer, obstruction not so marked. 2 Temporarily improved. 3 Lessened. 4 Lessened. 5 None.	Died Mar., 1908.
Removal of breast, Feb., 1906 (another hospital). Refused further operation.	Irremovable. Considerable pain General condition fair.	Feb. 19, 1907 to Apr 27, 1907.	1 Distinct improvement. Some nodules apparently disappeared and others decreased in size and became softer. 2 Gained 17 lb. in less than 1 mo. 3 Lessened. 4 Lessened for a time. 5 Seemingly retarded.	Discontinued treatment voluntarily Apr. 27, 1907. Died several months later.

Case	Name	Sex	Age	Nationality	Color	Single or Married	Occupation	Private or Hospital	Referred by or in Consultation with	Diagnosis: 1 Clinical 2 Microscopic	Location of the Disease	Duration of Disease Previous to Enzyme Treatment
48	A. B.	M.	45	U. S.	White.	Married	Conductor.	Hospital.		1 Carcinoma.	Tongue and glands of neck (recurrent).	4 months.
49 Test Case	F. D.	F.	20	U. S.	White.	Single.		Private.	C. A. Frink, N. Y. City.	1 Goitre. 2 Goitre.	Neck.	
50	M. T.	F.	65	U. S.	White.	Single.	Seamstress.	Hospital.	W. E. Cladek, Rahway, N. J.	1 Carcinoma.	Right breast.	12 years.
51	B. H.	M.	93	Irish.	White.	Married		Private.		1 Epithelioma 2 Epithelioma	Right auricle.	10 years.
52	J. E. W.	M.	52	Swede.	White.	Married	Laborer.	Hospital.		1 Carcinoma. 2 Carcinoma.	Right side of face, outer angle of orbit, over malar and zygoma.	7 years.
53	A. D.	F.	54	German.	White.	Married	Housewife.	Hospital.		1 Epithelioma 2 Epithelioma (foot) carcinoma (glands).	Foot and inguinal glands; femoral abscess.	3 months.
54	C. E. C	F.	46	Canadian.	White.	Married	Housework	Hospital.		1 Carcinoma. 2 Carcinoma.	Primary: Right breast, glands of neck and axilla Secondary: Chest wall, left breast.	Primary: 5 years. Secondary: 7 months.
55	J. M.	M.	76	Irish.	White.	Married	Laborer.	Hospital.		1 Carcinoma.	From base of tongue to hyoid bone; epiglottis; larynx; glands of neck.	5 months.
56	J. P.	F.	48	Irish.	White.	Single.	Housework	Hospital.		1 Epithelioma 2 Epithelioma	Auricular region (recurrent.)	Primary: 4 years, recurrence 1 year.
57	A. R.	F.	54	U. S.	White.	Married	Housework	Hospital.		1 Carcinoma.	Stomach.	1 year.
58	L. D.	F.	34	German.	White.	Married	Housewife.	Hospital.		1 Carcinoma. 2 Carcinoma	Primary: Left pectoral region. Secondary: Left pectoral region, shoulder and back.	6 months.
59	S. R.	F.	56	Roumanian	White.	Married	Housewife.	Hospital.		1 Sarcoma.	Bladder.	5 months.
60	A. W.	F.	35	U. S.	White.	Married	Housewife.	Private.		1 Carcinoma. 2 Carcinoma.	Primary: Uterus and broad ligaments. Secondary: Pelvis, glands along aorta and iliacs.	3 years.
61	A. L.	F.	77	Irish.	White.	Married	Housewife.	Hospital.		1 Carcinoma. 2 Carcinoma.	Primary: Left breast. Secondary: Axilla; later in scar and supraclavicular glands.	1 month (recurrence).
62	W. C.	F.	45	U. S.	White.	Married	Housewife.	Private.	T. J. Dunn, N. Y. City.	1 Carcinoma. 2 Carcinoma.	Primary: Uterus. Secondary: Pelvis and vault of vagina.	4 years.
63	L. R. D.	F.		U. S.	White.	Married	Housewife.	Private.	L. A. Opdyke, Jersey City, N. J.	1 Carcinoma.	Uterus.	
64	S. S. T.	M.		U. S.	Colored		Laborer.	Private.	H. E. Hale, N. Y. City.	1 Carcinoma.	Stomach.	3 months.
65	G. G.	F.	35	U. S.	White.	Married	Housewife.	Private.	B. H. Mayne, R. Byington, Brooklyn, N. Y.	1 Carcinoma.	Uterus.	1 year.

Previous Treatment	Condition When Enzyme Treatment Was Begun	Duration of Enzyme Treatment	Effect Upon 1 Local Condition 2 General Condition 3 Fetor 4 Pain 5 Progress of the Disease	Result
Removal of growth from tongue, one week later, removal of a larger section from tongue, and supraclavicular glands, Aug., 1907 (another hospital).	Large mass behind ramus of left jaw, extending to symphysis; ulcer on right side of tongue; right side of neck swollen. Irremovable.	Nov. 1 to 9, 1907	Pain seemingly increased. Otherwise negative	Discharged by request Nov. 9, 1907. Died later.
None	Large parenchymatous goitre	Mar. 1 to Apr. 30, 1907. Large doses of trypsin and amylopsin.	Painful indurated area at site of injection. No effect upon the goitre, which was removed May 24, 1907 (Bainbridge)	Uneventful recovery from operation; perfectly well May 17, 1907.
None	Nodular mass size of walnut over nipple of right breast; slight ulceration, no discharge; axillary glands enlarged. Operable, operation refused.	Dec. 7, 1907 to Feb. 27, 1908, in hospital, and irregularly for 8 mo. after returning home (Cladek).	Gained 10 lb. in weight while in hospital, appetite improved. Progress of the disease seemingly retarded but not stopped.	Discharged Feb. 27, 1908. May 12, 1909, patient able to do light housework. Disease slowly progressing.
X-ray, a few times, radium, 2 months (other physicians). No operation.	Ulcerating growth involved entire auricle and contiguous post-auricular area.	Feb. 8 to May 12, 1908.	1 Ulcerating surface cleaned up. 2 None. 3 None. 4 Lessened for a time 5 None	Insisted upon discontinuance of injections because of pain. Still under observation. Disease gradually progressing.
Tumor incised and packed, 3 mos. after its appearance (another hospital). Tumor removed by plaster a short time after this (another physician). No return until Mar., 1907, when a blow was received on the temple. Soft tissues involved, portions of the malar, frontal and superior maxilla removed, the right eyeball enucleated and the orbital fossa cleared out, Dec. 12, 1907 (Bainbridge)	Patient recovering from operation when treatment was begun. Irremovable in part.	Dec. 21, 1907 to Jan. 16, 1908. No injections given; all other parts of treatment as usual.	Seemed to gain for a time. Injections painful. Grew progressively worse	Died Apr. 10, 1908.
Growth on foot removed, enlarged inguinal glands excised, and femoral abscess evacuated Mar. 25, 1908 (Bainbridge).	Suffering from absorption of toxic products; general condition very poor.	Apr. 6 to 19, 1908	Negative in all respects.	Discharged by request May 2, 1908. Died a few days later.
Tumor in breast opened as an abscess, about 2 years ago (another physician); removal of left breast, about 2 months later (another hospital). Axillar and supraclavicular glands and mass in right breast not removed.	Numerous small masses over chest wall; large discharging mass over site of left breast; glands in neck and axillæ markedly enlarged. Inoperable except for paracentesis for removal of fluid from chest cavity.	Nov. 6 to Dec. 26, 1907	Reaction very severe; no beneficial effects; treatment abandoned because of patient's weakened condition.	Died Jan. 2[illegible] 1908.
None	Carcinomatous masses extending from base of tongue to hyoid bone involving epiglottis and larynx, interfering with deglutition. Inoperable.	Jan. 3 to Mar. 8, 1908	Negative in all respects.	Died Apr. 8, 1908.
Removal of primary growth in 1903 (another hospital).	Irremovable ulcerating growth involving the tissues named.	Jan. 9, to Sept. 18, 1908. (Injections 2 months, internal treatment 9 months).	1 Ulcerated surface on cheek decreased in size, floor cleaner and healthier. 2 Improved temporarily. 3 Lessened. 4 Lessened. 5 Growth seemed to be checked to some extent at first, later disease progressed rapidly.	Removed to Bellevue Insane Pavilion Sept. 18, 1908. Died shortly after.
Hospital treatment 4 months. Operation refused.	Characteristic symptoms of cancer of stomach.	Jan. 2 to May 9, 1907. .	Improved, probably because of the 4 months' hospital régime and treatment	Discharged by request May 9, 1907.
Removal of left breast (1900) (another hospital). Removal of foci in chest wall, part of sternum and ribs over heart, extensive operations (four) in 1906 and 1907 (Bainbridge).	No disease apparent.	Dec. 12, 1906 to May 10, 1907. (To prevent recurrence)	General condition improved. Considerable local pain not influenced.	Discharged May 11, 1907. Received electrical treatment for 3 mos. after leaving hospital. No recurrence at present
Treated for cystitis (another physician).	Hemorrhages from bladder; incontinence of urine.	June 1 to July 15, 1907.	Negative in all respects.	Died Aug. 14, 1907
Panhysterectomy, Nov. 2, 1905 (Bainbridge)	Inoperable.	Feb. 4 to Aug. 17, 1907. Jan. 16 to Apr. 7, 1908	General condition much better for a number of months. Treatment seemed definitely to prolong life. Disease steadily progressed.	Died Apr. 18, 1908
Halsted operation for removal of left breast, June, 1906 (another hospital). Axilla cleared, June 20, 1907 (Bainbridge). Further operation refused.	Recurrence in scar of breast amputation.	Dec. 10, 1907 to Jan. 10, 1908. Further treatment refused	Negative in all respects.	Died May 30, 1908
Vaginal hysterectomy, Oct., 1906 (another hospital)	Mass in pelvis size of fist; ulcerated surface at vault of vagina. Anemic, otherwise general condition good. Irremovable	3 weeks, small doses (Dunn). Jan. 15 to Feb. 12, 1907 (Bainbridge). Full doses	Only effect, increase in discharge from ulcerating surface in vault of vagina	Died Apr. 4, 1907
Palliative (other physicians). .	Inoperable.	Feb. to May, small doses. May 9 to 24, 1907. Refused further treatment.	Negative except that it seemed to relieve pain for a time	Died June 3, 1907
None	Mass in epigastric region, hemorrhages from stomach.	Jan. 23 to Mar. 11, 1907	Negative except for improvement in digestion	Died Apr. 24, 1907
Surface of tumor curetted (another physician)	Large inoperable uterine cancer. Patient confined to bed	Jan. 18 to Feb. 15, 1907	Improvement in general condition for a few days, discharge increased. Otherwise negative	Died Feb. [illegible], 1907

Case	Name	Sex	Age	Nationality	Color	Single or Married	Occupation	Private or Hospital	Referred by or in Consultation with	Diagnosis: 1 Clinical 2 Microscopic	Location of the Disease	Duration of Disease Previous to Enzyme Treatment
66	R.H.P...	F..	58	U. S.	White.	Married	Housewife.	Private.	R. F. Ives, Bath Beach, L. I.	1 Carcinoma	Entire left breast, involving ribs, axilla and side of arm; right breast.	6 years.
67	G. G. D..	F..	60	U. S.	White.	Married	Housewife.	Private..	J. P. Green, Mamoroneck, N. Y.	1 Carcinoma.	Primary: Left breast..... Secondary: Skin over left breast; right breast, axillary glands, and skin of right side.	1 year
68	A. S.	F..	32	U. S.	White.	Married	Housewife.	Private..	J. Ziporkes, Brooklyn, N. Y.	1 Carcinoma. 2 Carcinoma	Primary: Uterus... Secondary: Pelvis.	8 months.
69	M. O	F..	39	U. S.	White.	Married	Housewife.	Private..	W. F. Faison, Jersey City, N. J.	1 Sarcoma. 2 Sarcoma, large spindle celled.	Right breast (recurrent)	14 years.
70	M. P. S.	F..	54	U. S.	White.	Married	Housewife.	Private..	L. H. Clarke, Holyoke, Mass.	1 Carcinoma. 2 Carcinoma.	Primary: Left breast..... Secondary: Scar and axilla.	4½ years.
71	R. H ...	F..	50	U. S.	White.	Married	Housewife.	Private..		1 Carcinoma	Liver...	Several mos.
72	G. H. S..	F..	43	U. S. ...	White.	Married	Housewife.	Private..	A. C. Benedict, Yonkers, N. Y.	1 Carcinoma. 2 Carcinoma.	Neck, left side.....	5 years.
73	W. D. ..	M..	45	U. S. ...	White.	Married	Clerk.. ...	Hospital.		1 Epithelioma. 2 Epithelioma.	Primary: Left ankle, near external malleolus. Secondary: Abdominal viscera and inguinal glands.	1 year.
74	E. K. G.	M..	37	U. S. ...	White.	Married	Salesman..	Private..	....	1 Carcinoma. 2 Carcinoma.	Primary: Tongue and glands of neck. Secondary: Floor of mouth and neck.	2 years.
75	E. R. T.	F..	50	U. S.	White.	Married	Housewife.	Private..	J. P. Green, Mamaroneck, N. Y.	1 Carcinoma	Uterus and base of bladder.	About 1 year.
76	E. S.....	M..	42	U. S.	White.	Married	Salesman..	Private..	I. P. Oberndorfer, New York City.	1 Carcinoma. 2 Carcinoma.	Primary: Tongue..... Secondary: Neck, throat, back.	8 years.
77	P. E. G..	F..	39	U. S.	White.	Married	Singer. ..	Private..	John Beard, Edinburg, Scotland; Robert Ives, Bath Beach, N. Y.	1 Carcinoma. 2 Carcinoma.	Primary: Uterus..... Secondary: Pelvis.....	2 years.
78	A. S.....	F..	48	Irish	White.	Married	Clerk.. ..	Hospital.	.....	1 Carcinoma. 2 Carcinoma.	Primary: Left breast... Secondary: Skin over area of operation; supra- and infraclavicular glands.	2 years.
79	M. F.	F..	50	Italian. ..	White	Married	Seamstress	Hospital		1 Carcinoma. 2 Carcinoma.	Primary: Uterus ..... Secondary: Vagina.....	2 years.
80	F. D...	F..	49	U. S. ...	White.	Married	Housewife.	Hospital	....	1 Carcinoma. 2 Carcinoma.	Uterus and bladder.....	Symptoms noted by patient only 3 weeks.
81	E. C.....	F..	44	Irish.....	White.	Married	Housewife	Hospital	.....	1 Carcinoma. 2 Carcinoma.	Left breast.....	16 months.
82	E. D....	M..	61	Irish.....	White.	Married	Clerk.....	Hospital.	.....	1 Epithelioma. 2 Epithelioma.	Buccal cavity (recurrent)	Primary: one and a half years. Secondary: 3 months.
83	E. D....	F..	30	Russian....	White.	Married	Housewife.	Hospital.	.....	1 Carcinoma	Primary: Left breast..... Secondary: Skin over site of operation; axilla.	2 years.

Previous Treatment	Condition When Enzyme Treatment Was Begun	Duration of Enzyme Treatment	Effect Upon 1 Local Condition 2 General Condition 3 Fetor 4 Pain 5 Progress of the Disease	Result
X-ray, bovinine (other physicians). No operation.	Inoperable. General condition fair	Dec. 28, 1906 to Mar 27, 1907	Negative in all respects.	Died later.
Removal of tumor in left breast (another physician).	Small injections of trypsin (10) and amylopsin (2) during Oct 1907 (Green) Dec 26, 1907 to Feb. 21, 1908.	Oct 5, 1906 to Feb. 21, 1907 Small injections at first, gradually increased.	Tumor in right breast disappeared, but returned again. Disease steadily progressed	Died Feb. 21, 1907
Hysterectomy, 1906 (another hospital).	Recurrent tumor in pelvis, very painful; general toxemia from failure of emunctory organs to functionate.	Apr 17 to June 16, 1907	Gained 5 lb. in weight; much stronger, less pain at first. Progress of disease not influenced	Died June 16, 1907
Breast lanced three times (another physician) Breast and axillary glands removed, Aug., 1906 (Faison). X-ray four times in Feb., 1907.	Ulcerating sarcoma; profuse hemorrhage; weak, emaciated	Mar. 2 to Apr. 2, 1907.	Negative in all respects.	Died Apr 3, 1907
Complete removal of breast and glands of axilla, Apr., 1903, X-ray 2 years thereafter (Clarke). Radium a few days (another physician). Removal of recurrences, Nov. 7, 1907 (Bainbridge). Small recurrent nodule removed under cocain anesthesia, Jan. 9, 1909 (Bainbridge).	Small discharging sinus in axilla recurrent nodules in skin; general condition good; contraction of scar and edema of arm.	Nov 25, 1907 to Feb. 26, 1908. Given in the hope of preventing metastasis. June 2 to July 14, 1908.	Did not prevent recurrence Whether it influenced extent of recurrence cannot be determined.	Free from apparent disease, May 12, 1909.
None.....	Liver very much enlarged Progressive loss of appetite, strength and weight; nauseated all the time.	Dec. 22 to 27. Refused further treatment.	Negative Patient complained of the pain of injections.	Died a few weeks later.
Iodine at intervals, palliative treatment. X-ray three times a week for nine weeks, 1906. Relieved pressure by exploratory operation, Dec. 6, 1906 (Bainbridge).	Tumor pressing upon superior laryngeal nerve; paralysis of left side of face. Difficult deglutition	Dec. 9, 1906 to May 6, 1907	1 Growth in neck decreased in size 2 Improved Able to swallow more easily; facial paralysis less marked. 3 None present. 4 Lessened. 5 Retarded; life prolonged.	Died May 15, 1907
Removal of growth on ankle, June 22, 1907. Refused to allow removal of inguinal glands, until Mar. 10, 1908.	Recurrence in abdominal viscera General condition fair	Dec 1, 1907 to Feb. 14, 1908.	Negative in all respects. Did not prevent metastasis, as autopsy showed metastases in all the abdominal viscera	Died Mar. 12, 1908
Cauterization (alum stick); treated for tuberculosis (other physicians) Removal of tongue and glands of neck Aug. 1907 (Bainbridge)	Inoperable recurrence in floor of mouth and neck. Thin and cachectic. Pain severe.	Feb. 27 to May. 8, 1908.	Negative in all respects	Died May 10, 1908
General tonic treatment; uterus cauterized (another hospital).	Inoperable carcinoma of uterus and bladder Constipation, frequent urination, severe pain	From Oct to Dec 1907 received 10 injections trypsin and 2 amylopsin, then liquid glycerin trypsin (Green), Holadin, oxgall and dietary regime from Dec. 26, 1907, to time of death, some six weeks later.	Distinct evidence of depression after small injections of trypsin Negative except for temporary general improvement.	Died some weeks later (early in 1908)
Antisyphilitic treatment for a number of months; X-ray three times (other physicians). Removal of tongue and glands of neck, Mar. 1907 (Bainbridge)	Recurrence in neck, throat and back Septic looking, emaciated, exceedingly nervous.	Mar. 23 to Sept 26, 1907.	Pain seemed to be increased by treatment. No favorable effect Disease steadily progressed.	Died May 3, 1908.
Hysterectomy, Apr., 1906 (another physician).	Extensive involvement of pelvis. General condition very poor.	Nov. 7 to 19, 1906 ...	Negative in all respects.	Died Nov. 21, 1906.
Complete amputation of breast Apr. 8, 1907 (another hospital).	Inoperable recurrence in scar of operation, nodules in surrounding skin; supra- and infraclavicular glands. Arm greatly swollen	July 1, 1907 to Nov 2, 1908.	Improved under regime for a time.	Died some months later.
Hysterectomy, Aug. 23, 1905 (another hospital).	Neuralgic pains in left hip and leg Small ulcerated area in vagina Operation refused.	Jan. 13 to Apr. 12, 1907	Negative. Disease steadily progressed	Died Apr. 3 1908.
Uterus curetted; ovarian and uterine arteries, both sides, ligated, Apr. 18, 1908.	Extensive involvement of uterus, broad ligaments and bladder found upon exploration Irremovable.	May 6 to Nov. 2, 1908.	Temporary check to growth, as indicated by symptoms, probably due to ligation of vessels	Discharged, improved June 4 1908 Disease slowly progressing but patient able to do light housework
Ointment (family physician). Refused operation.	Hard, eroded tumor in breast, nipple retracted Progressive loss of flesh and strength	Apr 1 to July 1, 1908..	Lost 15 lb in weight while on the treatment. Negative.	Died July 7, 1908.
Primary growth, with free margin of healthy tissue, excised, July 21, 1906 (hospital).	Extensive involvement of buccal mucous membrane; foul discharge, intense pain.	Apr 3 to Sept 19 1908 Refused further treatment.	Negative in all respects	Died in few weeks later
Breast amputated, July, 1906; recurrence in scar excised, Feb. 10, 1908 (another hospital)	Induration of edges of wound from last operation, which never healed Eroded area 3 inches long in axilla, with protruding ulcerating mass.	March 25 to June 1, 1908	1 Wound cleaned up by Lotio Pancreatis Discharge increased 2 Loss of weight; increased cachexia. 3 Lessened 4 None. 5 None	Died Dec. 1, 1908.

Case	Name	Sex	Age	Nationality	Color	Single or Married	Occupation	Private or Hospital	Referred by or in Consultation with	Diagnosis: 1 Clinical 2 Microscopic	Location of Disease	Duration of Disease Previous to Enzyme Treatment
84	T. D.	M.	51	U. S.	White.	Married	Laborer.	Hospital.		1 Carcinoma	Neck (recurrent.)	1 year.
85	W. D.	M.	57	U. S.	White.	Married	Engineer.	Private.	J. Fewsmith, Newark, N. J.	1 Epithelioma. 2 Epithelioma	Tongue.	6 months.
86	J. H. W.	M.	60	U. S.	White	Married	Clerk.	Hospital.	Alfred C. Prentice, New York City	1 Carcinoma. 2 Epithelioma	Glands of neck.	1 year.
87	M. R.	F.	44	Irish.	White.	Married	Housework	Hospital.		1 Carcinoma 2 Carcinoma.	Uterus and vagina.	4 months.
88	M. C.	F.	65	Irish.	White.	Married	Housewife.	Hospital.		1 Carcinoma. 2 Carcinoma.	Right breast.	2 years.
89	R. G.	F.	48	Russian	White.	Married	Housewife.	Hospital		1 Carcinoma 2 Carcinoma	Right breast; glands of neck.	6 months
90	M. E.	F.	71	German	White.	Married	Housewife.	Hospital	Geo. Forbes, L. I. City, N. Y.	1 Carcinoma.	Left tonsil, glands of neck.	4 months.
91 Control Case	S. H.	F.	51	U. S.	White.	Married	Housewife.	Hospital		1 Carcinoma	Abdominal viscera.	
92 Control Case	A. A.	F.	57	Irish.	White.	Married	Housewife.	Hospital.		1 Epithelioma. 2 Epithelioma	Chin and inferior maxilla.	10 years.
93	M. S.	F.	55	Irish	White.	Single.	Domestic.	Hospital		1 Carcinoma. 2 Carcinoma.	Primary: Right breast. Secondary: Skin over site of breast; glands of neck and axilla.	5 years
94	F. W.	F.	39	U. S.	White.	Married	Housewife.	Hospital.		1 Carcinoma. 2 Carcinoma	Primary: Rectum and vagina. Secondary: Uterus, ovaries, tubes, broad ligaments.	6 months.
95	E. O.	F.	51	Dane.	White.	Married	Housework	Hospital.		1 Carcinoma. 2 Carcinoma.	Primary: Uterus. Secondary: Inguinal glands, hip, thigh.	Primary: 15 months. Secondary: 7 weeks.
96	M. R.	F.	36	Dane.	White.	Married	Housework	Hospital.		1 Carcinoma. 2 Carcinoma.	Uterus and bladder.	7 months.
97	M. W.	M.	48	Irish.	White.	Married	Factory work.	Hospital.		1 Carcinoma. 2 Epithelioma	Left submaxillary region and glands of neck (recurrent)	1½ years.
98	G. R. E.	F.	62	U. S.	White.	Married	Housewife.	Private.		1 Carcinoma.	Primary: Pharynx. Secondary: Larynx; glands of neck.	9 months.
99	A. W.	F.	44	U. S.	White.	Married	Housewife.	Hospital.		1 Carcinoma. 2 Carcinoma.	Right breast.	1 year.
100	A. B.	M.	69	U. S.	White.	Married	Laborer.	Hospital	R. C. Kemp, New York City	1 Carcinoma.	Stomach (superimposed upon gastric ulcer)	2½ years.

Previous Treatment	Condition When Enzyme Treatment Was Begun	Duration of Enzyme Treatment	Effect Upon: 1 Local Condition 2 General Condition 3 Fetor 4 Pain 5 Progress of the Disease.	Result
Removal of primary growth, Jan., 1906 (another physician). Curetted ulcerating surface, June 14, 1906. (Bainbridge.)	Ulcerating mass in neck. Fe... mastoid process. Very fetid.	Oct. 24, 1906, to March 19, 1907.	Negative in all respects.	Died Mar. 2[illegible] 1907.
Potassium Iodid; cauterization (Fewsmith). Amputation of tongue, April 11, 1908. Removal of cystic tumor, supra-clavicular region, May 4, 1908. (Bainbridge.)	Treatment begun after second operation.	May 20 to June 12, 1908.	Negative in all respects.	Died later.
No operative interference.	Glands of neck broken down. Ulceration extending to tongue and buccal mucous membrane. Inoperable.	Feb. 10 to Oct. 4, 1908. Discontinued at patient's request.	Negative in all respects.	Alive Jan. 1909. In fairly good condition.
None.	Irremovable, ulcerating tumor involving uterus and vagina. Loss of 20 pounds in weight in [illegible] months, fetid bloody vaginal discharge.	April 10 to June 27, 1908. No injections.	Lotio Pancreatis caused slight temporary improvement in fetid discharge. Otherwise negative.	Discharged by request June 27, 1908. Died later.
None. Operation refused.	Large mass in breast, nipple retracted, axillary glands enlarged. Operable.	June 1 to Nov. 2, 1908.	Negative in all respects. Development of disease very slow but progressive.	Alive April 26, 1909. About the same as when treatment was discontinued.
None. Operation refused.	Hard mass size of orange in breast, glands of neck carcinomatous.	March 13 to Oct. 2, 1908. Discontinued at patient's request.	Negative in all respects.	Lost sight of.
None. Operation refused.	Hard mass size of orange in neck.	May 1 to June 15, 1908. Discontinued at patient's request.	Negative in all respects.	Discharged June 20, 1909. Died later.
None.	Inoperable. Cachectic, weak, emaciated, vaginal discharge, pain in back.	Jan. 13 to April 11, 1908, injections of sterile water, and the internal treatment. April 11 to May 1, 1908, full Trypsin treatment.	Did as well upon the injections of sterile water as upon the trypsin and amylopsin injections. Negative.	Died July 1908.
Salves, washes, X-ray, at intervals for several years (other physicians). Removal of involved soft parts and resection of lower maxilla, 1908 (Bainbridge). April 18, several subsequent curettments of granulating surface and removal of necrotic tissue (hospital). Removal of diseased soft parts and resection of 2 inches of central portion of lower maxilla; plastic operation, Dec. 19, 1908. (Bainbridge.) Removal of necrotic bone, Jan. 19, 1909. (Bainbridge.)	Treatment begun after second operation (June 3, 1908 for removal of necrosed bone.	Sterile water injections and regime, June 3 to 9, 1908. Dietary regime, with occasional resort to the internal medication, continued during stay in hospital.	General condition improved, probably due to regime. Disease progressed, despite frequent operations.	Discharged improved, Feb. 9, 1908.
Breast removed, June, 1906 (another hospital). Recurrence in chest wall excised, outer surface of ribs and costal cartilages curetted, April 13, 1908; supraclavicular region explored and nodules encroaching upon carotid and subclavian dissected out, May 18, 1908. (Bainbridge.)	Treatment begun after second operation.	June 18 to 30, 1908. Discontinued at patient's request.	Injections very painful. Negative.	Discharged July 1908, improved from operation. Lost sight of.
Anterior rectal wall and diseased portion of vagina exsected, June 25, 1907; both ovaries and tubes removed, both ovarian arteries ligated and both broad ligaments constricted by ligature near pelvic wall, Feb. 7, 1908. Further operative procedure impossible. (Bainbridge.)	Treatment begun shortly after second operation; patient in better condition than before.	Feb. 24 to July 31, 1908. (Irregularly.)	Negative in all respects.	Died Aug. 17, 1908.
Hysterectomy, Dec., 1906 (another hospital).	Mass in groin attached to [illegible].	Feb. 20 to April 14, 1908.	Negative in all respects.	Died June [illegible], 1908.
Double oophorectomy, ligation of ovarian and uterine arteries, April 27, 1908; removal of masses from vaginal wall and cervix, May 25, 1908. (Bainbridge.)	Irremovable, condition [illegible] as result of operation.	June 8 to July 31, 1908, regular treatment. July 31 to Aug. 30, 1908, trypsin per rectum.	Negative in all respects.	Died Sept. [illegible], 1908.
Primary growth removed, Oct., 1906 (another hospital). Removal of as much as possible of diseased tissue, April 11, 1908. (Bainbridge.) Excision of submental, submaxillary and superior carotid triangles; ligation of left external carotid, sublingual, superior thyroid, ascending pharyngeal, facial, and posterior occipital arteries, April 11, 1908, subsequent injection of right carotid with paraffin. (Bainbridge.)	Treatment begun immediately after ligation of arteries. Irremovable.	April 13 to July 23, 1908.	Negative in all respects.	Discharged by request, July 24, 1908.
Tracheotomy (another physician).	Dyspnea, general condition [illegible].	Dec. 19, 1907, to June 13, 1908. Large doses [illegible].	Improved somewhat for a time.	Died July 2, 1908.
None. Refused operation.....	Tumor in breast hard and [illegible], involving entire gland.	July 20 to Dec. 11, 1908.	Malaise, insomnia and pain decreased definitely. Decreased by [illegible].	Discharged Dec. 11, 1908. Lost sight of.
Medicinal and dietetic. Refused operation.	Anemic, cachectic, [illegible], losing weight. Tumor [illegible] hen's egg in body of [illegible].	May 1 to July 8, 1908.	Tumor decreased in size, pain alleviated, gained 20 pounds in weight, returned to work.	Died a few months later from pneumonia.

treatment instituted July 1, 1907, and continued until April 4, 1908. During this time the patient received 70 injections of trypsin and 40 of amylopsin. The internal treatment was given throughout the entire time the patient was under observation. Three abscesses formed at the sites of injections, apparently from nonabsorption of the material. During April and May there was a gradual increase in the size of the left arm, which slowly decreased during June.

In September, at the patient's request, the trypsin injections were again instituted. Twelve injections of trypsin and four of amylopsin were given during the second course of treatment. At the time of beginning the blood examinations in April, 1908, the patient had been on amylopsin for over a month. During April there was a relative lymphocytosis (increase of small mononuclears) of 9 to 20 per cent. above the normal average, the total number of small mononuclears varying between 3,420 and 6,195 per cubic millimeter. This was in the month preceding the marked evidences of renewed growth objectively present in May. The relative increase of these small mononuclears in May was 8 to 11 per cent. above the normal average. From July 15 to September 1, but one blood count was made. During the second return to trypsin injections the per cent. of small mononuclears was not relatively increased as constantly or as high as in the preceding months, the total numbers averaging between 1,160 and 3,325 per cubic millimeter. The eosinophiles during April and May varied between 155 and 245 per cubic millimeter; after discontinuing all injections between 85 and 113 per cubic millimeter, during September and October they increased to 300 per cubic millimeter.

Case 91.—Ephithelioma of Chin and Lower Jaw. Control case. Sterile water injections were begun the last of May, shortly after the second operation. The blood counts showed a marked relative lymphocytosis, there being from 44 to 49 per cent. of small mononuclears in a total white cell count varying between 7,500 and 8,500. June 11 they dropped to 24 per cent., rising relatively to 48 per cent. on June 16, two days before the patient's third operation. The eosinophiles increased from 37 per cubic millimeter June 4 to 552 per cubic millimeter June 16—to be expected from involvement of bone. A white cell count was not again made until July 25, when there was a relative lymphocytosis of 35.8 per cent. of large mononuclears and transitionals out of a total count of 6,000 white blood cells per cubic millimeter. The increase of small and large mononuclears continued until the fourth operation, August 25, 1908. Two weeks later the counts were relatively 26.2 per cent. and 8.8 per cent., the polynuclears being 63.8 per cent. September 23 the small mononuclears were again relatively high, 43.8 per cent., while the large mononuclears were nearer normal, 7.8 per cent. The small mononuclears varied the following five weeks between 38 per cent. and 43.4 per cent. During these five weeks the total white cell count varied between 9,500 and 11,000 per cubic millimeter. The eosinophiles increased from 105 to 315 per cubic millimeter. Injections of sterile water were now discontinued; the internal administration of holadin was also stopped. The patient began to gain in weight at the rate of a pound and three-quarters a week. The hemoglobin improved slightly and the number of red cells increased.

IVY POISONING.

By ADDISON W. BAIRD, M.D.,

NEW YORK.

At this season of the year there occur many cases of ivy poisoning, from the plant *Rhus toxicodendron*. The symptoms of redness, swelling, and heat, with formation of vesicles of bullæ, and sensations of itching and burning, are well known. The trouble is of all degrees, from a mild erythema to severe inflammation accompanied by constitutional disturbance. The disease is ordinarily self-limited, so that there are many apparent cures. Applications of lime-water, bicarbonate of sodium solution, lead wash, or grindelia robusta, and decoction of sweet fern, locally and internally, are all considered good and modify the discomfort in many cases.

In the *Journal of Biological Chemistry*, Vol. II, No. 6, 1907, S. F. Acree and W. A. Syme relate the results of an exhaustive study of rhus poisoning in a paper entitled "The Composition of Toxicodendrol." They found that the poisonous principle was neutralized by permanganate of potassium, used preferably in warm 2 to 4 per cent watery solution.

From my own observation I have formulated the following treatment:

1. No scratching.
2. No ointments in the acute stage.
3. No bandages, for these tend to spread the poison to the adjacent surface. If any protector is necessary, let it be a loosely applied dressing of absorbent cotton, kept moist at all times and changed at short intervals.
4. Frequent and copious washings with lukewarm water and an unirritating soap. This dissolves and removes the poisonous serum which is exuded from the vesicles, and prevents its spread to the surrounding skin. Alcohol is a solvent of the poisonous principle, but the use of it tends to spread the trouble. In handling the inflamed surface it is best to wear rubber gloves.
5. After the parts are washed, apply warm solution of 2 to 4 per cent of permanganate of potassium. This completely neutralizes any poison with which it comes in contact. The strength of the solution and how often it is applied is a matter of judgment with the physician.
6. After the acute stage is past, when the disorder is considerably abated and a condition of eczema exists, the use of water may be objectionable and soothing ointments are permissible.

Permanganate of potassium stains the skin, but this is a small price to pay for the relief it affords. Hence it is hardly worth while to try to remove the discoloration by oxalic acid or other means.

239 West Seventieth Street.

Ulcerative Stomatitis.—M. H. Grenet says that stomatitis is not truly membranous, since the supposed membrane is composed only of débris of the mucous membrane. It occurs especially when the teeth are erupting, under defective hygienic conditions. It is emphatically contagious, directly and indirectly. It may develop spontaneously in an infant who has not been exposed to infection. The cause is generally spirilli and fusiform bacilli associated with other microorganisms. The characteristic is necrosis of the mucous membrane. The breath is exceedingly fetid. Ulcerations may occur at any point of the lining of the mouth. The submaxillary glands are engorged, there is salivation, and buccal pain. It may be very chronic in course. Complications are rare. The use of chlorate of potash is almost a specific for the disease.—*Gazette des Hôpitaux.*

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RADIOACTIVITY AND CARCINOMA.

ALTHOUGH it has long been known that undue exposure of the integument to the *x*-rays may result in carcinoma, and also that exposure of a superficial cancer to the action of the *x*-rays and of radium may cause the disappearance of the neoplasm, it is only recently that a serious effort has been made to determine the relation of radioactivity to malignant growths. We should say, rather, that it is only recently that the results of such a study have been published, for Lazarus-Barlow, who has now given the world an account of his investigations, has been engaged in the work a long time and has conducted it in a most painstaking and accurate way. An interesting account of these prolonged researches was given by him in the Croonian Lectures delivered before the Royal College of Physicians of London in June, and published in *The Lancet* of June 26, 1909.

The investigation was prompted by the undoubted fact that workers in *x*-rays are liable to suffer from carcinoma of the hand, and with this fact in mind Lazarus-Barlow studied the radioactive properties of certain substances which are supposed to be causative of cancerous growths, such as soot, paraffin, tar, gallstones (cholesterin), clay pipes, etc., the idea being that possibly radioactivity might be an etiological factor in many or all cases of carcinoma. The numerous experiments elaborately detailed in these lectures cannot possibly be epitomized in a few paragraphs, though they are of great interest and worthy of careful study, and space will permit only of comment on certain facts in connection with them. He studied the radioactivity not only of these supposed causative factors in carcinoma, but also of certain animal tissues and organs, which are the frequent sites of cancerous growths, and of the neoplasms themselves. He tested first the so-called scotographic power of these substances and tissues, that is the power possessed by them of affecting a photographic plate in the dark, admittedly only one of the characteristics of true radioactive substances. Some of them had this power and some had not, and some of those that did have it also behaved in certain other respects like the radioactive materials of the physicists, but in no single instance did they respond to all recognized criteria. Some animal extracts displayed powers resembling those of radioactive substances and to a certain extent influenced the rate of development of animal cells, and the lecturer thought it not improbable, or at least not impossible, that the laws of radioactivity as now held might require some modification when adopted into biology, owing perhaps to the presence of the protein molecule, as in the case of osmosis. Some years ago he showed that a minute trace of protein profoundly modifies the rate of osmosis, and in these lectures he has apparently shown a similar modification in reference to photographic, or scotographic, and electroscopic results.

Some interesting points were brought out as to the respective liability to cancer of men and women and that of different tissues and organs, as disclosed by the statistics of the Middlesex Hospital. All groups show a rising liability with increasing age, but this does not continue to end of life, except in the case of cancer of the lip. In every other instance a maximum is reached, after which the liability to cancer diminishes more or less suddenly. This maximum of one organ does not occur at the same age as that of another, nor do the ascents and descents correspond in height or rapidity in all cases. There is a great contrast between cancer of the lip and that of the uterus which may depend upon difference in the cause or in the tissue. Cancer of the breast, coming as it usually does after more or less inflammatory reaction, may be in line with carcinoma in old cicatrices and ulcers. In the alimentary canal the liability is much greater in men, and further, it reaches the maximum ten years earlier and persists five years longer than in women. This, however, can hardly be due to any difference in the tissues of these parts in the two sexes. There is a striking difference between the liability of the lip and that of the tongue and other parts of the mouth, in spite of similarity of tissues and of the conditions to which they are subject. On the assumption that the pipe is related to the disease in the lip and the teeth to that in the tongue, the liability and the time limits in the two situations are readily explicable. If this means chronic irritation, as commonly expressed, Lazarus-Barlow says the term is meaningless or only indicates some common factor of a great variety of conditions, and he asks if it is not possible that this factor may be radioactivity. If such were the case, the lecturer maintained, it would fall in line with many facts recently made known and at the same time would not be opposed to some other widely held beliefs, such, for example, as the existence of cancer houses, which could be accounted for by the presence of some radioactive substance in the building material or even in the soil upon which such houses were erected. Nor did it necessarily conflict with Cohnheim's theory of embryonic rests or with Virchow's theory of mechanical irritation or with Adami's theory of habit of growth, since radioactivity in the causative agent or in the tissues might be the underlying force in each. Even the microbic theory might be reconciled with this idea, for it is supposable that the assumed bacterial or protozoan agent in such case might be radioactive.

We must confess that these researches of Laz-

arus-Barlow, interesting and novel as they are, do not seem at first sight to promise much in the way of a solution of the teazing cancer problem. The clay pipes, tar, and paraffin, among other substances, gave no sign of possessing any radioactive power, not even scotographic power, which even wood possesses in a degree, yet the clay pipe especially he believes to be a potent factor in the production of cancer of the lip. The theory of chronic irritation, which, as we have seen above, he characterizes as meaningless, has more meaning than that of radioactivity in the case of the clay pipe, a substance which has no trace of radioactivity. Nevertheless this work, inconclusive as it is in its results, is deserving of careful study and extension. Many of the facts brought out in the course of the investigation are striking and the light they throw on the problem, though revealing little as yet, may show the way to future discoveries of great and far-reaching importance. Further investigation along this line may indeed explain away the discrepancies now forbidding an acceptance of the theory, but even should they fail to do so, work of this kind is never fruitless and it may prove to have an important bearing on other biological problems, even if it does not explain the origin of cancer.

THE USE AND ABUSE OF HIGH FREQUENCY CURRENTS.

Electric currents at extremely powerful pressure, known as high-frequency currents, a few years ago were lauded to the skies as a remedy, if not a cure, for a vast number of complaints. Many members of the medical profession, itself, not only highly recommended this form of treatment, but practised it upon their patients. There were those who, but a comparatively short time ago, held that high-frequency currents were by way of being a sort of universal panacea, which, moreover, required little technical knowledge to apply; the result being that numerous physicians who knew scarcely anything of the subject installed in their offices high-frequency apparatus, and were surprised and chagrined when they found that cures did not come in the way they had anticipated. The treatment lent itself so easily to charlatanism that it was exploited by individuals not of the medical profession, and sometimes, we fear, by physicians themselves. The temptation to abuse high-frequency treatment is strong. The apparatus is impressive in a high degree to the eye of the layman, and especially it may be said to the lay woman. It is noisy with a businesslike, somewhat scientific kind of noise, the violet brush discharges and sparks are fearfully attractive, and the *tout ensemble* is particularly well calculated to impose upon ignorance.

As a consequence of the abuse of these currents, high-frequency treatment has come, to some extent, to be regarded with disfavor by specialists and physicians in this and other countries. At the same time, there is no doubt that D'Arsonval obtained very successful results when he first applied these remedial measures to the human subject some years ago, and it is probable, indeed more or less certain, that most of the secret of success in applying high-frequency currents is that one should be an expert in their manipulation, and should also thoroughly understand the various effects of the currents on the system. The physician who makes use of these methods in the treatment of disease must be conversant with his subject from all points of view.

In the *Lancet* of July 3 is a paper dealing with the matter, read recently before the Brighton and Sussex Medico-Chirurgical Society by Dr. F. C. Bailey, medical officer in charge of the electrical department of the Sussex County Hospital. This paper goes to show that the maligned high-frequency currents have great possibilities, but that these possibilities are, of course, limited, that the treatment is not by any means a "cure-all," and that to attain the greatest measure of success the methods must be intelligently applied by a person who is endowed with scientific and technical knowledge. The peculiarity of the high-frequency current lies in its extraordinarily rapid alternation, changing its direction something like a million times a second. It is obvious that a current changing with such rapidity, when sent through the human body, is of too brief duration to cause pain, or to burn or to make the muscles jump, as an ordinary current, but it has an action on the tissues which has been named microscopic massage. According to Dr. Bailey these very powerful currents produce four separate effects on the human system, according to their mode of application. These effects seem to be a raising or lowering of the tone of the heart or blood-vessels, a third kind of application is said to be indicated in the treatment of inflammations, while a fourth will stimulate the general activity of the tissues. Therefore it is asserted that if the particular effect required in the individual case be considered, high-frequency currents can be made use of with good results, always bearing in mind that they have their limitations.

All researches into the question show indubitably that the technique of high-frequency treatment cannot be mastered without the gaining of considerable experience in the manipulation of the apparatus; and, naturally, if the apparatus be not worked properly and applied with due discrimination, good results will not ensue. Undoubtedly in the past, the currents have been applied indiscriminately, and to this fact is doubtless due the disfavor into which the treatment has fallen.

Dermatitis Pediculoides Ventricosus.

For the past eight years there have occurred, in and about Philadelphia, cases of what seemed to be a new, and certainly was a decidedly puzzling, form of skin disease. The condition appeared in epidemic form, prevalent in the summer months, the small epidemics being localized to certain districts and even to particular houses. The eruption made its first appearance in a form resembling simple urticaria, in the middle of the wheals, however, soon appearing minute vesicles, these later becoming pustular. The onset of the attacks was sudden, and the duration several weeks, during which time the itching was so intense that the patients

often were obliged to abandon their occupations. The etiology of the condition was quite obscure, until recently when an outbreak among the sailors of a yacht in the harbor of Philadelphia called the attention of Goldberger, of the U. S. Public Health and Marine Hospital Service to it. He started an investigation with Schamberg, of Philadelphia, which has recently been published in the Public Health Reports, Vol. XXIV, No. 28. In all, nearly one hundred and twenty-five cases were investigated, these coming from the crews of five boats and the inmates of twenty dwelling houses. The first point to be learned, common to all the cases, was the history of recent handling or sleeping on new straw mattresses. Further investigation proved that all of these mattresses had been bought from four dealers in Philadelphia, who obtained their straw from a common source in New Jersey. Volunteers who exposed their bare arms between two of these mattresses, or slept upon them, promptly developed the disease. Some of the straw was then sifted and the dust collected in Petri dishes. One portion was placed in the axilla of a volunteer, and in sixteen hours caused the characteristic eruption. Another portion, after exposure to chloroform, when placed in the opposite axilla appeared to be quite innocuous. On careful search of the dust minute mites were discovered, five of which were obtained and, when placed on the skin under a watch crystal, produced five typical lesions of the disease. The mite was diagnosed at the U. S. Bureau of Entomology as being very close to or identical with *Pediculoides ventricosus*. As proper treatment of the infected mattresses with sulphur, steam, or formaldehyde in a vacuum chamber will kill the mite, the prophylaxis against this disease is now comparatively a simple matter.

The Much-Holzmann Psycho-Reaction.

Attention was called recently to a new blood reaction described by Much and Holzmann, which these authors considered to be specific for dementia præcox and manic depressive insanity, the reaction consisting in the property of the blood serum of such patients to prevent the hemolytic action of cobra venom upon normal blood corpuscles. At the time it was stated that the report of the authors did not seem to be quite convincing, and that before it could be accepted as a specific for these diseases it would require confirmation by less enthusiastic observers. As was to be expected on the appearance of a new discovery of such importance, others at once attempted to confirm or refute the specificity of the new test, and two reports have already appeared upon the subject. One of these, by A. H. Hüber and H. Selter, of the Hygienic Institute at Bonn, was published in the *Deutsche medizinische Wochenschrift* for July 8, 1909. The authors followed the Much-Holzmann technique in eighty-two cases. Their results differed strikingly from those of the authors of the test. Of twenty-seven cases of manic depressive insanity only twelve gave a positive reaction, while eight were doubtful, and seven negative; of twenty-four of dementia præcox, ten were positive, eight doubtful, and seven negative; while of thirty-one controls, comprising various forms of psychic and nervous ailments not belonging to the two classes of psychoses for which the test was considered specific, twenty-two reacted positively, four negatively, and four doubtfully. From these figures it will be seen that the reaction was positive in less than fifty per cent. of the cases for which it was proposed, whereas it occurred in over two-thirds of the cases in which the diseases in question were not present. The second report on the subject is by Felix Bauer, in the *Münchener medizinische Wochenschrift* for July 6, 1909. This author, basing his studies on some previous findings of his own as to the properties of the blood in the umbilical cord of new-born infants, showed that of seventeen specimens of the serum of such blood, fourteen gave positive Much-Holzmann reactions, while the other three were suggestive. If these two series of investigations were properly carried out, it would appear not only that this new reaction is not in the least specific for manic depressive insanity and dementia præcox, but that the very title of "psycho-reaction" is itself a misnomer.

The Cuban Health Department.

A despatch from Havana to *The Sun* of this city last week brought the disconcerting news that there had been a political upset in Cuba, and that as a consequence Dr. Duque, the present most efficient Secretary of Health and Charities, had resigned from the cabinet and would be succeeded by Sr. Alberoi. The same despatch stated that Dr. Juan Guiteras, Chief Sanitary Officer of Havana, had also resigned, giving as his reason for this step that the appropriation for sanitary work had been so seriously reduced that he could no longer accept responsibility for holding yellow fever in check. A similar report was sent out by the Associated Press correspondent in Havana. We are very pleased to say, however, that, in response to an inquiry regarding the truth of this report, Dr. Guiteras has cabled to the Medical Record the gratifying assurrance that both he and Dr. Duque will remain at their posts, and he adds that the sanitary conditions in the island continue to be excellent.

The Money Value of Sanitation.

A writer in *Harper's Weekly*, referring to the successful outcome of Dr. Doty's mosquito campaign, says that he has almost entirely rid Staten Island of the savage *Culex sollicitans* that has hitherto kept away no one knows how many potential residents and made life a burden during the summer months to those already there. He has also all but exterminated the malaria-bearing *Anopheles*. The conquest of the mosquito, the writer states, has increased the value of real estate on the island by hundreds of thousands of dollars; new houses are going up throughout its length and breadth, and residences that have long been inhabited only by caretakers are being rented.

News of the Week.

Life Insurance and Tuberculosis.—A new departure in life insurance work has recently been inaugurated by the Metropolitan Life Insurance Company in the endeavor to aid in the hygienic conditions of their policy holders and thus prolong their lives. The first step in this crusade has taken the form of a pamphlet, the title of which is "A War Upon Consumption," which treats of "The Nature of the Disease; Its Extent, Growth, and Spread; Its Cure and Prevention, including Friendly Advice to Persons Having Diseases of the Lungs." The pamphlet will be sent out to the

1,100 local agents of the company who will deliver one to each policyholder in their districts. Where cases of tuberculosis exist, policyholders are asked to write to the company, in order that information may be forwarded to them concerning nearby sanatoria, tuberculosis hospitals, dispensaries, antituberculosis associations, etc. In addition agents will be notified to give such service as may lie in their power to help the unfortunate policyholders to gain admission or treatment in the proper institutions. The pamphlet is eight pages in length and is published in ten languages. Another move under consideration by the company is the institution of a tuberculosis sanatorium for its policyholders. They have an option on several hundred acres of land to be used for this purpose. As the present law of the State limits the acquisition of real estate by insurance companies to "such as shall be requisite for its [the company's] convenient accommodation in the transaction of its business," there is some doubt as to the possibility of carrying out this latter plan. After a hearing on the question of the legality of such a hospital, held recently in New York, State Superintendent of Insurance Hotchkiss reserved decision. It is expected that the matter will be settled within a few weeks.

Examination for Health Officers.—It is announced by the Indiana State Board of Health that the first examination for those who wish to become eligible for appointment as County Health Commissioners or city or town health officers, will be held in the State house, Indianapolis, September 30. Physicians intending to enter the examination must make application on official blanks before September 23. Blanks and rules governing the examination may be secured from the State Board. The examination will cover generally the fields of hygiene and sanitary science, including drug and food inspection, health statutes, rules of the board, and vital statistics. Application blanks and pamphlets containing the health statutes and rules will be ready for distribution by the State Board of Health on and after August 10.

Reduction in Mortality from Tetanus.—The City of Chicago is to be congratulated upon the outcome of the recent, more rational Fourth of July celebration. "Three weeks have now elapsed," says the Bulletin of the Health Department, "and we can safely conclude as to the effects of this variety of observance. There has been but one death from tetanus during the last three weeks and that was not due to a Fourth of July accident. Last year in the same time there were four. This saving is due to three factors: (1) The use of safer explosives. (2) The lessened use of explosives. (3) The freer use of tetanus antitoxin as a preventive measure. We have not been able to trace a single death directly to explosives used on this occasion. The two Chicago deaths carried in the Chicago papers are but remotely connected with explosives. One was due to a runaway, in which the horse had been frightened by a cracker. The other was caused by an engine running to a fire caused by an explosive. The police should be thanked—the people congratulated."

Epidemic of Meningitis in Nebraska.—A distinctly localized but severe epidemic of cerebrospinal meningitis is reported in Nebraska. In and near the towns of Stromsburg, Osceola, and Benedict over a hundred cases have appeared within a few weeks. The State Board of Health has investigated the subject and has instituted a quarantine of the patients.

Cholera in Russia.—Dispatches from Polotsk, the only city in Russia, aside from St. Petersburg, where the cholera has made much headway, say the city is in a panic owing to the inefficiency of the sanitary administration and the shortage of physicians. Forty cases of cholera are reported daily.

Cholera and Plague in India.—One hundred and thirty-five bubonic and thirty-five cholera deaths were reported to the Amoy officials during the two weeks ended July 24. In the northern interior districts bubonic plague is decreasing, but in the south the disease is on the increase.

Antituberculosis Campaign in New York State.—The State Charities Aid Association of New York announces that at the State fair in Syracuse, and at each of forty-two county fairs this summer, will be shown exhibitions on the subject of tuberculosis. For this purpose six complete exhibitions are being prepared. These will be moved from place to place as the various fairs meet. The exhibits will tell by means of pictures, original charts, and accurate data the story of the extent, nature, growth, spread, cure, and prevention of the disease.

Physical Examinations for Marriage Licenses, as required by the new law in the State of Washington, is receiving the hearty support of the medical profession of that State. Their belief in the benefits to be derived from such a law, properly enforced, is shown by the resolution recently passed by the members of the Spokane County Medical Society agreeing to accept no fees for such examinations.

Report on National Vitality.—Mr. Irving Fisher has recently issued a report as the result of ten years' investigation upon public health questions in the United States. He states that this country is wasting each year a billion and a half dollars on preventable diseases. There are 3,000,000 persons needlessly and continuously ill in the United States from diseases which could be prevented by the simplest hygienic measures. Tuberculosis is responsible for 500,000 persons continuously ill. Typhoid fever costs the country $350,000,000 annually, and malaria $100,000,000. Both of these diseases could be stamped out if proper hygienic attention were paid to them.

The Boston Board of Health has adopted a regulation to the effect that all foodstuffs shown for sale in store windows or other places must be protected from dust and flies by screens or otherwise.

St. Luke's Hospital in New York is to have some improvements made in its laboratory facilities at the cost of $25,000. The bacteriological laboratory will be remodeled so as to improve its lighting and an animal room will be inaugurated.

New Hospital for Guadalupe Hidalgo.—This suburban town in Mexico is to have a thoroughly up-to-date hospital. It is to be built at once and inaugurated on the celebration of the Mexican centennial.

New Hospital in Woodhaven.—The Little Sisters of the Poor of St. Francis in Brooklyn are about to erect in Woodhaven a brick building for hospital purposes. The new hospital will be called St. Anthony's. It will be supported by voluntary contributions.

University Appointments.—Dr. J. F. Powers of Wake Forest has been elected dean of the medical department of Wake Forest College to succeed Dr. W. S. Rankin, who retired to become secretary of the State Board of Health. Dr. E. S. Cain has been appointed lecturer on clinical medicine and pharmacology, and Dr. A. D. West lecturer on clinical surgery and orthopedic surgery at the Memphis Hospital Medical College.

Dr. G. H. Sumner of Waterloo, Ia., has been elected Secretary of the Iowa State Board of Health. Dr. Sumner has been city health officer of Waterloo for the past seven years.

New Brunswick Medical Association.—At the annual meeting of this association, held at St. John, N. B., on July 20, the following officers were elected: *President,* Dr. H. A. Murray of Fredericton Junction; *Vice-Presidents,* Dr. C. T. Purdy of Moncton, and Dr. G. G. Melvin of St. John; *Treasurer,* Dr. D. E. Berryman of St. John; *Corresponding Secretary,* Dr. J. S. Bentley of St. John; *Recording Secretary,* Dr. G. G. Corbet of St. John; *Trustees,* Dr. T. H. Lunney, Dr. C. H. L. Johnston, Dr. R. C. Ruddick of St. John.

The Addison County (Vt.) Medical Society, meeting at Montpelier recently, elected the following officers for the coming year: *President,* Dr. George F. B. Willard of Vergennes; *Vice-President,* Dr R. W. Bentiss of East Middlebury; *Secretary,* Dr. F. H. Phelps of Vergennes; *Treasurer,* Dr. F. C. Briggs of Bristol; *Librarian,* Dr. M. H. Eddy of Middlebury.

American Electrotherapeutic Association.—The annual meeting of this Association will be held in New York City on September 28, 29, and 30, instead of September 14, 15, and 16, as first announced. The president of the Association is Dr. Edward C. Titus of this city, and the secretary, Dr. J. W. Travell, 27 East Eleventh street, New York.

German Surgical Society.—The next annual meeting of this Society will be held at Langenbeckhaus, Berlin, in April, 1910, under the presidency of Prof. Bier of Berlin. The secretary is Prof. Dr. W. Körte, Kurfürstenstrasse 114, Berlin.

Obituary Notes.—Dr. Matthew Turner Newton of Suffield, Conn., died at his home on July 24, 1909, aged 80 years. Dr. Newton was a graduate of the Yale Medical College in 1851. After graduation he began practice in Salem, Conn., and in 1853 was elected to represent his town in the Connecticut Legislature. Shortly afterward he removed to Suffield. During the Civil War he served as Assistant Surgeon in the Third Connecticut Volunteers and as Surgeon in the Tenth Connecticut Volunteers. In 1893 Dr. Newton was again elected to the Connecticut Legislature where he acted as chairman of the Committee on Humane Institutions. He was chairman of the executive committee of the trustees of the Connecticut Library Institution, a director of the Suffield Public Library, and a member of the Hartford County Medical Association and the Connecticut Medical Society. Dr. Newton was one of the best known of the older physicians in his State.

Dr. Joseph Anderson of Denver, Colo., died on July 18. Dr. Anderson was a veteran of the confederate army, and one of the pioneers of Colorado. He was seventy-seven years of age.

Dr. C. Dustin Hunking of Haverhill, Mass., died suddenly at his summer home, at Hampton Beach, on July 23, 1909, at the age of 59 years. He was a graduate of Harvard University in 1871. After studying medicine in Vienna and Strasburg he returned and completed his studies in the Harvard Medical School, from which he graduated in 1877. Dr. Hunking was a man of many interests outside of medicine. He was treasurer of a real estate improvement company, a member of a drug firm, and at one time joint owner and publisher of the *Haverhill Gazette.*

Dr. Albert M. Curry of Brooklyn dropped dead on the beach at Atlantic City on July 26, 1909. Dr. Curry was a graduate of the medical department of the University of Pennsylvania in 1875. He was a member of the Kings County Medical Society and the New York State Medical Association.

Dr. Ernst Jacob of Cincinnati, Ohio, died in that city, July, 1909. He was a graduate of the Miami Medical College in 1889.

Dr. Wesley G. Matchan, formerly of Minneapolis, died July 21, 1909, at Bismarck, N. D., aged 33 years. Dr. Matchan was a graduate of the University of Minnesota, a member of the staff of Governor John Burke, and head physician for the Northern Pacific Railroad. He was also physician for the North Dakota State prison at Bismarck.

Dr. Homer Lycurgus Law of Hartford, Conn., a retired surgeon of the United States Navy, died at his home on July 17, aged 61 years. He was a graduate of the Jefferson Medical College in 1869. He entered the service of the United States navy in 1870 as assistant surgeon, being appointed from Pennsylvania, and in 1875 was made past assistant surgeon. In 1884 he was appointed surgeon and in 1886 was placed on the retired list. In the Spanish-American War in 1898 he was again called upon for active duty. He was chairman of the executive committee of the Hartford Medical Society and a member of the Hartford County Medical Association, and the Connecticut Medical Society.

Dr. Willis P. King of Kansas City died July 12, 1909, aged 70 years. He was a graduate of the St. Louis College of Physicians and Surgeons in the class of 1866. Dr. King was one of the pioneers of Missouri, having spent many of his earlier years in the arduous life of the frontier circuit riding country doctor.

Dr. Bowditch Morton, formerly of New York, died suddenly of heart disease at Long Beach, Cal., on July 17, 1909. Dr. Morton who was in the West for his health was the son of the late Dr. Thomas Morton of Boston.

Dr. Robert W. Muhleman of Bellaire, Ohio, died at his home on July 18, 1909, aged 53 years. He was a graduate of the Pulte Medical College in 1877. He was a prominent physician of Bellaire, where he had practised since his graduation.

Dr. John E. Redmond of Salt Lake City died in that city, July 19, 1909, aged 24 years. Dr. Redmond, on graduation from the medical department of the Northwestern University in Chicago in 1908, was appointed to the house staff of the Cook County Hospital. Failing health, however, compelled him to resign and move West. In Salt Lake City he was appointed assistant pathologist and bacteriologist to the Holy Cross Hospital. He was a member of the Salt Lake County Medical Society, the Utah State Medical Association, and the American Medical Association.

Correspondence.

POSSIBLE INFECTION THROUGH RAGS.

To the Editor of the Medical Record:

Sir:—I was very much interested in your recent editorial on "The Fomites Theory of Disease Transmission" and would like to recite one specific case in favor of the theory as regards scarlet fever.

Many years ago I was called into the country to see a little girl who was ill with scarlet fever. I was just out of college and was an enthusiastic investigator, so I attempted to ascertain the source of the infection. The people were well to do; the surroundings were all that could be desired; the house and everything about it was clean. The child had never been away from home nor had the parents visited a house where there had been scarlet fever, nor had any one visited the house from an infected region. I was at a loss for many weeks to know where the infection came from. Finally the mother made the statement that a few weeks before the child was taken down with the disease, she had received some rags to be used for carpet rags from a relative who lived miles away and that the child had been playing with them. In this case the source of infection was clear, for in the house whence came the rags there had been a case of scarlet fever two years previous.

Laurence R. Ryan, M.D.

Galesburg, Ill.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CANCER RESEARCH FUND—ANTIVIVISECTIONISTS IN CONGRESS—DESTRUCTION OF RATS IN AUSTRALIA—RESEARCH DEFENSE SOCIETY—CONGENITAL STENOSIS OF THE PYLORUS—DR. COLEY AT THE R. S. M.—ITEMS.

London, July 16, 1909.

The seventh yearly meeting of the Cancer Research Fund's General Committee attracted additional attention from the explanation which was expected as to the decision not to unite with the German or the proposed international societies. The Prince of Wales, as president, took the chair, and the gathering was held at Marlborough House. No doubt you are aware of some of the reasons why the proposal of international amalgamation does not commend itself to the workers of our Fund, but it may be well to have the official view of the matter. The report mentions the fact that the German society had addressed the King on the proposal during His Majesty's visit to Berlin. After consultation with the officials and the director the King replied through the Foreign Office that the Fund had cooperated freely in the past both with German and other foreign workers and would continue to do so in the future. Referring to this in his address, the Prince-president stated that he had seen all the correspondence that took place and all the proceedings were submitted to him. He then added that he had given his approval, as he was convinced that the methods adopted by the Fund of freely distributing their material to workers in every country, of permitting anyone with satisfactory credentials to study the methods in their laboratories, and encouraging international collaboration among the workers in the various cancer laboratories, are the wisest and most efficient means of advancing the study of the disease. His Royal Highness referred to other parts of the report and expressed the belief that the seven years' work had brought about a complete change in the standpoints from which cancer is studied and that many various lines of research are being pursued with the minutest care and utmost perseverance. He held, further, that the number of applicants to work under the superintendent, coming, as they do, from all parts of Europe, from the United States, and from Japan, shows the high value attached to work in the Fund's laboratories.

Sir W. Church, in moving the report, said the last year's work confirmed his opinion that the study of the disease in mice formed a sound foundation for its study in the human species. The immunization of animals, if established, would afford another point. The effects of radium was another. The failure of attempts to obtain an anticancerous serum led to attempts to separate, if possible, from cancer cells immunizing powers apart from their continued growth and propagation. Thanks to the seven years' work, he maintained the disease now stood in a very different position, but it was premtaure to hold a general conference.

Sir Henry Morris seconded the motion, which was adopted. As treasurer he had to announce another deficit. Since 1903 no less than £9,915 had been taken out of capital to meet yearly recurring deficiencies. In the year just closed the revenue was exceeded by more than £2,000 and unless substantial help is forthcoming the trustees will be obliged to realize at least £1,000 forthwith. Moreover, the changed ownership of the examination hall may necessitate building new premises. Hitherto the generosity of the two royal colleges has saved this expense. It is to be hoped that the needs of this important work will be shortly met.

Two hundred delegates from thirty countries met last week in London for a conference as an antivivisection and animal protection congress. The opener said their hope was not in the idle rich, but in workers, and every laborer in Parliament was with them. The old "World League" was reconstituted into an International Federation, but not without strong opposition. The object seemed to be to include all societies which advocated kindness to animals in any way—even veterinary hospitals, dog homes, the lethal chamber, and so on; but the abolition of vivisection was the center of the agitation. Medals were presented to the chairman and others. In his reply he said if the women of this country knew what was going on behind the scenes they would express abhorrence of what was done in the name of science, and he hoped to see the day when the most noble of professions would be cleansed of this disgrace of vivisection. Others used more violent denunciations. Of course, such extremists went in for a procession to wind up their congress. They succeeded in having a fairly large one, though small in comparison with the amused lookers-on. One of these informs me that part of it was very pretty, especially the women with their pet dogs duly dressed and either led or carried. House ambulances, the animals' hospital, the drivers, the humane work of giving oatmeal and water to cab horses, etc., on hot, sunny days, were all represented. Then came half a dozen donkey carts and as many pony traps, three ladies on horseback to represent the Anti-Bearing Rein Association, and, besides, other demonstrators, the Theosophical Society! Banners with strange devices, speechmaking in the park and resolutions that vivisection is immoral, and calling on Parliament to repeal the acts concluded the demonstration. Future congresses are to be at two years interval—the next at Copenhagen and the one after it in the United States. So you must wait for it for four years. Be patient.

There seems to have been a split among these united agitators for the "World League," which devotes itself to total abolition, advertises that it will treat us next week to another congress—its fourth triennial and international—on the same lines, procession, speeches in the park, and other features of the demonstration.

Some of the most extreme agitators went so far as to assert that medical science had done nothing for epidemics like plague. Evidently they had not heard the late news from Australia on this point. How at Brisbane, where it prevailed for several successive years, the destruction of rats and mice to the number of nearly 20,000 had prevented its recurrence. How, in all Queensland, some 35,000 of these animals had been destroyed, about half of them had been carefully examined, the result being most satisfactory.

Of course the Research Defense Society could not descend to the methods of the antis; but the secretary (Mr. Stephen Paget) has sent a letter to the press inviting those who would like to study, quietly at home, the truth about experiments on animals, under the restrictions of the acts, to apply to him for literature on the subject, and, if convinced, to become subscribers to the society. He adds that the committee is making arrangements to extend the society's work during the coming winter by lantern lectures, the distribution of literature and the formation of branches.

I hope the literature sent out will include the forcible speech of Lord Cromer as president of the annual meeting on the 24th ult., when, in the course of a most clear and convincing account of the work, he declared that any one who took the trouble to read the evidence before the Royal Commission would find that there was not a single alleged case of extreme or unnecessary cruelty brought forward by the antivivisection society which did not hopelessly break down under cross-examination.

In the Section for Diseases of Children of the Royal Society of Medicine Dr. G. Carpenter showed 3 specimens. (1) Hypertrophic stenosis of pylorus from a

female infant of three weeks. When admitted it was not considered fit for operation. (2) Morbus cordis with transposition of viscera, a cyst in the tongue, and a solitary kidney. (3) Congenital dilatation of the colon. This was from a child shown at a former meeting of the section, when the suggested diagnosis was not accepted by all. Later the child wasted more rapidly and the large colon could be seen through the abdominal wall, and contraction was easily excited by flipping with the finger. The colon measures 17½ inches, and is about 5 inches in circumference at the widest part. Dilatation begins at the ileocecal valve and ends at the rectum. No ulceration of the mucous membrane.

Mr. Clinton Dent demonstrated by cinematograph the movements of the stomach as seen through the abdominal wall in a child at eight weeks with hypertrophic stenosis of the pylorus. At birth the child weighed 8 pounds, on admission to hospital 5; this was 11 days before death, operation not having been considered safe.

On Tuesday last the Surgical Section had the pleasure of a lecture by Dr. W. B. Coley, from your city, on his treatment of sarcoma by bacterial toxins. He said he had successfully treated 52 inoperable cases, of which 35 remained well after from 3½ to 16 years; 28 after 5 to 16, and 14 after 10 to 16 years. In all but 2 out of the whole 52, microscopic examination confirmed the diagnosis. About 100 successes had been reported by other surgeons. In reference to the slowness of acceptance by the profession of his views he said history clearly proved that there was no relation between the value of any discovery and its general acceptance. A vote of thanks was carried by acclamation on the proposal of Mr. Butlin, seconded by Sir A. Wright.

The first number of "Heart: A Journal for the Study of the Circulation," has appeared under the editorship of Dr. Thomas Lewis, assisted by a strong staff of British and American experts. It is intended to include only original work on the subject.

Mr. H. T. Butlin has been elected the new president of the Royal College of Surgeons. Mr. Pearce Gould and Mr. R. C. Lucas are the vice-presidents.

Mr. Bowerman Jessett has resigned the office of senior surgeon to the Cancer Hospital.

A farewell banquet was given to Sir F. Semon on the 2d inst. on the occasion of his retiring from practice.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

JOINED TWINS—HARMFUL MOSQUITOS—CRUDE CHAULMOOGRA OIL IN LEPROSY—CULTIVATION OF THE LEPROSY BACILLUS—TRANSPLANTING CHOLERA CULTURES—PERSONAL.

MANILA, P. I., June 21, 1909.

THE regular monthly meeting of the Manila Medical Society was held in the lecture room of the Philippine Medical School, June 7, 8:30 P.M.

Dr. Valdez, the professor of practice of medicine at the Santo Tomás University, exhibited a case of male twins six months of age, of Filipino parentage, who were firmly joined together, apparently by osseous union of the two sacra. Each child was apparently a complete anatomical unit in itself, with the exception of the anus, which served for both children.

Captain Rutherford, assistant surgeon, U. S. Army, exhibited a number of eye cases, one of which was a case of detached retina.

Dr. Charles S. Banks, entomologist of the Bureau of Science, gave a talk upon the harmful species of mosquitos in the Philippines and their morphology. Among other things of interest he stated that the mosquito which had been heretofore known as the *Stegomyia fasciata*, and which was so abundant in the Philippines, was, in all probability, the *Stegomyia perstans*. Also, that Theobold had practically come to the conclusion that the Philippine mosquito which he had previously described as the *Myzomyia ludlowii* was in all probability the *Myzomyia rossii*. In the discussion which followed Dr. R. P. Strong laid special stress upon the fact that much confusion existed at present with regard to the classification of Philippine mosquitos, and that this was a serious handicap in the study of tropical diseases.

A paper by Dr. A. J. McLaughlin, the Assistant Director of Health, entitled "Sanitary Measures Against Mosquitos," was read by the secretary. He outlined the attitude of the Bureau of Health toward the eradication of this annoying and dangerous pest. The local health authorities have had considerable criticism heaped upon them for not taking more measures looking toward relief. In explanation of this, Dr. McLaughlin stated that much relief might be had if the householders themselves would destroy the purely domestic breeding places, like rain barrels, fire buckets, cisterns, tanks, and other places directly under their control. However, the great source of mosquitos in Manila were the great tidal swamps which were daily overflowed by the water in the esteros or canals not being confined to their walls, and on this account it was a waste of public funds to attempt the temporary measures which often proved successful in other countries. He was of the opinion that in spite of the fact that it was estimated that several million dollars would be necessary to fill in the low lands and to wall the esteros, the resulting gain in the increased value of real estate would more than offset the original expense, and that until this was done Manila could scarcely be expected to have a permament low mortality rate.

Since the treatment of leprosy with crude chaulmoogra oil, as recommended by Dyer, was begun by the Bureau of Health, the results have been much more encouraging. Two cases that have been under treatment at Culion clinically have the appearance of having completely recovered. All of the nodules or tubercles, some of which were several centimeters in size, have been completely absorbed and the leprous dermatitis has entirely disappeared. It was only after many specimens for microscopical examination were taken that a few scattered bacilli could be found.

In this connection it may be interesting to note that since the paper which was read at the annual meeting of the Philippine Islands Medical Association by Dr. Moses T. Clegg, in which he reported having apparently cultivated leprosy bacilli from cultures which were taken from the spleen of leprous subjects at post mortem, he has succeeded in cultivating the bacilli from cultures taken from the ear of live cases, and that the technique has been verified so frequently that there can be little doubt but what true leprosy bacilli are being actually grown. In addition, there has now been made a vaccine from these cultures which, when injected into leprous persons, produces a most pronounced reaction in the leprous lesions. The results along this line will shortly be reported before the Manila Medical Society.

Lately the Bureau of Health has used a method of transporting cholera cultures over long distances, and especially where a number of days must elapse before they can reach the laboratory, which has proved very successful in practice and has done much to verify the diagnoses which are made in remote sections of the islands. Some peptone is inoculated with a specimen of the stool and allowed to grow for twelve hours; transplants are then made upon agar tubes and these are then placed in mailing cases and sent to the laboratory. Heretofore the difficulty has been that extraneous organisms in the peptone culture soon overgrew the cholera spirilli and that none of the latter could be recovered.

J. R. Hurley, assistant surgeon, P. H. and M. H. S., who was formerly one of the quarantine officers on duty at San Francisco, has been transferred to the Philippines and is now on duty at Manila.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 22, 1909

The Bearing of the Experimental Investigation of Tumors on the Tumor Problem in General.—E. F. Tyzzer says that the pessimism sometimes expressed concerning the cancer problem serves only to discourage investigation. It is evidently based in many instances on the assumption that all tumors arise from congenital defects or abnormalities. The successive description and exploitation of a long list of pseudo-parasites has served to bring discredit to this field of investigation, and the inadequacy of various theories advanced concerning the origin of tumors have served to strengthen the doubt. It is sometimes stated that there is no advance in our knowledge of tumors. In addition to the establishment by clinical observation of the part played by chronic inflammation, the experimental investigation of tumors has yielded certain definite results, which show such statements to be erroneous. It is

proven by transplantation experiments that cancer cells differ biologically by their property of unlimited growth from normal tissue cells. Peculiar conditions are not essential for the continuation of this growth. Certain tumors grow in normal individuals. Other tumors, however, require a special soil; they grow if transplanted into other parts of the same individual, but not if transplanted into other individuals. Growth is found to depend upon the biological character of the cells and not upon their dislocation. The experimental investigations have made untenable the interpretation of cancer as an infectious disease. The development of sarcoma in animals inoculated with epithelial tumors is interpreted by most investigators with whom it has occurred to be the result of the irritating influence of the tumor epithelium. The demonstration of the presence of substances which prepare tissue for growth on subsequent injury or stimulation is of great importance. There is, therefore, no more basis for pessimism with regard to the tumor problem than there was formerly for a similar attitude with respect to the problem of the infectious diseases. The essential problem is one of growth and its investigation concerns the biologist, the zoologist, and the embryologist, as well as the physician.

An Epidemic of Infantile Paralysis in Western Massachusetts in 1908.—Herbert C. Emerson deals with the groups of diseases attacking children chiefly, but youths and adults frequently up to the age of 25 years, among the inhabitants of river valleys, in sparsely settled communities, occurring during the summer months of a hot, dry season. Ninety per cent. of the persons attacked were in good health. The investigation of this group of cases suggests that the disease is but mildly contagious. The sanitary conditions under which most of the cases lived were not good. Dampness prevailed in many localities. Most of the houses had no sewer connection. The marked digestive disturbances, which were early and notable symptoms, suggest the stomach as the port of entry for the infection. That the cause may be connected with the food seems possible. From an intimate acquaintance with all the facts and conditions of this outbreak he concludes: (1) That infantile paralysis is a disease produced by some external agent; that is, it is an infectious disease; (2) that it is mildly contagious at the most; (3) that the harmful agent appears to enter the digestive tract in most instances; (4) but that until the organism causing the disease is known, it would be impossible to say whether the infection is carried directly to the patient or by means of food.

The New York Medical Journal, July 24, 1909.

Some Conditions in the Growth of Tumors.—Leo Loeb formulates the cancer problem in three questions: (1) Under what conditions does a tissue assume an increased energy of growth? (2) Under what conditions does a hereditary transmission of an acquired increase of growth energy to the succeeding cell generations take place? (3) Why do we find an infiltrated growth in cancer? An increase in the energy of tissue growth can be accomplished by wounding the tissue. Such a regenerative proliferation usually leads merely to the replacement of lost cells, and ceases as soon as the wound has healed. If incisions are made into the uterus of a guinea pig during the first nine days after the rupture of a follicle, each cut, or almost each cut, leads to the formation of a tumorlike deciduoma. During the early period of its existence the corpus luteum secretes a chemical body which unites with the mucosa of the uterus and acts as a sensitizer, sensitizing the mucosa and leading it to act in a different way, that is leading to the production of tumorlike new formations where ordinarily the uterus would only have shown the processes of wound healing. In order to obtain a tumorlike growth we must look for a combination of factors, namely, the action of a chemical sensitizing substance and of an external exciting cause. Therefore, we have not been able to produce cancer through trauma because of a lack of knowledge of the internal factors. There exists in all likelihood a correlation between internal sensitizing and external stimulating factors of such a character that the stronger the one set of factors is represented, the less is required of the second set of conditions. External stimuli, such as the long-continued use of arsenic or the long-continued use of Röentgen rays, represent an important set of factors in the etiology of cancer of the skin, and it is reasonable to assume that cancer of the internal organs is preceded by stimuli which have acted over an extended period. The importance of external stimuli in causing proliferation of tissue not only applies to normal tissues and to those in process of transformation into tumors, but also to cancer cells. An increase can be produced through mechanical stimuli, as cutting into the tumor or by pulling a thread through its entire diameter. In a similar way, in the serial transplantation of tumors there is usually an increase in the energy of growth. This, however, does not apply to all tumors. Not all are equally affected by mechanical irritation. An occasional transformation of a benign to a malignant tumor, after an operation, is due to mechanical stimulation and not to changes in the blood supply. Abnormalities in embryonal development, which lead to the misplacement of tissue, and to the formation of teratomata, which cause such insignificant conditions as pigmented moles, were especially liable to form cancer. Stimuli which in normal tissues would be harmless lead here not infrequently to the formation of malignant tumors. It is, therefore, expected that tumors resulting from such embryonal malformations should likewise sometimes be hereditary. Not only the hereditary transmission of anatomical developmental peculiarities, but also of invisible metabolic or functional conditions may, in all probability, occasionally lead to the extraordinary frequency of cancer cases in certain families. Under what conditions the hereditary transmission of the increase in the energy of growth takes place is as yet very little understood. Dr. Loeb has found that the increase of growth energy accompanying regenerative processes is not transmitted into the succeeding generations of cells: on the other hand, at least a temporary transmission of the increase in growth energy acquired through stimulation of the lens of certain amphibia by ether takes place, according to Reinke. From certain clinical evidence it seems that transmission can be induced. The presence of intracellular micro-organisms can explain such a hereditary transmission in the increase in the energy of growth, but it was by no means necessary to take refuge in such an interpretation for all cases. There is one interesting condition which seems especially to call for the presence of microorganisms, namely, the endemic occurrence of cancer, which is so very much more striking among animals than among man.

Colles's Fracture, with Special Reference to the Lateral Deformity.—Paul P. Swett discusses that variety of Colles's fracture wherein there is a transverse fracture of the lower end of the radius with displacement of the lower fragment upward and backward, elevation of the radial styloid, lateral displacement of the hand outward, and widening of the wrist below the site of the fracture. The probable immediate effects of a fracture with displacement of the lower end of the radius are: Lateral and upward displacement of the lower radial fragment with impaction of the lower end of the upper fragment into it. Fracture of the ulnar styloid, rupture of the ligaments of the wrist joint, and rupture of the interarticular fibrocartilage. A study of the mechanism of Colles's fracture shows that there are severe injuries to ligaments and to cartilage which place it in a class by itself and which serve to explain some of the difficulties attending its successful treatment. Ligaments and cartilage when only partly healed are more susceptible to strain than when uninjured. Frequently repeated slight strains produce a traumatic inflammation that closely simulates rheumatoid arthritis and is often mistaken for it. Muscles and tendons atrophied from disuse are more easily strained than active muscles. Protection must be continued for a longer period of time than when these structures are not injured. Passive movements must not be attempted too early, and resumption of function is to be gradually undertaken, and no effort that tires or strains the wrist is to be made. The form of splint is not of so much importance as the way in which it is employed. A single palmar splint, well padded, expending from below the elbow to a little beyond the fingers accomplishes the purpose of immobilizing the fracture and providing support for the injured wrist, hand, and forearm. The splint is padded thickly with gauze just behind the palm and thus maintains the wrist in slight palmar flexion. A fold of this gauze pad is extended around the ulnar side of the wrist and is a guard against slumping of the ulnar head. In very severe cases a strip of adhesive plaster around the wrist, outside of the gauze pad, is valuable in holding the ulnar head more securely. Complete rest for the part cannot be secured with a short splint that terminates at the palm, and the longer one should be used for the first three or four weeks. For the first forty-eight hours it is well to keep the whole appliance wet with water, as this lessens pain and swelling. Immobilization should be continued for at least six weeks in the moderate cases, and for eight weeks or longer in the more severe cases, as a rule. Early passive motion in these cases is especially contraindicated

because the stretching of the torn ligamentous fibers thus induced is particularly injurious. Gentle massage of the skin is indicated, however, where there is the least sign of edematous swelling. After the removal of the splint a leather and steel wristlet is of the greatest advantage. This is a simple wristlet extending from the palm of the hand half or two-thirds way to the elbow. It is reinforced with a light piece of steel in the palm and is made to lace so that it can be removed at will, and thus one may gradually lengthen the periods when the wrist is used without protection..

The X-Ray for the General Practitioner.—Samuel McClary says that a general practitioner has no right to use a drug until he knows its strength, the dosage, and the effect to be expected. He must regard *x*-rays in like manner, and should not attempt to use them until he receives considerable instruction from a competent person, preferably a physician, who has had a large experience, and even then he should start in very cautiously. Mechanical measures of dosage are useful, but one must not rely on them alone. Dr. McClary offers the following general suggestions: 1. Operators should always keep back of the active hemisphere of the tube and never use the hand fluoroscope. 2. Use a protective shield on the tube and protect the other parts of the body that it is not necessary to expose to the rays. 3. Burns are more easily produced where the circulation is the poorest. 4. When reaction is set up, stop treatment until it subsides, as you may burn the patient badly. 5. A new tube should be used very cautiously until its characteristics are known. 6. Be careful of both yourself and the patient. Dr. McClary gives concise directions for the use of the *x*-ray by the general practitioner in many cases such as fractures, foreign bodies, malignant disease, skin diseases, tuberculous glands and sinuses, to outline organs, such as the stomach, and to locate unerupted teeth. He is also of the opinion that the radiographer gets the best results who develops his own plates.

Journal of the American Medical Association, July 24, 1909.

The Hypophysis Cerebri.—Harvey Cushing says the hypophysis of all animals contains a blood-pressure-raising principle, confined to the posterior lobe and restricted to the pars nervosa of this lobe. An extract of this lobe has a marked diuretic effect on the kidneys. This substance seems to be akin to adrenalin, one striking resemblance being the pupillary dilatation which both produce when instilled into the eye. It has been found by S. J. Crowe that successive injections of posterior lobe extract soon fail to raise blood pressure and that repeated daily injections are very deleterious and may even be fatal; they cause extreme tissue changes especially in the liver. This is the main part of what injection methods have taught us of the function of the pituitary body and nothing at all in fact of the function of the anterior lobe which would seem histologically the most important part of the gland. As yet, most of the available preparations contain the extract of both lobes and it can be seen that we are far from a satisfactory organotherapy of the hypophysis. These experimental results pertain to an overactivity of one or another part of the gland. The reverse condition of diminished secretion and its effects could be more easily investigated were it not for the inaccessible position in which the organ is placed. Many investigators have endeavored to reach it safely in experimental animals, but all routes are difficult. Cushing says that the total removal of the gland leads in the course of days, or at the most, of weeks, to death with peculiar and characteristic symptoms. The anatomical separation of the anterior from the posterior lobe by a persisting cleft makes it possible to remove either one of them separately in the dog, the posterior more easily than the anterior. No particularly characteristic symptoms, except possibly some sexual disturbances, appear to follow the removal of the posterior lobe. The case is otherwise with the anterior one, the removal of which produces profound alteration. Cushing summarizes the results as follows: "Two conditions, one due to a pathologically increased activity of the pars anterior of the hypophysis (hyperpituitarism), the other to a diminished activity of the same epithelial structure (hypopituitarism), seem capable of clinical differentiation. The former expresses itself chiefly as a process of overgrowth—gigantism when originating in youth, acromegaly when originating in adult life. The latter expresses itself chiefly as an excessive, often a rapid, deposition of fat with persistence of infantile sexual characteristics when the process dates from youth, and a tendency toward a loss of the acquired sign of adolescence when it first appears in adult life. Experimental observations show not only that the anterior lobe of the hypophysis is a structure of such importance that a condition of apituitarism is incompatible with the long maintenance of life, but also that its partial removal leads to symptoms comparable to those which we regard as characteristic of lessened secretion (hypopituitarism) in man. A tumor of the gland itself, or one arising in its neighborhood and implicating the gland by pressure, is naturally the lesion to which one or the other of these conditions has heretofore been attributed, though it is probable that over-secretion from simple hypertrophy, or under-secretion from atrophy, will be found to occur irrespective of tumor growth when examination of the pituitary body becomes a routine measure in the postmortem examination of all cases in which the conditions suggest one or the other of the symptoms complex described. When due to tumor, surgery is the treatment that these conditions demand, and at present there are reasonably satisfactory ways of approaching the gland; but clinicians and surgeons must clearly distinguish between the local manifestations of the neoplasm due to involvement of structures in its neighborhood other than the hypophysis, and those of a general character from disturbances of metabolism due to alterations of the hypophysis itself."

Optic Atrophy in Tabes.—E. D. Fisher believes the concept, generally maintained, of general paresis is too comprehensive and that the cases continuing over long periods belong to another pathologic state than the type which pursues a briefer course with fulminant active symptoms ending in complete dementia and having also spinal complications involving both lateral and posterior columns. The pathological findings in the more protracted cases are, he thinks, not distinctive of general paresis but are also found in other conditions of arterial degeneration. Other points of differential diagnosis may be suggested by the question whether paresis and tabes are the same disorder. Fisher believes, however, that they are distinct diseases, no typical case of tabes ever passing into general paresis. He thinks that in those cases in which the paretic symptoms were preceded by ataxia, the so-called tabic form of paresis, the pathological spinal cord changes are more diffuse than in typical tabes. The comparative infrequency of pain in paresis and its difference in type when it occurs from that of tabes is one diagnostic point, although there are great variations in individual cases. Added to this point he wishes to call attention to another differentiating symptom, namely, the occurrence of optic atrophy in tabes and its infrequency or absence in paresis. He gives the statements from a number of physicians of the New York State hospitals who testify that this symptom is one of the rarest in paresis. He thinks we are including too many diseases under the common name of paresis.

Morphea-Like Epithelioma.—Premising his remarks with the statement that, so far as he knows, this form of epithelioma has not yet been mentioned in text books on surgery, and is only very briefly alluded to in one work on skin diseases, M. B. Hartzell reports three cases of morphea-like epithelioma. The first patient was temporarily cured by *x*-ray treatment, as was the case with the patient in the second case, which was of interest on account of the early age at which the disease appeared, the patient being only twenty-four. The third case was of more special interest because it was microscopically diagnosed, this not having been permitted in the other two. In all three the disease began as a smooth slightly elevated plaque, of a yellowish-white or yellowish-pink tint, over which numerous small blood-vessels ran, gradually increasing in size and after some time developing ulceration with usually sharp margin. Hartzell reviews the literature of the subject. The progress in these cases was slow and without marked subjective symptoms. Stellwagon seems to be the only text-book author who refers to the subject, and he merely alludes briefly to the possibility of the epithelioma resembling morphea in his treatise on diseases of the skin. In the third edition of Crocker's well-known work, page 1012, the author refers to a case of rodent ulcer, unique in his experience, which Hartzell thinks certainly must have been one of this sort of epithelioma.

Mooren's Ulcer.—R. L. Randolph doubts whether it is possible clinically to identify a rodent ulcer in its first stages, and thinks that, even after the disease has lasted many weeks, it is very probable that many of us would not see more in it than an ordinary severe corneal ulcer. Yet there was in the only case he has seen one feature at least differing from any ordinary corneal ulcer he has ever met with, and that was the deeply undermined conjunctival edge of the ulcer. The edges of marginal ulcers are generally undermined, but, owing to the better blood supply at the conjunctival edge, this edge of the ulcer is

not conspicuously undermined except probably in the case of rodent ulcer. In the case here described by Randolph, the corneal edge was distinctly undermined and the conjunctival edge could be lifted up and was undermined for at least four or five mm. from the border of the cornea. Chronicity is characteristic in rodent ulcer. Its average duration is ten months and it may be longer. The disease would seem to be somewhat more frequent in Japan, according to the number of cases reported by Japanese observers. It is a mistake to think that the disease is a painless one, for it is characterized by frequent attacks of suffering and irritative symptoms generally. The ulcer shows a decided tendency to keep close to the limbus of the cornea and one of its peculiarities is a tendency to clear up and apparently disappear and then suddenly relapse. In most cases the disease dies out after the whole cornea has been involved, but exceptionally recurrences take place. As a rule, it is seen in individuals over forty and probably is never seen in children. Men are more liable to it than women and it is not infrequently found in both eyes, though Randolph doubts its simultaneous occurrence in both. We are in the dark as to its etiology though there are some that claim that disturbances in the sensitive nerve endings are somewhat responsible. Randolph could find no positive evidence of anesthesia except when the nerve endings had been destroyed and he is inclined to think that the disease is of bacterial origin. He says: "When one meets a corneal ulcer along the margin, careful examination should be made to ascertain whether the limbus edge of the ulcer is deeply undermined. If so the cautery should be applied at once, and it might be well to cut away with a delicate pair of scissors the overhanging edges of the ulcer so that parts underneath can be readily reached. If the disease shows no substantial improvement at the end of two months, I think it best to stop all irritating applications and simply continue with atrophine and salt solution irrigations and tonic treatment. I am not at all satisfied that repeated applications of the galvanocautery are advisable, such applications often being followed by a denser opacity than is produced by the actual ulceration.

Vitality of the Dental Enamel.—R. R. Andrews discusses the question of the vitality of the dental enamel which has been for some time a battleground for eminent authorities both here and abroad. He described the embryonic development of the enamel at length, and while he praises Dr. Bodecker's work on the subject he does not agree with him in his conclusions as to the vitality of the structure. For many years he gave most of his leisure time to the study of this structure and he has never been able to find a trace of the regular system of living fibers between the enamel rods that are described by Bodecker. It is a question yet to be decided how far the cement substance between the enamel rods is a vital tissue and he does not, with his present knowledge, believe that it is a vital tissue or that it has the same power of vitalization as to have fibers which are formed in the dentinal canals. It resembles somewhat the sheath tissue of the dentinal canals, which is not a vitalizing tissue, because we can see the vital fiber within its core sending off its anastomosing branches through the sheath tissue to other vital offshoots from other canals. This sheath tissue is also a transitional tissue, which becomes calcified into calcified matrix as age comes on. We may assume, he says, that the scanty vitality found in young enamel is given to it by a very thin organic layer of dentine origin between the dentine and enamel called the interzonal layer, together with an ingrowth of some of the processes of the dental forming cells which have invaded the enamel substance prior to its calcification. In some substances he has found these processes nearly reaching the outer surface of the fully formed enamel. They seem to become flattened and compressed by the force exerted by the enamel rods while they are calcifying and are very irregular in their course, most frequently running obliquely across the enamel rods.

The Lancet, July 17, 1909.

Notes on the Use of X-Rays in the Treatment of Malignant Disease.—S. E. Iredell reports on 31 cases of malignant disease, excluding rodent ulcer, treated with the *x*-ray. Of these, 23 were inoperable, the remaining eight having been sent immediately after operation for *x*-ray treatment in order to prevent recurrences. The effect of treatment most frequently observed in the inoperable cases was the relief of pain. In thirteen cases this relief was well marked and extended over weeks or months. The relief of pain was followed by a diminution of the size, and in some cases the disappearance of the tumors. Malignant glands in the neck and axilla, subcutaneous nodules in the skin, and in one case a secondary deposit in the sternum two inches in diameter cleared up. In malignant ulcers the relief of pain was followed by a diminution of the discharge; if offensive it loses its foul smell, and finally the ulcer may heal. In conclusion he says: (1) In superficial forms of malignant disease *x*-rays may temporarily arrest the course of the disease, diminish the discharge, and heal up the ulcers. (2) Probably *x*-rays prevent the occurrence of superficial secondary deposits. (3) Embryonic cells are more easily destroyed by *x*-rays than are normal cells.

A Case of Severe Facial Carbuncle, with Ludwig's Angina and Parotitis.—H. B. Walters and R. V. Solly report such a case successfully treated by vaccine, combined with the administration of repeated doses of citric acid. The patient was a girl of seventeen. A pimple was first noticed on the right cheek, which was squeezed but no pus exuded. Two days later she had a hard indurated inflammatory mass about the size of a shilling on the right cheek adjoining the lip. The temperature was 99° F. Soon the upper lip on the right side began to swell and pus discharged by many small holes from its under surface and the lower lip began to swell. Soon the whole of the right cheek was dusky in color, with an indurated swelling extending upward from the lip, the eye being nearly closed and the groove on the side of the nose nearly obliterated. She was almost unable to open her mouth, there were sordes on the teeth, and her tongue was very foul. There was no fluctuation present. The temperature was 103° F., the pulse 140; the patient was somewhat drowsy, semi-delerious, and evidently very ill. A dose of 50,000,000 staphylococci (mixed stock vaccine) was inoculated. The next day there was not much change. On the day following a culture taken from the pustule of the lip gave a pure growth of *Staphylococcus aureus* from which a vaccine was prepared and a dose of 25,000,000 staphylococci were administered. In three days improvement was noticed. Later another injection of the patient's own staphylococci were given. The blood withdrawn clotted almost immediately and, therefore, one-dram doses of citric acid were administered every four hours for four doses. The patient made an uneventful recovery, the only sign of illness left being a dimple on the left cheek caused by the skin becoming attached to the mucous membrane of the cheek just over the opening of Stenson's duct.

A Case of Acute Lupus Erythematosus.—J. E. R. McDonagh reports such a case occurring in a female, aged fifteen, who was admitted to the hospital March 12, 1907. She first noticed her hands gradually becoming blue and numb. A few weeks later the feet likewise became affected. For some years previously she had suffered from chilblains. On admission to the hospital the fingers and toes were bluish, showed old scars, and were cold to the touch. There were some blotchy red patches on the face. The nose and ears were normal. A few days after admission a red rash appeared all over the face and on both wrists extending up to the forearms, being accompanied by a persistently raised temperature. No hemoglobinuria was found. On March 26, the face became much worse, the nose appeared cyanosed, and albumin appeared in the urine. On April 3, the nose became very sore and swollen, also the upper lip, and the patient breathed almost entirely through the mouth. On April 12 the face, the hands, and the feet were better, but patches of erythema appeared on the arms and a papular eruption on the back. On April 23 the face was diffusely pigmented and erythematous; it was covered all over with scales, some of which came off easily, others being adherent; the latter on removal had those processes of horny tissue which fitted into small depressions on the skin, and which are typical of lupus erythematosus. On having the hair cut short typical plugs and scarring were found. The scalp, like the face, was diffusely pigmented and erythematous. A small papulo-squamous eruption covered the neck and chest. An atrophic condition of the skin had spread up the back of the hands to about the middle, where the scarring was less marked, and when present was covered with scales and surrounded by a zone of erythema. As elsewhere, many of the scales on removal possessed the horny processes. Later she was brought to the hospital with all the signs of a general peritonitis, and was operated upon. Later she developed a purulent pericarditis, necessitating a second operation, which was followed by death. The point of great interest in this case is the age of the patient. No history of tuberculosis in this case was obtainable.

British Medical Journal, July 17, 1909.

The Function of the So-Called Motor Area of the Brain.—Sir Victor Horsley reports a case which proves for man what has already been established by experiments on monkeys, namely, that so-called volitional movements are not alone generated from the brain through the "motor" area or precentral gyrus, but must also be subserved by other parts. Further, from what has already been said it is reasonable to assume that, in the absence of the precentral gyrus portion of the arm center, the function of movement is executed by the representation of the upper limb in the gyrus postcentralis from which the fibers descend to the optic thalamus through the internal capsule. In his summary he says: (1) The so-called motor area of the human cortex cerebri is really censorimotor; (2) the gyrus precentralis is in man the seat of representation of (a) slight tactility, (b) topognosis, (c) muscular sense, (d) arthric sense, (e) stereognosis, (f) pain, (g) movement; (3) the gyrus postcentralis is in man part of the arm area in which the censorimotor representation is of the same kind as that in the gyrus precentralis, but in it probably provision for censorial coordination is greater and that for efferent impulses less; (4) the giant pyramids or Betz cells are not essential for the performance of purposive or voluntary movements; (5) purposive or voluntary movements can be performed after complete removal of the corresponding part of the gyrus precentralis.

On the Extremes in Mutability of Symptoms in Disseminate Sclerosis.—J. Dixon Mann says it is many years since Buzzard directed attention to the fact that of all organic diseases of the nervous system disseminate sclerosis is the most likely to be mistaken for hysteria. Since then this axiom has received ample corroboration. Although not limited to the early stages of the disease, the difficulties in the way of diagnosis may then be especially perplexing; frequently the indications are vague and only seem to hint at the presence of some indefinite disorder of the nervous system. Absence of characteristic indications, however, by no means constitutes the only difficulty; well-defined symptoms may appear, but they may be abrupt in their onset, erratic in their course, and transient in their duration. They may replace each other with bewildering inconstancy, and after a time may subside and give rise to the impression that manifestations so evanescent are inconsistent with the presence of organic disease. It is with the object of illustrating on the one hand the extraordinary rapid permutations which may occur in the course of distinct indications of organic disease; and on the other, the persistence of such indications for years, followed by their entire subsidence, that he relates in detail the symptoms of two typical cases. In both of them the appearance of several cardinal symptoms removed any difficulty as to diagnosis.

Medicine or Surgery in Early Cases of Cancer.—Skene Keith says that at the present time surgery claims the treatment of all early cases of cancer, and allows an experiment only when it has failed. He asks why, as surgery is not altogether satisfactory, not experiment for two or perhaps even three weeks. All who have much experience with malignant disease know that a certain amount of temporary improvement can be gained in many different ways. If one can show that some definite change is caused by cancer, and that this change can be arrested by treatment, it seems to be reasonably probable that a right line for further investigation has been arrived at. If a careful blood examination were made after every operation for cancer it might, and probably would, show that the cases in which there was no return were those in which the blood was normal or nearly normal, or where it quickly returned to a healthy condition after operation. It is therefore reasonable to advise after all operations for cancer the treatment recommended, or any other which has the effect of materially improving the condition of the blood, even when the actual disease is present. He and his brother have now been working for six years with arsenic, iron, and sodium cinnamate, all old-fashioned cancer remedies. The preparations they have found best are soamin, green citrate of iron and ammonium, and a saturated solution of sodium cinnamate. He reports a case of epithelium of the rectum in which operation was inadvisable. The medical treatment was followed by an apparent cure.

Berliner klinische Wochenschrift, July 5, 1909.

Hemolysis in Paroxysmal Hemoglobinuria.—Hijmans van der Bergh in two cases of paroxysmal hemoglobinuria investigated the phenomenon described by Donath and Landsteiner. This consisted in the occurrence in the blood serum of such cases, during the periods between the attacks of some substance (a specific hemolysin or amboceptor), which at low temperatures, and only at low temperatures, combined with the blood and caused, on again warming, a hemolysis. He attempted to find a reason for this, or the nature of the specific material. His researches are too complex to be summarized, but he considers that the carbon dioxide in the blood may have some influence on the phenomenon.

French and Italian Journals.

Genital Tuberculosis in the Woman.—Ch. Lenormant finds that genital tuberculosis occurs in about three per cent. of all operations for laparotomy for genital conditions. It is rarely primary, and then occurs in cases of genital infection by coitus with a husband affected with genital tuberculosis, the wife having some solution of continuity of the mucous membrane. It may attack any portion of the genital system. It is rare in the vagina and cervix, where there is a pavement epithelium. It is much more frequent in the uterine body, tubes, and peritoneum. The most frequent location is in the tubes, where it is complicated with tuberculous peritonitis, and sometimes ovaritis. In the vagina it is generally ulcerative, or infiltrating. On the cervix it may form vegetations. In the tubes there is a sac containing pus and detritus. Diagnosis from other forms of genital lesions is almost impossible during life. In case of tuberculous peritonitis it is rather curable, especially after an exploratory laparotomy. In general the treatment should be a combination of operative measures with general anti-tuberculous treatment.—*Le Progrès Médicale*, March 27, 1909.

Appendicitis and Adnexitis.—Henri Hartmann describes appendicitis accompanying adnexitis as being conveyed by way of the peritoneum, there being no direct connection between these structures by way of the blood-vessels or lymphatics. In the woman the appendix frequently descends into the pelvis by pressure of the intestines and of the corsets. Diagnosis is somewhat difficult before operation. Pain is generally located lower down in adnexitis than in appendicitis, as is the swelling when one can be detected. The swelling is broader in adnexitis than in appendicitis and lower down. The history of the case is of value. The absence of a history of menstrual troubles and ascending infection is in favor of appendicitis. The picture of peritonitis is more marked in appendicitis, the expression is more anxious, the sensibility of the abdomen and the distension are greater. Temperature is more elevated and the condition is progressive, while after a time in adnexitis it is regressive. Treatment demands immediate operation as soon as a diagnosis is arrived at.—*Annales de Gynécologie et d'Obstétriques*, February and March, 1909.

Pathogenesis of Some Cases of Cirrhosis of the Liver, with Special Reference to Hepatic Alterations in Pick's Disease.—Alfredo Baduel, from his study of cases and experiments on animals with reference to the cause of cirrhosis of the liver, concludes that there are cirrhoses due to venous, arterial, and biliary causes, but also those of lymphatic origin. A slow, chronic peritonitis is of great importance in this type of cirrhosis. The products of inflammation in the peritoneum following the lymphatics, especially the perivenous vessels, may reach the internal portions of the liver and cause cirrhosis. Experimentally we can demonstrate direct channels of communication between the peritoneal cavity and the central portion of the liver. The abundance of these vessels in the superficial portion of the liver cause the frequent capsulitis that may be observed in livers in which the parenchyma is little affected. Alterations of the liver in Pick's disease cannot be ascribed solely to stasis. For the production of the ascites and the intra- and perilobular connective tissue increase peritonitis must be the active agent, the active agent being carried by the lymphatic current. *Il Policlinico*, April, 1909.

Tuberculosis and Pregnancy.—V. Bre[illegible] says that in tuberculosis with pregnancy the prognosis for the mother is generally bad. After labor there is pretty sure to be a renewal of the bacillary process. The infant is generally born healthy, but should not be nursed by its mother. *Le Nord Médical.*

Book Reviews.

Il Ricambio Materiale nelle Anemie Gravi. Par Dott. G. Padoa, Della Clinica Medica Generale del R. Instituto di Studii Superiori di Firenze, diretta dal Prof. Pietro Grocco. Milano: Società Editrice Libraria, 1909.

The great interest now evinced in the study of the chemical relations between the intake and output of the body has resulted in the establishment of a certain number of facts as regards the metabolism of normal human beings, but only as the result of an extraordinary amount of research. Much more complicated from a chemical point of view are the conditions which occur when the human body is the site of some pathological change. This monograph is devoted to the careful quantitative determination of the metabolism of a number of persons suffering from severe anemia. After a thorough historical introduction and a section on technique, the writer considers his own eight investigated cases, giving the histories and presenting in tabular form the various figures obtained. The results seem microscopic as compared to the enormous amount of labor which must have been expended in carrying out the routine of the analytical methods; yet just such careful, thorough papers are of the utmost importance in furnishing the fundamental facts upon which the chemical pathology of the future must be built. The general typography of the monograph is worthy of mention; the print is extremely clear and large, and the extensive bibliography is remarkably free from those errors in spelling proper names which disfigure so much of the writings of the French laboratories.

Über die Wirkungsweise der Gaumen- und Schlundmuskulatur bei angeborener Gaumenspalte. Von Hofrat Dr. med. C. Röse. Berlin, Verlag von Julius Springer, 1909.

This pamphlet is a reprint from the *Deutsche Monatsschrift für Zahnheilkunde*, in which attention is directed to the necessity of cooperation between the surgeon and dentist in treating cases of cleft palate. Often although the operation itself is a success, the child is unable to articulate properly because the soft palate is too short. It becomes necessary to substitute an obturator, and the form best adapted for the purpose seems to be that devised by Sürsen because this most closely simulates the action of the soft palate.

Atlas and Epitome of Ophthalmoscopy and Ophthalmoscopic Diagnosis. By Professor Dr. O. Haab of Zurich. Edited, with additions, by George E. de Schweinitz, M.D., Professor of Ophthalmology, University of Pennsylvania. Second Revised Edition. Philadelphia and London: W. B. Saunders Company, 1909.

The second American edition of Haab's Atlas of Ophthalmoscopy is an excellent work for all students of ophthalmology, as well as for those who are interested in the subject. It is of convenient size, well printed, and the chromolithographic plates are very good representations of the conditions depicted. The first part of the work is devoted to a description of the technique of ophthalmoscopy in all of its phases. Then follow the colored plates. A description of each plate is found on the page opposite to the plate. There are a number of colored plates illustrating the pathology of many of the diseases of the retina and choroid. These are fully described. The work is quite complete.

Appendicitis and Other Diseases of the Vermiform Appendix. By Howard Kelly, M.D. With 215 original illustrations, some in colors, and three lithographic plates. Philadelphia and London: J. B. Lippincott Company, 1909.

The appearance of a second edition, within four years, of such a complete work on appendicitis is in itself its best recommendation. The author has attempted to make this edition of more practical value to the general surgeon, yet it should be read by every one who is to-day practising medicine. The chapters on clinical history, leucocytosis, and treatment before and after operation will prove of great value to the practitioner who never touches the scalpel.

The first chapter contains a history of this disease and well shows the great part played by the American surgeons in clearing up the real nature of the many conditions formerly grouped under the term "idiopathic peritonitis." The anatomy and pathology of the appendix and the different locations of the organ in the abdomen are made clear by numerous illustrations and by diagrams picturing the embryological development. Kelly then discusses fully the bacteriology and etiology of appendicitis, and suggests that the repeated occurrence of the disease in families may be due to anatomical peculiarities or a constitutional predisposition, and that traumatism is more often an exciting cause than is generally supposed. He considers that the ideal time for operation is early, within the first twenty-four hours; the presence of pus indicating a mistake on the part of the patient, the physician, or the surgeon. In the chapter on Appendicitis and Typhoid Fever, however, Kelly points out the fact that the "typhoid appendix" requires operation but rarely.

The chapter on Treatment Previous to Operation is addressed particularly to the practitioner who has no surgeon at hand, yet a list of aphorisms contained in it should appeal to the surgeon as well. One of the most imperative of them is "Never give purgatives in appendicitis!" Operative treatment is copiously illustrated, minute details of both simple and complicated operations being fully pictured. Drainage is discussed in the chapter on abscess near the appendix; the author's practice is to drain the entire septic area through a large opening with a loosely rolled drain. The final chapters contain a thorough review of the literature of neoplasms and specific infections of the appendix and a discussion of the medicolegal aspects of appendicitis.

Refraction and How to Refract. Including Sections on Optics, Retinoscopy, the Fitting of Glasses and Spectacles, etc. By James Thorington, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic anl College for Graduates in Medicine; Member of the American Ophthalmological Society; Fellow of the College of Physicians of Philadelphia, etc. Fourth Edition. Philadelphia: P. Blakiston's Son & Co., 1909.

In the fourth edition this popular work has been thoroughly revised and some additions have been made to the text. The subject is treated in as simple a manner as possible compatible with thoroughness. Abstruse formulæ are omitted. It has apparently been the object of the author to produce a work which would present the practical part of refraction in a form that would be readily understood by the student, even if his knowledge of mathematics is limited. The subject is fully covered and the teachings are trustworthy.

Uber die Entstehung und Verbreitung der Tuberkulose im weiblichen Genitaltrakte. Von Dr. Albert Blau, Assistenten der Klinik von Rosthorn in Wien. Berlin: Verlag von S. Karger, 1909.

This pamphlet contains the results of the author's observations on the method of infection of the female genital tract with tuberculosis, both in animals and in the human subject. A careful examination of thirty-six women afflicted with this disease showed that in no instance could the primary infection be traced to the genital tract, nor could any ascending infection be demonstrated. He also found that in guinea-pigs, which are particularly susceptible, the injection of even a highly virulent culture of tuberculous material was incapable of producing the disease unless certain predisposing factors were at hand, such as the puerperal state or injuries. It would appear, therefore, that the same condition must be present in the human subject, as otherwise the development of the bacilli is inhibited by the character of the secretions, and their penetration is prevented by the dense epithelium which covers the vaginal walls and the cervix. The presentation in detail of the cases on which these observations are based is very convincing, and the work forms a very valuable addition to the literature of the subject.

General Surgery. Volume II of the Practical Medicine Series. Edited by John B. Murphy, A.M., M.D., LL.D.; Professor of Surgery in the Northwestern University; Attending Surgeon and Chief of Staff of Mercy Hospital, Wesley Hospital, St. Joseph's Hospital, and Columbus Hospital; Consulting Surgeon to Cook County Hospital and Alexian Brothers Hospital, Chicago, Ill. Chicago: The Year-Book Publishers, 1909.

Practically the whole realm of general surgery is covered in this book. Among the subjects considered are the surgery of the Skull and Brain, esophagus, Thorax, and spine, Matas' operation for the radical cure of aneurysm, and the transplantation of bones and joints. Under the heading of abdominal surgery are considered postoperative phlebitis, parotitis, and occlusion, peritonitis, the surgery of the mesentery, Omentum, and Stomach. Due space is given to intestinal surgery, the surgery of the liver, gall-bladder, pancreas, spleen, kidney, and bladder. Except for a few typographical errors, the book is well written, the subject matter being presented in a concise and readable manner.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Held June 15, 1909.

Dr. J. M. Van Cott in the Chair.

Some Facts Regarding Brooklyn's Summer Infant Mortality.—Dr. Louis C. Ager of Brooklyn read this paper. He said that there were two classes of facts that one had to consider, namely, infant mortality in general, and the relative infant mortality of Manhattan and Brooklyn. The latter borough compared favorably with the average city having the same climatic conditions. In the older portion of New York City, out of a total mortality of 74,000, there was a mortality of 24,000 in children under five years. One-fourth of these were for diarrheal diseases and 2,000 deaths were from measles, scarlet fever, and diphtheria. Thus diarrhea claimed three times as many deaths below five years as from the above three contagious diseases at all ages. Ninety per cent. of the deaths were in children during the first and second years of life. In the chart by weeks the deaths from diarrhea were insignificant until the first and second weeks in June; they then jumped to twice as much. The average of 15 deaths per week in January, February, and March rose to 170 to 180 per week. In all parts of the city there had been a reduction in the summer infant mortality from year to year. This was to be attributed to the beneficent activity of the various relief agencies working against this condition. At the present time the foreign-born population was more difficult to assimulate than twenty-five years ago. The next set of facts that Brooklynites were particularly interested in were those that related to the comparative infant mortality of Manhattan and Brooklyn. The ratio of the population of the former to the latter was as three is to two. Brooklyn had a better class of people in the tenements than Manhattan. In Brooklyn it was much easier to get out of the extremely congested districts. While Manhattan had more of the big double-decker tenement houses of the older type, yet Brooklyn had more of the old converted private houses which were worse from a sanitary viewpoint, their floors, walls, and plumbing being much inferior. In Brooklyn, the general death rate had a better showing. In 1907 the death rate of Manhattan was 18.51, while that of Brooklyn was 17.98. Yet the infantile death rate of Brooklyn was heavier. In 1903 there was an excess of 0.1 per cent. in the deaths of infants under one year over those in Manhattan. In 1907 this excess had increased to 1.1 per cent. If the infantile mortality of Brooklyn had been the same as that of Manhattan there would have been 300 less deaths in the former borough during 1907. A study of the diarrheal diseases during 1908 showed similarly marked differences. This was an exceptionally favorable year. Although the mortality jumped high, it fell more quickly than in other years. Even in Manhattan, during July, there were regressions: the mortality in the second week was lower than in the first. In Brooklyn, on the other hand, the mortality jumped higher and higher each week, rising from 15 to 173 in the course of one week. Another important set of facts bearing upon this question was that Brooklyn had neither the funds nor the relief agencies that were at the disposal of Manhattan. There were a large number of foci directed against the infantile mortality of Manhattan. In the latter there were as many as 144 fresh air agencies. These took care of 31,000 children as against 6,000 taken care of in Brooklyn. In Manhattan 100,000 children were given outings in day parties, as against 10,000 in Brooklyn. In Manhattan there were 55 day nurseries, as against 13 in Brooklyn. There were three milk distributing agencies in Manhattan, and there was but one in Brooklyn. In Manhattan, the number of babies fed the whole year was 2,800, while in Brooklyn the number was nil, but during the summer months 2,200 infants were provided with milk. The total number of daily feedings provided was 280,000 in Manhattan, as against 20,000 in Brooklyn. In Manhattan there were 28 child's nurses, while in Brooklyn there were 2. In Manhattan there were 160 general nurses, while in Brooklyn there were 20. In the former there were 80 dispensaries, while in the latter there were 17. Although the amount of free dispensary work was overdone in Manhattan, yet there was little doubt that this, together with the superiority in the extent of infant relief work, accounted for Manhattan's advantage over Brooklyn, so far as the infantile death rate was concerned.

Predisposing Causes and Prevention of Summer Diarrhea.—Dr. John W. Parrish of Brooklyn read this paper. He commented on the high mortality of summer diarrhea. Every influence that diminished the vitality of the infant either during intrauterine life or later contributed toward the maintenance of this high mortality. Syphilis, alcoholism, and a defective nervous system in the parents tended to impair the powers of resistance in the child. The presence of general tuberculosis, syphilis, rachitis, and diseases of special organs in the child made the latter more prone to the severe invasion of summer diarrhea. A fatal outcome in summer diarrhea did not usually occur in children that had been previously healthy. These were, of course, frequently the victims of cholera infantum, which was a different and at present much rarer affection. Some cases of ileocolitis were exceptionally severe. As a rule there was a condition of malnutrition preceding the fatal illness. This malnutrition was due to disease, bad air, or inefficient feeding. If the child was bottle-fed the food was frequently bad, either because it was too weak to nourish the infant, or too strong, or poorly adapted to the child. Not five per cent. of the deaths due to diarrhea occurred in previously healthy children. Chronic digestive troubles frequently antedated the fatal attack. It was noted that many of these cases of chronic indigestion were frequently erroneously attributed to teething. In the prevention of summer diarrhea one had to see that the infant had proper clothing, abundant fresh air, and suitable food. It was a common fault that infants were wrapped in too much clothing. The abdomen and feet were to be kept warm, but it was important to avoid causing excessive perspiring. The necessity of fresh, cool air was alluded to. The baby was frequently kept in the kitchen, while the mother was at work, and sometimes the crib was near a hot stove. The temperature of the nursery was to be 68° during the day and 10° cooler at night. In summer the infant was to be kept in the coolest room in the house. Northrup had advised that the infant ought to be kept in the fresh air 23 hours out of 24, one hour being allowed for changing the infant from room to room. It was important that the infant should get a suitable food. The more universal use of certified milk would have an important influence in checking the prevalence. Next in importance was the devising of simple rules for adjusting the food to the individual infant. Simple directions were to be given the mother. Insistence on maternal nursing, wherever this was possible, was to be the rule. Cow's milk was no substitute for woman's milk It contained twice as much protein and the proportion of casein to lactalbumin was 5 to 1 instead of 5 to 2 as in woman's milk. In both there was the same amount of fats, but they differed in quality. In cow's milk there was 4.5 per cent. milk sugar, while in human milk there was 7 per cent. It was the aim of American pediatrists to furnish the artificially fed infant as close an imitation as possible of mother's milk. Failure in artificial feeding was frequently attributed to casein, and consequently the latter was greatly diminished and the difference made up with

large amounts of fat and sugar. What were frequently interpreted as casein curds really turned out to be of fatty origin. Soltman and Schloss had found that large curds consisted of casein and fat, while small curds consisted mostly of fats. Fishel and Schloss attributed most cases of failure in artificial feeding to excess of fats. This was a common observation. Many cases of infantile wasting were also due to the same cause. The speaker in using modified milk did not employ anything stronger than the top pint, containing 7 per cent. fat. He began the feeding by diluting the whole milk, then the upper two-thirds of the bottle, and then the upper pint. Most babies did not digest whole milk within the first year. The ideal was to begin with a weak food and to gradually accustom the alimentary canal to a stronger one. The more one weakened the food the more one weakened the infant's digestion. The pedagogical principle applied here: to begin with easy tasks and then to gradually increase them. In the event of failure daily lavage and outdoor air were valuable. If these failed then it was necessary to feed with whey and cream. In this manner one altered the relative proportion of fat and casein so as to more closely resemble that of human milk. A simple measure was the use of skimmed milk. Sometimes buttermilk agreed. In some cases the use of condensed milk in the proportion of 1 in 24 parts of boiled water was of value, while in some cases cereal dilutions proved eminently useful. It was important to give the mother definite instruction in the care of the infant. During past years this was neglected. The inauguration of a system of instruction by visiting nurses was a recent step in advance. In Brooklyn little had been done in this line. There was one visiting nurse in South Brooklyn and one in connection with St. Christopher's Hospital. It was desirable that there should be one such nurse in each dispensary. The gospel of clean milk was to be taught. The milk had to be kept in the refrigerator below 50° F. Pasteurization was necessary in summer. The importance of fresh air was emphasized.

The Hygienic and Dietetic Treatment.—Dr. Le Grand Kerr of Brooklyn read this paper. He said that the question of age incidence was within the realm of his paper. The incidence of attack was very small under the age of three months, but from this period there was a very rapid increase until the age of two years, and that the greatest mortality was during the last nine months of the first year of life. This was synchronous with the period during which the hygienic and dietetic care of the infant was most difficult. In the hygienic and dietetic care of these cases one had to consider the relative importance of the four chief etiological factors, namely, the soil, the season, the food, and bacterial infection. Other factors were density of population upon an unclean soil, insufficient sunshine, defective ventilation, maternal neglect, and contaminated food. The influence of the soil was an important one. A loose and particularly a loose and polluted soil was one upon which infantile diarrheal mortality was apt to be high. This was one of the important, if not one of the chief, reasons why the infantile diarrheal mortality was less in the Borough of Manhattan than in the four other boroughs—Manhattan Island was nearly all rock; this favors the prompt and efficient removal of sewerage. This latter fact gave Manhattan another advantage. A deficient rainfall during the summer favored the increase of diarrheal disease. There was a diversity of opinion as to the relation between the temperature and diarrhea. The opinion as to the depressing effect of the temperature was untenable in view of the health of infants in tropical climates and in view of the fact that infants under three months were practically immune from any except the most virulent infection. The "miasm" theory was controverted by the fact that summer diarrhea was largely a disease of cities whose soil was sealed by concreted streets. The following facts showed that the disease was due to a contaminated food and particularly a fluid food: The disease affected the alimentary system mainly. It was not due to trauma. It was in no sense a constitutional disease. It was an infection of the alimentary canal and was most prevalent during the first two years of life. A prolonged high temperature favored the growth of infective bacteria and processes of decomposition, particularly in milk, which was the chief pabulum of infants. The prolonged high temperature also favored the collection and dissemination of dust with its bacteria and also the increased propagation of flies which was coincident with the increase in summer infantile diarrhea. The direct hygienic treatment involved the removal of the infant from the city as soon as practicable, preferably to the seashore, and kept there for a considerable time—as the dangers of relapse were great. Enforced rest in the open air day and night was desirable. The clothing was to be light and loose. For the restlessness and fever, and for cleanliness, the use of water externally was important. For the reduction of temperature the tub bath at 100° Fahrenheit was to be used, with the addition of iced water, until the temperature of the bath was 85° F. Disinfection of the napkins was necessary. Excoriations were to be prevented. The direct dietetic treatment involved the withholding of all food during the first twenty-four hours. To allay hunger and thirst it was permissible to give frequently small amounts of sterilized water, thin barley water or cold whey made without beating the curd. In the last procedure the fat was below one per cent. while vigorous beating of the curd liberated as much as three per cent. of the fat. Albumin water was not to be given, as it readily underwent decomposition. If the above were vomited, absolute withdrawal of the food was essential. With improvement of conditions the infant was allowed the breast after forty-eight hours, with the restriction that nursing was to be alternate and for not over three minutes. In artificially fed infants the food was to be withheld for a longer period and in addition to the substitutes mentioned in the case of breast-fed infants, there could be used the farinaceous or malted foods without milk bouillons and the dextricized cereals. Return to the usual food was to be gradual and slow. Relapses were common and sometimes fatal within twenty-four hours. Infantile diarrheal mortality was a social as well as a medical problem, and much of it was concerned with maternal care. Carelessness and ignorance were potent factors in the morbidity and mortality of the infantile period. Breast milk had no perfect substitute. The nursing mother was to be instructed as to how to nurse her babe correctly. There were three avenues of instruction: (1) the direct instruction of mothers in the care and management of infants; (2) the follow-up system of female visitors in the care and management of infants; (3) the education of girls in domestic hygiene. Present commercial and economic conditions compelled the employment of married women. This employment was to be controlled in such a manner that a limit was to be placed upon the time before and after confinement that a woman was allowed to work. The infant's care was to be safeguarded during the absence of the mother through the agency of day nurseries. Scrupulous care to prevent overfeeding, too frequent feeding, and a formula to adapt a suitable and uncontaminated food to the infant's needs was necessary. In the presence of high temperature the food of the breast fed as well as the artificially fed was to be reduced. In the former this was accomplished by giving an ounce or two of sterile water immediately before the nursing and in the bottle fed by adding water to the food. Every diarrhea in an infant occurring during the months of June, July, and August was to be treated as the possible beginning of a fatal disease. Anything short of this was neglect.

The Medicinal and Mechanical Treatment of Summer Diarrhea.—Dr. Archibald D. Smith of Brooklyn read this paper. He said that the indiscriminate use of drugs was harmful. The general principles of the treatment were the same for all cases. They included rest in bed and stimulation, the emptying of the stomach and intestines, the administration of fluids, the elimination of toxins, the allaying of the inflammation, and the treatment of special symptoms. Food was to be withheld for from 8 to 24 hours. Boiled water was to be given frequently. It was important to empty the stomach and intestines. The initial vomiting frequently sufficed for the former, or a single washing was all that was necessary. In severe cases of cholera infantum the stomach was always to be washed. For this purpose 9 to 10 inches of a catheter was to be introduced, and the stomach washed with a quart of water at 100° F. In a child over two years of age the struggling that attended the stomach washing was undesirable, in which case this was obviated by the administration of plenty of boiled water and then inducing vomiting. The intestines were to be emptied with calomel in doses of ⅛ to ¼ grain every hour until the characteristic stool occurred. Castor oil was followed in four to six hours with a sweeping catharsis. If the movements were small in amount, saline catharsis was of value, but was not to be employed in cases with depressed fontanelle. Sodium sulphate in small doses of 10 grains each in one dram of water were to be given. On the first day two or three colon irrigations were to be given, with normal saline at 100°, the bag at first 2 feet above the child and later 4 or 5 feet. One-half a gallon of saline was to be used for a single irrigation. The colon in a child two years old held 2 to 3 pints. In collapse, saline at 110° F. was to be used. Where there was a high temperature the fluid was to be at 80°. The patient was to be given plenty of cool boiled water. In the most severe cases the only effective method of treatment was hypodermoclysis; 8 to 12 ounces of normal saline was to be slowly introduced, within 24 hours, into the loose cellular tissue of the abdomen or buttock. For the elimination of toxins, the catharsis and other treatment sufficed. To allay the inflammation it was necessary to cover the inflamed mucous membrane; this was accomplished with bismuth subnitrate, one to two drams per day in a child one year old. Besides, it was antiseptic, inhibited the growth of bacteria, and controlled vomiting. Opium was too frequently used, and used at the wrong time. Its best use was in the convalescent stage, in the form of paregoric, in doses of five minims to a child of one year. In cholera infantum, with collapse, morphine in doses of 1/100 grain was to be given hypodermically. Special symptoms called for treatment. For prostration whiskey was valuable; its maximum dose was one-half an ounce within twenty-four hours to a child one year old. Tincture of strophanthus was also useful. Strychnine was not to be used where there was a tendency to convulsions. For fever, tub baths, cold water rectal injections, and cold packs were indicated. The speaker next discussed the antitoxin treatment of summer diarrhea. The antidysenteric serum was used only in infection with the true Shiga bacillus. In 270 out of 412 cases of diarrhea in children the Flexner or acid type of bacillus was found. This organism did not produce a soluble toxin, hence no antitoxin for this form of infection could be found. It was impossible to distinguish clinically the two types of infection.

Dr. Henry N. Read of Brooklyn said that it was important to make a bacteriological examination in many cases of summer diarrhea, in order to single out those that could be appropriately treated with the antitoxin. The Japanese had reduced the mortality from summer diarrhea very much by means of this mode of treatment. He extolled the value of the continued use of hypodermoclysis in the bad cases. By this measure many lives had been saved.

Dr. Elias H. Bartley of Brooklyn said that twenty-five years ago cholera infantum was a very common and very fatal disease. It was then that the milk bottle came into use, and this, together with other improved methods in handling the milk, had made cholera infantum comparatively rare. He emphasized the fact that had already been brought out, namely, that summer diarrhea killed off a large number of previously feeble children, including those that had been illegitimately or prematurely born. One of the causes of summer diarrhea was the depressing effect of the atmospheric heat upon the sympathetic nervous system of the child, and also in diminishing its vital resistance. The infection was frequently carried by flies. The speaker had observed cases of salol and bismuth poisoning in infants. Irrigation of the colon was valuable in collapse. He had found good results from the use of small doses of resorcin.

Dr. William A. Northridge of Brooklyn said that some cases demanded colon irrigation as frequently as every three hours. He had employed lavage of the stomach in some cases every day, and even as frequently as three times a day. It had been the practice of physicians to send cases too late to the seaside hospital. One point in the treatment had not been mentioned, namely, the use of nutrient enemata of half an ounce of peptonized milk, in white of egg. During the first twenty-four hours it was important to go without all food, giving only sterile water, or possibly a weak whey mixture. Following this the use of a condensed milk mixture, consisting of one part of condensed milk in twenty-four parts of water, often checked diarrhea. This mixture could be strengthened from day to day and the case tided along to the use of certified milk properly diluted. It was the tendency of the best medical practice to abandon the routine use of drugs in the treatment of summer diarrhea. Preparations of opium were to be administered by the physician himself whenever necessary.

Dr. Sigmund Beck of Brooklyn in discussing the seaside treatment of summer diarrhea said that the ideal mode of furnishing the advantages of lower solar temperature was that afforded by the floating hospitals. He thought that, if these were increased in number, the mortality from summer diarrhea would be materially diminished.

THE AMERICAN THERAPEUTIC SOCIETY.

Tenth Annual Meeting, Held at New Haven, Conn., May 6, 7, and 8, 1909.

F. H. Gerrish, M.D., of Portland, Me., President, in the Chair.

(*Continued from page 207.*)

Diet as a Prophylactic and Therapeutic Agent.—This paper, prepared by Dr. H. W. Wiley of Washington, D. C., was read by Dr. F. P. Morgan. There was, the author said, an increasing belief in the medical profession, and this was founded on substantial evidence, that diet was an important factor in the production and cure of disease. A perfectly healthy, well-nourished organ would become infected with any disease germ with great difficulty. In other words, it was self-protective, and, this being granted, it was evident that food must play an important part in the prevention of disease. It followed, then, as a necessary condition, that the debasement of the diet, the addition of injurious substances to, or the abstraction of valuable ingredients from, articles of food, diminished the power of that diet to maintain the body in a state of hygienic equilibrium. Hence the first conclusion regarding food as a prophylactic was that it should be of a proper quality. The second was that it

should be of proper quantity—neither too small nor too large for the requirements of the system. The sum of nutrition was the normal injection of all the necessary ingredients of food for man, protein, fat, starch, etc., in their appropriate proportions. It had been contended that the ordinary diet, especially in the United States, contained too large a proportion of protein, but the health of the people would certainly suffer if this were reduced too much; and so of the other elements. In regard to mastication he said that all admitted the desirability of this, both as a mechanical necessity preliminary to deglutition and as a preliminary to the proper mechanical state of food for the first steps of hydrolysis in the process of digestion. This having been accomplished, however, the question might arise whether or not the carrying of this process to excess might not result, first, in diminishing the actual quantity of food necessary, and, second, in actually interfering with the process of digestion. As to the therapeutic usefulness of food, every physician recognized the necessity of sustaining to the utmost the vegetative functions of the body in disease. Excessive production of tissue, especially adipose tissue, was in some respects just as much a disease as the loss which we usually associated with most diseases, and in his opinion the disease which resulted in hypertrophy might as a rule be entirely controlled by diminishing the amount of the diet, unless it had gone so far as to be practically irremediable. On the other hand, the waste of tissue which was the attendant of many diseases often became so great as to threaten life. To combat this condition and stimulate anabolism, food of a proper kind was one of the most valuable of the resources of the physician. In disease, however, the use of food was regulated by entirely different conditions than in health. The first requisite was that the food should be pure, and Dr. Wiley considered that the introduction of any drug of any description into foods intended for invalids was not only undesirable, but criminal. In closing he said that, in his opinion, the near future would see the professorship of dietetics in a medical school advanced to the same rank as that of medicine, and, furthermore, the practice of medicine in the future would be largely a practice of dietetics.

Diet and Care of the Bowels in Typhoid Fever.—Dr. M. H. Fussell of Philadelphia said that until within the last fifteen years the diet in typhoid was liquid, with milk as a basis. Since then, however, a diet much more varied had been recommended by various authorities. The comfort of the patient was unquestionably greater when he was given other food than milk and water. The metabolism experiments of Puritz, in which typhoid patients were fed on meat, bread, milk, eggs, tea, coffee, and port wine, showed that 79 to 82 per cent. of the nitrogen consumed was assimilated. The claim, however, that milk, as compared with solid foods, caused a good culture medium in the bowel was not well founded. Statistics published by Kinnicutt went to show that the intestinal accidents, perforation and hemorrhage, were slightly less when a free diet was allowed than in patients on a milk diet. Aside from this, the tympany and diarrhea which some writers attributed to milk diet existed more in the imagination than in reality. To help us to judge of the effect of a liberal and a milk diet, respectively, upon accidents, relapse, and mortality, Kinnicutt had given some remarkable statistics collected from different hospitals, and the speaker had another series to present from St. Timothy's Hospital in Philadelphia. The figures were slightly in favor of the liberal diet, but the differences shown were certainly negligible. The foolhardiness of using any diet in typhoid except under strict watchfulness was evident, and any physician of experience would be certain, without statistics, that gross errors in diet caused both relapses and intestinal accidents. In hemorrhage all food must be withdrawn for a time, though water might be given in small quantities. Thromboses were said to be much less frequent in patients who were well fed, and he believed that there was such a thing as fever of malnutrition following a liquid diet. His own advice as to diet for typhoid patients was to study each patient well, and feed him according to his needs. The patient first should be put on a liquid diet, with milk and egg albumin as a basis. The diet should be increased up to a limit of 2,500 calories by the addition of starches, minced chicken, or meat, chopped soft parts of oysters, and soups, after the dietary of Shattuck. A careful watch should be kept upon the stools and digestive functions, to see that neither undigested curds nor other particles passed, and that tympany, diarrhea, or constipation did not occur. The safe course was to give divided doses of calomel if the patient was seen in the first week, and after that to see that a daily evacuation was secured by a glycerin or a simple enema, if there was a tendency to constipation. If diarrhea occurred food should be stopped or regulated, and if it then persisted, a mixture of salol and bismuth should be given, or an opiate if the looseness was excessive. To conclude: Clinical and autopsy evidence proved that a regulated milk diet did not irritate the bowel; neither did a diet of milk reinforced by carefully selected carbohydrate and nitrogenous diet other than milk. Common sense must be applied to both, and both might be used; but in semi-unconscious or unconscious patients the diet was perforce liquid.

Dr. James C. Wilson of Philadelphia said that in typhoid fever the great point was to individualize the cases as far as possible, and treat each patient according to the special conditions present. It was often his practice to give a cup of coffee, more or less diluted with milk, in the morning, and then every two hours afterward milk in some form. He regarded it as very important that the quantity should be moderate and that it should be taken very slowly. Various preparations might be employed from time to time, such as junket, kumyss, custard, and ice cream. In some cases bread might be given, but he had never felt it desirable to allow chicken, chops, or beefsteak. His position, he believed was somewhere between the "liquid diet" and the "liberal diet," sometimes a little more in the direction of one and sometimes the other. He was of the opinion that the rapid emaciation met with in typhoid was a matter not of diet, but a condition due to the infection of the whole system.

Symposium on Psychotherapy.—The Psychological Principles and Field of Psychotherapy.—Dr. Morton Prince of Boston first stated certain accepted facts of observation, and then called attention to certain principles governing the functioning of the nervous system, as (1) complex formation. By this was meant that associated ideas, feelings, emotions, sensations, movements, visceral functions of whatever kind, tended, after constant repetition or when accompanied by strong emotion, as well as under other conditions, to become linked together into a system or group in such fashion that the stimulation of one element in the group stimulated the activity of the rest. Such a group was commonly called a complex. The linking of functioning might be almost entirely of ideas or of physiological processes, or of both. The pathbreaking demonstrations of Pawlow furnished the key to the mechanism of many neuroses and psychoses, for, indeed, the educated reactions of the gastric and salivary glands to ordinarily indifferent stimuli from the environment and to psychological states were in reality nothing but an artificially created psycho-neurosis, a perversion of the normal reactions. Such artificial synchomes rendered comprehensible such neuroses as the neurotic type of hay fever, which belonged to the association neuroses. The speaker then explained in some detail the principle of

education in the formation of the neuroses and psychoses. (2) Conservation; by which was meant that all experiences —anything that had been thought, heard, seen, or felt— tended to be conserved in the nervous system in such a way that they could be reproduced in a form approaching that of the original experience. This was the basis of memory. Conservation was fundamental for education, and upon it the law of the linking of complexes depended. (3) Dissociation; which governs the normal psychonervous mechanism and was observed in a highly marked form in pathological conditions. Hysterical amnesia, paralysis, and anesthesia, as well as the normal phenomena of forgetfulness, absentmindedness, moods, etc., were forms of dissociation. Subconscious ideas were likewise dissociated ideas. (4) Automatism; which played a part in both normal and abnormal life. Habit actions and absentminded acts depended upon this mechanism. Pathological fixed ideas, hallucinations, tics, spasms, etc., might be automatisms of a sensory or motor variety. (5) Emotional energy. Intense sthenic emotions and feelings were accompanied by an increase of the vital functions, while, on the other hand, certain depressive emotions and feelings were accompanied by a decrease of the vital functions. All these principles or tendencies in the functioning of the nervous system, he said, were made use of in psychotherapy, which was educational in principle. What we tried to do was to resynthesize the dissociated personality, form new, healthy complexes, and organize them so intensely that they became a part of the organism and automatic. Complexes with a strong emotional energy were selected as tending to bring about healthy syntheses and revitalize, as it were, the individual. Finally, the methods of applying these principles in different diseased conditions, such as neurasthenia, hysteria, etc., were described.

Psycho-Analysis in Psychotherapy.—Dr. Ernest Jones of Toronto said that in psychotherapy most of the medical world was at present only entering on the first stage, in which it was recognized that we had secured a new therapeutic weapon of the utmost value, the capacity to alleviate certain complaints by purely mental measures—in other words, psychotherapy in its broadest sense. Psychoanalysis represented the second stage in the evolution of psychotherapy. Here a deeper insight was sought into the essential nature and origin of the morbid phenomena, with a view to obtaining a fuller understanding of the aims of treatment, and so to achieving greater precision in its application. Freud's psychoanalytic method was based on the knowledge that the symptoms present in the psychoneuroses owed their origin to a conflict between two groups of ideas which could not be brought into harmony with each other. One complex of mental processes was for some reason of such a kind as to be unacceptable to the main body of the personality. The personality failed to assimilate it, as it were, and the repressed complex then took on an automatic existence, and continued as an irritating foreign body, in the same way as any physical foreign body which had not been absorbed. The central aim of the psychoanalytic method was to enable the patient to discover and appreciate the significance of the mental process manifesting itself as a symptom. In carrying out the method several procedures might be adopted, according to circumstances. Only a very few of those acquainted with this method employed the use of the hypnotic state, as it had certain grave disadvantages. Under special circumstances, however, it had a legitimate place. The procedure developed by Freud was the one most generally adopted, and it gave by far the most satisfactory results. It was one of the ways of obtaining what was known in psychology as free association, and was carried out by getting the patient to concentrate his mind on a given idea, usually one referring to a symptom, and asking him to relate truthfully, in the order of their appearance, the various thoughts which came to his mind. At first he would omit to mention a number of thoughts, on various grounds, but after a time he would acquire the capacity of adopting the noncritical and passive attitude essential to success. There were various other means of reaching buried mental complexes, among which Jung's word reaction association method was of the greatest assistance, particularly in furnishing a series of clues to serve as starting points for future analyses. By means of such methods we were enabled to determine the origin of the symptom by retracing the steps along which its pathogenesis proceeded. It was impossible to deal with the underlying complexes, to discharge their pent-up effect; to render them more assimilable by the patient, unless one succeeded in this task and brought them to the full light of day. The patient would then be able to free his personality from the constraining force of these complexes, and, by taking up an independent attitude toward them, to gain a degree of self control over his aberrant thoughts and wishes which was previously impossible. The method was thus in almost every respect the reverse of treatment by suggestion. In the latter the physician added something to the patient's mind: confidence, belief, etc., and thus made the patient more dependent on him. On the other hand, the psychoanalytic method took away something, namely, inhibition, and enabled the patient to develop a greater measure of self reliance and will power, as well as to acquire an understanding of his own mind, which was of the greatest possible value for future prophylaxis. The training received by the patient was thus an educative one in the highest sense of the word. The conditions which lent themselves to psychoanalytic treatment comprised practically all forms of psychoneuroses, the different types of hysteria, the phobias, obsessions, anxiety neuroses, and even certain kinds of sexual perversions.

Simple Explanation as a Therapeutic Method.—The aim of this paper, by Dr. E. W. Taylor of Boston, was to show the possibility of the use of a psychotherapeutic procedure which involved no special technical knowledge and which was available for practitioners in all departments of the profession. It was considered that the procedure was worthy the name of a method, since it worked in practice and was the means of alleviating many distressing conditions which simple encouragement could not accomplish. Its essential feature was the analysis of the mental state with reference to a search for the cause leading up to the developed neurosis. It was pointed out that many conditions regarded in this developed form as indications of an abnormal nervous system were in reality the normal reactions of a sound nervous system under special conditions of stress or misinterpretation of various events, in themselves innocuous. In the attempt to treat such cases the following general principles were suggested. (1) After eliminating or properly estimating physical causes, the mental attitude of the patient toward his ailment should be carefully determined; in other words, a diagnosis should be made. (2) This was best accomplished by allowing him to tell his complete story, rather than by a primary process of interrogation. (3) Having determined the false point of view almost invariably revealed which had led up to the neurosis, the attempt was made to explain why such a series of events as that disclosed would be likely to lead to this result. (4) The patient having been impressed with the correctness of the physician's point of view, the process of readjustment, or, to use the more popular but possibly too comprehensive term, his reeducation began. (5) This is accomplished by pointing out in a painstaking way the correct way to mental health through a realization on the part of the patient of his misconceptions and an effort toward the establishment of more rational mental adjustments.

The Hypnoidal State, and the Method of Hypnoidization.—Dr. Boris Sidis of Brookline, Mass., said that since hypnosis met with so much opposition, the question naturally arose, Was it possible to affect and modify pathological mental states outside the hypnotic state? In "The Psychology of Suggestion" he had pointed out that suggestibility could be induced also in the normal waking state. He had also shown that, among the conditions of normal and abnormal suggestibility, monotony and limitation of voluntary movements played an important rôle. Any arrangement tending to produce monotony and limitation of voluntary activity brought about a state termed hypnoidal, a subconscious condition in which mental life could be affected with ease. This was essentially a border line state, intermediate between waking and sleep, and also bordering on hypnosis. Like sleep, it had many levels; unlike sleep, however, it rapidly oscillated from level to level. In a series of experiments on sleep which he had published it had been shown that the hypnoidal state was also met with in the lower animals. The conclusion was that this state was the primitive rest state out of which sleep had arisen. In other words, the hypnoidal state was the primordial sleep state. A reversion to this state was of great value in the treatment of many mental disorders. Like sleep, and waking, it was a perfectly normal condition, characteristic of all animal life. Unlike hypnosis, there were no spectacular and sensational manifestations, antagonizing the sober mind and mystifying the patient; it was simply a state of relaxation. The therapeutic value of the hypnoidal state consisted in the liberation of the subconscious reserve energy requisite for the synthesis of the dissociated systems forming the basis of the psychopathic malady. It was highly probable that the therapeutic effects of Weir Mitchell's rest cure and Freud's psychoanalysis were due to the empirical use of the hypnoidal state. This state was also of the utmost value from a purely diagnostic standpoint, inasmuch as it constituted a powerful instrument in the tracing of the origin and development of the psychopathic disorder.

Obsessions and Associated Conditions in So-called Psychasthenia.—Dr. J. E. Donley of Providence, R. I., said that within the compass of psychasthenia should be included only those states of obsession associated, either antecedently, concomitantly, or consequently, with feelings of strangeness, unreality, incompleteness, and depersonalization. If the treatment of psychasthenia was to be fruitful in results, the personality of the physician was of primary importance. He should possess those attributes which were broadly comprised under the name of humanism, and chief among them were psychological imagination, sincerity, and frankness. Given these, there was established the *rapprochement* so essential to any and every therapeutic success. The typical psychasthenic was an individual who found himself burdened with limitations of two kinds, the subjective and objective. Hence, there arose a twofold conflict, the inner and the outer. To modify both these was the purpose of psychotherapy. Among wholly misdirected and fruitless methods of overcoming the obsessions was that of "fighting it out." Instead of this, one should counsel surrender, which was obtained through the process of substitution. The principle underlying the lines of substitution was *ascêsis*, the discipline of the intellect, will, and emotions. In carrying out this *ascêsis* one appealed to the religious consciousness, the use of autosuggestion, esthetic pursuits, the training of attention. The plan of procedure in each case must be minutely individual. There was no royal road in the treatment of psychasthenia; hence the demands made upon the physician's versatility. In many instances much help might be derived from the use of hypnoidization and hypnosis as an accessory to other treatment.

Other papers in this symposium were: **"Psychoprophylaxis in Childhood,"** by Dr. T. A. Williams of Washington, D. C.; **"Character Formation in Relation to Psychotherapy,"** by Dr. J. J. Putnam of Boston, and **"The Psychotherapy of Fatigue States,"** by Dr. G. A. Waterman of Boston.

(To be continued.)

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, May 17, 1909.

The President, Dr. Robert T. Morris, in the Chair.

Asthma and Its Allies.—Dr. Woods Hutchinson, in discussing this subject, said that asthma was one of the unsolved riddles of medicine. Its causation was absolutely wrapped up in mystery; its pathology was in doubt, and the less said about the treatment the better, excepting that each individual case required a special and separate treatment of its own. The statement of our knowledge regarding asthma could be best expressed in the form of negatives. Asthma was not a disease of the lungs, excepting in the sense of producing its symptoms and distress in that region, and causing changes in that part of the anatomy. It was no more a disease of the lungs than was Bright's disease primarily a disease of the kidneys, or cardiac failure a disease of the heart. Though it occurred in the lungs and was attended by shortness of breath, the speaker thought we were safe in saying that it was not primarily nor essentially a disease of the lungs, and that remedies directed to those organs would fail to relieve the condition. In asthmatic attacks there was a spasm of the bronchial muscles analogous to colic in the intestines, but in spite of the apparent severity of the symptoms these patients often do not suffer from true dyspnea, and it would not be strictly correct to say that they were suffering from lack of breath. They are not cyanosed in many instances, and perhaps one-half of them would tell you that instead of their greatest desire being to fill their lungs it was rather to get something out of them. The expiratory rhythm was prolonged at the expense of the inspiratory. In many instances there was apparently not a lack of oxygen, but rather a condition of intense irritation of the bronchial mucous membrane, which the patient was endeavoring to cool off. To look upon asthma solely from the point of view of an actual scarcity of oxygen was to miss the essential factor of the disease. It was rather to be regarded as an exudation of mucus—a so-called bronchial catarrh, accompanied by vasomotor spasm. We had a localized edema of the bronchial mucous membrane, accompanied by an outpouring of mucus, and later perhaps a discharge of leucocytes and cosinophiles, and perhaps even red-blood cells. There was a profuse outpouring of mucus—tough, tenacious, and irritating, which became rolled and twisted into those singular spirals (Curschman's) which were so characteristic of asthma. We had to do with a peculiar reaction of the vasomotor structures in the lungs, and in its grouping asthma was closely allied to urticaria, to hay fever, and the vasomotor disorders of the upper air passages, to colic, particularly the form known as mucous enteritis, to certain of the paroxysmal albuminurias, to several forms of paroxysmal hemoglobinuria, to Raynaud's disease and certain forms of gout and rheumatism, to the "vasomotor ataxias" (so called by Solis-Cohen), and, in its later form, to the lesions of giant urticaria and urticaria pigmentosa. An important and significant feature of asthma was the susceptibility of these patients to some particular thing—in many instances an odor—and one of the most common of these was the smell of a horse. Others could not tolerate the presence of a cat or a Navajoe blanket, and he recalled one man, a freight handler, who always promptly had an attack of asthma when he handled bales of linseed

or cottonseed cakes. Some had an attack when they moved from the city to the suburbs or seaside, or *vice versa*, or even from one room in the house to another. Others, again, traced their attacks to certain articles of food, frequently strawberries or shellfish. In the treatment of asthma a study of each patient individually was necessary, and in the vast majority of cases a careful regulation of the patient's diet and surroundings would insure him at least a considerable degree of relief and comfort. Of medicinal remedies the vasomotor dilators, such as the nitrites and stramonium, the alkaloids of opium, atropin, belladonna, and inhalations of chloroform, gave the largest measure of temporary relief. The most effective remedy in his hands had been found to be suprarenal extract. As a hypodermic, three to seven drops of suprarenal extract solution (1/1000) relieved many attacks as promptly as morphine, and more permanently. The suprarenal substance in two-grain doses combined with five to ten drops of ichthyol, in capsules, three or four times a day, improved conditions between the attacks and rendered the latter less frequent. In the study of each individual case, and in the hope of isolating, if possible, the particular toxic albumin that produced the paroxysm, lay our greatest hope for the future treatment of asthma.

Dr. William H. Thomson said he differed almost *in toto* with Dr. Hutchinson's remarks. In the first place, asthma illustrated better than other disease the mischief of interfering with regular nervous habits. In the act of respiration we had the most perfect example in the body of an habitual afferent impression followed by an habitual efferent excitation. This was presided over exclusively by the respiratory center in the medulla, and the result was that we had a perfect pendulum movement that continued throughout life as a settled habit. Now, suppose we stopped the backward swing of the pendulum by the act of coughing? This interfered with expiration for the time being. Suppose this act of interference constantly recurred throughout the day and night? What would be the result? We were setting an asthmatic habit, because in these cases we had no difficulty in inspiration, but a stoppage in expiration, and in at least 75 per cent. of cases, asthmatics gave a history of a prolonged period of coughing in childhood. When we once broke a normal habit we generated a remarkable susceptibility on the part of that center to impressions which did not affect it in health. This accounted for the extraordinarily whimsical character of the disease. We had already heard that one asthmatic could not endure a horse, while a cat produced an attack in a second one. This was not due to any mysterious poison emanating from these animals, but to the fact that the involved nerve centers of those individuals had become extraordinarily susceptible to excitation. The remedies for the treatment of asthma were of two kinds, totally different from one another. The remedies of one class acted simply upon the symptoms, and their entire effect was produced in one dose, providing a sufficiently large dose was given. Those of the second or curative class were limited, in the speaker's opinion, to two remedies, namely, arsenic and potassium iodide or some other preparation of iodine. In addition to this, we should treat the patient rather than the disease. Each case required individual attention, and any local source of irritation in the upper air passages or elsewhere should be eliminated.

Dr. Louis F. Bishop said he agreed with Dr. Hutchinson's views rather than those of Dr. Thomson. He looked upon the asthmatic type of disease, in a great measure, as a circulatory matter. These patients had a loss of tone in some part of their circulatory system, and he found by actual observation that persons who had asthmatic symptoms of one kind or another suffered from a relatively low blood pressure—not from an actual low blood pressure, but the pressure was low for that particular individual. The typical asthmatic attack was closely allied to hay fever, and was undoubtedly a vasomotor paralysis involving the vessels in the lungs as well as the vessels generally. It was dependent on a relatively low blood-vessel tension, local or general, and treatment should be directed towards the circulatory system.

Dr. Harlow Brooks said that one explanation that might be offered for the beneficial results that had been reported from the use of diphtheria antitoxin in a number of cases of asthma was that it increased the resistance of the body. While none of our methods of treating asthma could be regarded as brilliant from the physician's point of view, they were often very comforting from the standpoint of the patient, even though the improvement was only temporary. Of the newer remedies, the speaker said he had tried suprarenal extract with brilliant results in some cases, in one instance giving a dose of 30 minims. He also emphasized the study and control of each individual case, and the beneficial effect of climatic change.

Dr. Jefferson Scales said that in a certain number of his own cases the asthmatic attacks were attributed to a chronic bronchitis or protracted cough, or to some extraneous cause connected with the lung, such as pleuritic adhesions. He could recall cases that were attributed to badly smelling oil stoves or to the dust emanating from feathers. As to treatment, he had seen more benefit from arsenic and potassium iodide than from any other drugs.

Dr. Ransford E. Van Gieson referred to the fact that cases of asthma were frequently under observation from childhood up, and he was able to confirm the statement of Dr. Thomson in regard to its being often attributed to a prolonged cough in early life. For the relief of the paroxysms, he was inclined to ascribe greater efficacy to the nitrites than to stramonium.

Dr. A. Ernest Gallant said he disliked very much to give an anesthetic to a patient with the mucoid type of asthma, and in those cases he made it a rule to give a preliminary small dose of morphine and atropine placed and dissolved on the tongue. The preanesthetic treatment of the local condition of the nose in those cases was very important. The danger of teaching these patients the cocaine habits should be kept in mind.

Compensatory Albuminuria: A Contribution to the Study of Clinical Albuminurias.—By Dr. Heinrich Stern. (See Vol. 75, page 1094.)

Dr. Kingman B. Page raised the query whether a large albumin molecule could pass through the kidney epithelium without inflicting any damage. So far as we were able to determine, there could be this transudation through the healthy renal epithelium. He believed that the majority of kidney lesions were due to changes in metabolism, and as evidence of this he cited the well-known form of compensatory albuminuria in athletes, which had been referred to as presenting the most typical form of acute nephritis. In that type we had actual injury done to the structure of the kidney. There was another type in which there was a definite change in the end-products of metabolism, and where this extra eliminative work was thrown upon the kidneys. Doubtless there were many cases of temporary albuminuria which were purely compensatory, and so far as we could determine, we might have a transudation of serum albumin or globulin from the blood through a structurally unaltered kidney.

Dr. Woods Hutchinson said the fact that the kidneys excreted certain albumins, globulins, and sugars when introduced into the blood did not necessarily prove that they were not somewhat damaged thereby. That they could secrete these deleterious substances without permanent damage was due to the resisting power of the organs.

Dr. STERN, in closing, emphasized the fact that the various conditions comprised by him under the term compensatory albuminuria had nothing whatever to do with a disease of the kidneys. By employing the designation "compensatory albuminuria" he wished to imply that the activity of the normally functionating kidney compensated for the deficiency of a number of organs concerned in metabolism by removing either surplus albumin or such proteins as, although occurring in normal amounts, were not attached to the blood. They were therefore useless for the economy, and also, presumably, poisonous under certain circumstances. Of course, there would ensue a loss of albumin, but this deficit never amounted to more than a few grams during the twenty-four hours. There was absolutely no proof that the normal kidney was not permeable for the albumin molecule. We had sufficient evidence that it was, but normally the albumin was attached to the blood, and was thus prevented from being excreted by the kidneys. The door to escape, in other words, was always open, but the albumin was tied by invisible though very material chains to the blood. The moment these chains were weakened or no longer existed there was nothing which could prevent the escape of the albumin through the kidneys and into the urine. Compensatory albuminuria was therefore not a condition which was caused by a renal lesion, but one which was entirely due to anterenal disturbances. The kidneys permitting the passage of the albumin were not only not diseased, but, on the contrary, were very strong and active. Compensatory albuminurias, if they occurred at an insurable period of life, were the insurable albuminurias *par excellence*.

Books Received.

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THE HUMAN SPECIES. By LUDWIG HOPF. 8vo, 457 pages; cloth; illustrated. Longmans, Green & Co., New York.

FAITH AND WORKS OF CHRISTIAN SCIENCE. By the Author of "Confessio Medici." 12mo, 232 pages; cloth. The Macmillan Co., New York.

GENERAL SURGERY. By JOHN B. MURPHY, A.M., M.D., LL.D. 12mo, 617 pages; cloth; illustrated; $2.00 net. Year Book Publishers, Chicago, Ill.

GENERAL MEDICINE. By FRANK BILLINGS, M.S., M.D., and J. H. SALISBURY, A.M., M.D. 12mo, 403 pages; cloth; illustrated; $1.50 net. Year Book Publishers, Chicago, Ill.

SPECIAL PATHOLOGY. By BEATTIE & DICKSON. 8vo, 599 pages; cloth; illustrated; $5.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

OPERATIONS UPON THE UTERUS AND PERINEUM. By W. J. STEWART MCKAY, M.B., M.Ch., B.Sc. 4to; 454 pages; cloth; illustrated; $6 net. Wm. Wood & Co., New York.

LE DIABÈTE SUCRÉ. Par R. LEPINE. 4to; 704 pages; paper; 16 francs. Felix Alcan, Paris, France.

TRANSACTIONS OF THE MED. ASSO. OF THE STATE OF ALABAMA, 1908, MONTGOMERY. 8vo; 717 pages; cloth. The Brown Printing Co., Montgomery, Ala.; Mobile, Ala.; 532 pages.

PHARYNX AND LARYNX. By Dr. E. J. MOURE. 8vo; 403 pages; cloth; illustrated; $4. Rebman Co., New York.

PRACTICAL X-RAY WORK. By ARTHUR AND MUIR. 8vo, 244 pages; cloth; illustrated; $2.50. Rebman Co., New York.

THE THEORY OF IONS. By WILLIAM TIBBLES, M.D. (Hon. Causa) Chicago, LL.D., L.R.C.P.E., M.R.C.S., L.S.A., etc. 12mo; 131 pages; cloth; $1. Rebman & Co., New York.

HEREDITY AND DISEASE. 4to; cloth; 142 pages; illustrated. Longmans, Green & Co., New York.

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE. 4to; paper; 126 pages; illustrated. Longmans, Green & Co., New York.

EPILEPSIA. 8vo; paper; 123 pages; $4.50 per volume. J. E. Stechert & Co., New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of July 31, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	504	146
Diphtheria	196	20
Measles	310	20
Scarlet Fever	91	11
Smallpox	—	—
Varicella	25	—
Typhoid Fever	56	10
Whooping Cough	58	16
Cerebrospinal Meningitis	10	8
Malarial Fever	..	..
Totals	1,250	231

Leptothrix Meningitis.—W. A. Milligan reports the case of a child of four months who after a fall had been dazed. On admission to the hospital the child was rigid and had increased kneejerks. There was conjugate deviation of the eyes and lateral nystagmus, well marked cranio tabes, and a bulging anterior fontanelle. The temperature was 101° F. and the pulse 104. On lumbar puncture a purulent fluid was obtained which contained an excess of polymorphonuclear leucocytes and a leptothrix bacillus. The disease ran an acute course and caused death in five days. At post-mortem examination the pneumococcus was also found in the meningeal exudate. —*Proceedings of the Royal Society of Medicine.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending July 30, 1909:

		CASES.	DEATHS
SMALLPOX—UNITED STATES.			
Indiana, Muncie	July 3–10	3	.
Minnesota, Duluth	July 9–15	4	.
Missouri, St. Louis	July 10–17	1	..
Montana, Butte	July 8–15	4	.
Tennessee, Knoxville	July 10–17	2	.
Texas, San Antonio	July 10–17	1	.
Wisconsin, Appleton	July 10–17	4	.
SMALLPOX—INSULAR.			
Philippine Islands, Manila	May 28–June 5	1	1
Algeria, Bona	June 1–30	.	7
Argentina, Buenos Aires	Apr. 1–30	.	6
Brazil, Bahia	June 4–11	6	2
Sao Paulo	June 6–13	.	3
China, Hankow	June 5–26	.	Present
Shanghai	June 5–26	.	2
France, Marseille	June 1–30	.	5
India, Bombay	June 15–22	.	7
Calcutta	June 5–12	.	18
Rangoon	June 5–12	.	4
Java, Batavia	May 29–June 5	2	.
Italy, General	June 27–July 4	16	.
Naples	June 27–July 4	32	4
Russia, Odessa	June 19–July 3	5	..
St. Petersburg	June 12–19	27	8
Warsaw	May 22–29	.	2
Spain, Barcelona	June 28–July 5	.	5
Madrid	June 1–30	.	84
Valencia	June 19–26	6	.
Turkey, Bagdad	May 8–29	.	Present
Bassorah	June 19–26	.	Present
YELLOW FEVER.			
Brazil, Bahia	June 4–11	5	3
Para	June 19–26	4	4
CHOLERA—INSULAR.			
Philippine Islands, Provinces	May 29–June 5	18	13
CHOLERA—FOREIGN.			
Germany, Konigsberg	July 21	.	1
India, Bombay	June 15–22	.	21
Calcutta	June 5–12	.	40
Russia, General	July 1–8	710	272
Riga	July 21	.	13
St. Petersburg	July 21	589	238
Straits Settlements, Singapore	May 29–June 5	.	3
PLAGUE.			
Brazil, Bahia	June 4–11	1	1
Chile, Antofagasta	June 14	4 in lazaretto	
Iquique	June 16	7 in lazaretto	
China, Amoy	June 5–12	.	73
Swatow Vicinity	To July 1	2,400	.
Egypt, General	July 1	14	8
Port Said	July 2–7	3	1
India, General	June 5–12	1,045	907
Bombay	June 15–22	.	26
Calcutta	June 5–12	.	81
Rangoon	June 5–12	.	24
Japan, Kobe	June 12–26	2	2
Yokahama	June 19–26	2	.
Tokyo	June 19–26	1	..
Turkey, Bagdad	May 8–29	6	.
Venezuela, Caracas	To July 11	17	6
Zanzibar, Zanzibar	July 26	1	.

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Original Articles.

THE MILITARY OBLIGATIONS OF THE MEDICAL PROFESSION.

BY LT.-COLONEL JEFFERSON R. KEAN, U. S. A.,

WASHINGTON, D. C.

IN a speech made to both houses of Congress on December 3, 1793, Washington said: "I cannot recommend to your notice measures for the fulfilment of our duties to the rest of the world without again pressing upon you the necessity of placing ourselves in a condition of complete defence, and of exacting from them the fulfilment of their duties toward us. The United States ought not to indulge a persuasion that, contrary to the order of human events, they will forever keep at a distance those painful appeals to arms with which the history of every other nation abounds. There is a rank due to these United States among nations which will be withheld, if not absolutely lost, by the reputation of weakness. If we desire to avoid insult, we must be able to repel it; if we desire to secure peace, one of the most powerful instruments of our rising prosperity, it must be known that we are at all times ready for war."

Any one who is content with the information given in our school histories with regard to the conduct of the various wars in which we have been engaged will probably be of the opinion that on the whole we have done pretty well. The careful military historians, however, see the other side of the shield, and two publications in the last five years have produced a profound impression upon military students as to our helplessness in the face of sudden attack and the grave extent to which we have ignored the advice of the Father of his Country.

Mr. Root, when Secretary of War, found in the files of the War Department, in manuscript, a work by General Emory Upton, entitled "The Military Policy of the United States," which he caused to be published in 1904. Two years later, in 1906, Mr. Frederic Louis Huidekoper published in the *North American Review* an article for which Mr. Taft, then Secretary of War, wrote an introduction which began with the sentence—"Every American who has the defence of the country seriously at heart ought to read Mr. Huidekoper's article, 'Is the United States Prepared for War?'" In this is given an interesting table showing in our ten wars, beginning with the Revolution and ending with the Philippine Insurrection, and including four Indian wars in which volunteers were called out, the forces engaged, the cost, and the pensions. He goes on to say: "Probably not one American in a hundred thousand has any conception of the outrageous extravagance in men and money that has characterized every war in which we have been involved. From a purely business standpoint, the above figures are indicative of puerile short-sightedness and criminal blundering such as would not be tolerated for a moment in any properly managed company or corporation in the United States." One example drawn from Upton will suffice to demonstrate how needlessly extravagant we have been, considering how disproportionately small have been the results achieved. Speaking of the War of 1812 he says: "The troops called out during this fruitless campaign (1814) numbered: Regulars, 38,186; militia, 197,653; total, 235,839. Of the militia 46,479 from the State of New York were employed on the Canadian frontier, while more than 100,000 from Pennsylvania, Maryland, and Virginia were called out to repel the incursion of the 3,500 British along the shores of the Chesapeake. Notwithstanding these enormous drafts, such were the faults of our organization and recruitments that the utmost strength we could put forth on the field of battle was represented at Lundy's Lane by less than 3,000 men. Nor was this evidence of national weakness our only cause of reproach. Boasting at the outset of the contest that Canada could be captured without soldiers, and that a few volunteers and militia could do the business, our statesmen, after nearly three years of war, had the humiliation of seeing their plan of conquest vanish in the smoke of a burning capitol." It may be judged from these extracts that neither of these works is flattering to our national pride, but each has been of great educational value.

Of the medical history of our wars still less is popularly known. It is even more melancholy reading. The tragic lack of organization of our medical department at the beginning of every war has been part and parcel of this general lack of system, and in fact it could hardly be expected to be otherwise. At the outbreak of the Civil War there was no organization for the removal of the wounded from battlefield. The ambulances were under the control of the Quartermaster's Department, and the surgeon controlled only his own two hands unless the doubtful assistance of the regimental band was vouchsafed to him. The professional activities of the surgeon in dressing wounds and amputating limbs on the battlefield did not greatly profit the wounded if they were left lying for days and nights where they fell, without food or drink or shelter. The following letter, which is on file in the War Department, shows the appalling suffering which was due to the lack of an ambulance corps:

SURGEON GENERAL'S OFFICE,
Sept. 7, 1862.

HONORABLE EDWIN M. STANTON,
Secretary of War.

SIR—I have the honor to ask your attention to the frightful state of disorder existing in the arrangement for removing the wounded from the field of battle. The scarcity of ambulances, the want of organization, the drunkenness and incompetency of

the drivers, the total absence of ambulance attendants are now working their legitimate results—results which I feel I have no right to keep from the knowledge of the department. The whole system should be under the charge of the Medical Department. An ambulance corps should be organized and set in instant operation. I have already laid before you a plan for such an organization, which I think covers the whole ground, but which I am sorry to find does not meet with the approval of the general-in-chief. I am not wedded to it. I only ask that some system may be adopted by which the removal of the sick from the field of battle may be speedily accomplished and the suffering to which they are now subjected be in future as far as possible avoided.

Up to this date six hundred wounded still remain on the battlefield in consequence of an insufficiency of ambulances and the want of a proper system for regulating their removal in the Army of Virginia. Many have died of starvation, many more will die in consequence of exhaustion, and all have endured torments which might have been avoided.

I ask, sir, that you will give me your aid in this matter, that you will interpose to prevent a recurrence of such consequences as have followed the recent battle, consequences which will inevitably ensue on the next important engagement if nothing is done to obviate them. I am, sir, very respectfully,

Your obedient servant,

William A. Hammond, Surgeon General.

Yet even this picture of 600 men lying for ten days on the battlefield of Second Bull Run could not overcome the prejudice of General Halleck against entrusting medical officers with the sacred function of command, even over the drivers and mules of the medical ambulances and the personnel of their own department, and he disapproved the recommendation of the Surgeon General. This essential service was, however, created for the Army of the Potomac about this time by General McClellan, apparently without reference to the War Department, upon the advice of his chief surgeon, Jonathan Letterman, one of the greatest men whose names adorn the annals of military surgery. This organization of Letterman's was finally in 1864 authorized by law and has since been adopted by all civilized nations. It was probably the greatest single step ever taken to reduce the suffering of the wounded in battle.

A distinguished member of the general staff remarked to me not long ago that it was inexplicable to him how a nation as altruistic in its impulses as ours could neglect to make proper provision for the care of its sick and wounded in war in the way that has happened in all our wars. I think, however, that the American people are not indifferent to the care of their sick and wounded, and the failure to make proper provision for them in past wars is due, as it has been in the case also of our English cousins, to a failure to understand what things are necessary to be done in order to secure efficiency. This is no surprising, as the question is technical, and the same lack of grasp of the question has been shared by the War Department, whose duty it is to inform Congress as to the needs of all parts of the military establishment.

A recent remarkable article by a distinguished English general, Field Marshal Sir Evelyn Wood, called "Tactics and Health of the Army," shows that from the same source proceeded the opposition to sanitary progress in the British military service. This article and the remark I have first quoted show, I trust, that hereafter we may hope for assistance where we have hitherto encountered obstruction. My time is too limited to quote interesting illustrations of the appalling losses in lives and efficiency produced by sanitary neglects and the inefficiency of medical administration in our wars. I will only to-night attempt to state baldly what is necessary in the way of preparation for the future.

The duties with which the Medical Department of the Army is charged in time of war are as follows: (1) Preservation of the health of the army. (2) Professional treatment and care of the sick and wounded. (3) The collection of the wounded after battles and of the sick in the field, and their rapid and comfortable removal from the zone of active operations. (4) Such organization of the medical service as will secure the prompt return to the ranks of the sick and wounded as soon as they have recovered. (5) Furnishing the necessary and appropriate medical equipment and supplies for the medical service; and (6) The preparation of the medical records and reports necessary for good administration, and to provide that the interest of the soldier as well as that of the government be safeguarded. Under this head comes most of the red tape which is the bane of the volunteer surgeon. Of these six obligations you will observe that only one, the second, can be performed by the well qualified practitioner without previous military training and experience.

These being the duties of the medical service, the next question is how they may best be carried out. This question was very fully studied by a commission appointed by President McKinley to investigate the conduct of the Spanish War. It was also investigated by a similar commission for the British service as regards the Boer War. The conclusions of the two commissions are so much alike as to be almost interchangeable, the cardinal error being, in both countries, the failure to provide for the regular army in time of peace the full number of trained medical officers which a logical organization demands. I wish to say in passing that, with this one exception of an adequate personnel (and this has been much improved by recent action of Congress), the Surgeon General was able to state in his last report that all of the seven recommendations of the Dodge Commission have been or were in process of being carried out.

Until recently line officers were quite inclined to think of the duties of the medical officer as limited almost entirely to professional treatment and the furnishing of medical supplies, and I think such is still largely the opinion of the laity. Yet it is not difficult to see that the prevention of disease is of primary importance. Also from the cold, unsentimental, practical point of view of the efficiency of the army as a fighting machine, the fate of the sick or wounded man who cannot be returned to the ranks is of no importance except for its effect on the morale of his comrade. It is likewise extremely important that the army shall preserve its mobility and be disencumbered of the sick and wounded, and that those who promptly recover are returned to the ranks. After modern battles the number of quick recoveries from bullet wounds is very large—amounting, as is estimated, to one-third of the wounded within one month. This failure to return convalescents to the ranks was a constant source of complaint during the Civil War, and was one of the drawbacks to the intervention of the Sanitary Com-

mission and other civil agencies in the work of the medical department.

The prevention of the infectious diseases was, until very recent years, when the methods of transmission have become accurately known, not on a scientific basis, and the partial measure of success attained was by following empiric rules born of experience. As late as the Spanish-American War we did not know the method of transmission of malaria and yellow fever, the two diseases which, in six weeks, reduced the disciplined and gallant little army of Gen. Shafter to absolute impotence. We thought we knew something of the transmission of typhoid fever, but our experience in civil life led us to believe that it would be in the army principally a water-borne disease, and it required much bitter experience and the exhaustive investigations of Reed, Vaughan and Shakespeare to teach us that the epidemic typhoid of the volunteer camps was a contact infection, with fly transmission as a secondary factor, water infection being practically excluded. Now, however, preventive medicine has reached a high degree of efficiency in the army, and is a matter in which the more progressive officers of the line are beginning to take a keen interest. Its application requires, however, a large increase in the number of medical officers authorized for the army as compared with the proportion which formerly sufficed, and some of this increase must be highly trained specialists. The powers that be have heretofore shown a decided unwillingness when the army has been increased to supply the simple rule of arithmetical proportion to the medical corps by giving the medical staff the same increase which has been given the army as a whole. As a result of this attitude the number of officers in the medical corps is now less in proportion to the strength of the army than it was at the beginning of the Spanish War, or of the Civil War, or of the Mexican War, and even when the medical corps is filled to its authorized strength in 1911 the proportion of medical officers will still be less than at the beginning of any of our wars. When, therefore, a larger proportional increase is asked in order that the new responsibilities may be successfully met, it is to be feared that much opposition will be encountered.

It has been demonstrated by the Surgeon General that to man the field organizations of the medical service and the service of the line of communications and base, the strength of the medical corps should be one per cent. of the strength of the army. It is at present about one-third of one per cent. There is no reason why the medical organizations of the regular army should go into a war short handed any more than any other part of the army. They will be promptly depleted in any event to supply trained men for various administrative positions where their services may be needed with the volunteer troops. The proportion stated seems large, but the necessity becomes apparent when, in addition to the number of officers employed in sanitary work, we consider the method in use for the evacuation of wounded and sick from the army in the field. The field hospitals, of which there are four with each division, being marching organizations, are intended to receive and shelter serious cases only until they can be passed back successively to the evacuation hospitals, and thence to the base hospitals. Therefore, these units stand one behind another and pass the sick and wounded along like a row of men pass buckets of water to a fire in a country town. The method is expeditious and effective, but it requires a large personnel, and there must be no gaps in the line or the system will break down.

Our cardinal need is thus a full quota of trained medical officers for the army in time of peace. This is what we must have, and my message to you tonight is to ask your persistent and active aid in demanding this of the War Department and of Congress. We need, however, something more—we want men. The granting of a logical organization will not help us unless we can fill it with capable, efficient young men. There are at present 104 vacancies in the medical corps of the army. The pay, allowances and status of medical officers, and their prospect of promotion, have all been recently greatly improved by the action of Congress, and we can now offer what we could not a year ago—an attractive career to the young medical graduate. A young medical officer upon admission to the corps is given the rank of first lieutenant and his pay is $2,000 a year. He is furnished, in addition, with a commodious house, furniture, horses, fuel, lights, forage, professional books and instruments. He receives many things in the way of gratuitous personal services. He can purchase supplies from the Government at cost. When he travels under orders his expenses are paid and the Government packs and transports his property, and when necessary stores it for him without charge. At the end of three years he is promoted to captain and his pay is raised to $2,400; at the end of two years more he receives a further increase to $2,640. I think it is a fair estimate to say that upon entering the service he gets in the way of pay and allowances the equivalent of $3,400, and at the end of five years' service the equivalent of $4,000 a year. I am inclined to doubt whether the pathway of the beginner in civil practice is so strewn with roses and with dollars and his professional services are in such demand that these positions can be considered unworthy of notice. It must be that young graduates are not well informed as to the excellent prospects afforded by the medical services of the army and navy. I believe if each member of this society would make it his duty to speak to one or two young men who are about completing their hospital course and are ready to begin practice, that our Army Medical School would be next winter full to its limit with candidates for the corps.

The policy of the department is to give medical officers constantly greater opportunities for special study and professional advancement, and the service is not now a monotonous round of sick calls and hospital work. It is varied by many opportunities for special work of interest and importance. Col. Gorgas, with several assistants from the army, has sanitary charge of the great national enterprise at Panama, where success spells fame, and, it is to be hoped, high reward. Ashford, with King, of the Public Health Service, not long since conducted a two-years' campaign which rescued the coffee raisers of Porto Rico from universal hookworm infection. I have myself recently returned from a tour of two and one-half years as sanitary adviser to the Cuban Government, where I had the pleasure of preparing the new law which will, I trust, give Cuba a model sanitary organization.

A medical officer has just been detailed for work at the Rockefeller Institute; another is a lecturer on tropical medicine at the Post Graduate School in this city. A number of our men have taken courses at the London School of Tropical Medicine, and others are now members of a board for the study of

tropical diseases in Manila. Almost every month medical officers are sent to represent this country at international congresses abroad and important societies at home. In the Russo-Japanese War medical officers were assigned as observers on both sides, and a medical officer is at present hunting lions and butterflies with Mr. Roosevelt in Africa.

I have not yet stated the full list of our necessities. We need a careful system of training for the medical personnel of the organized militia, which is a part of our first line of defence. This should be uniform throughout all the States and should be promoted and assisted in every way by the War Department through its militia division. We need also to have a large number of capable, well educated young men on the rolls of our Medical Reserve Corps, who will be available in time of war and receive some instruction in time of peace by being called out for a week or two of duty at the maneuver camps. It is the intention of the department to make the examinations for the commission in the reserve corps as rigid as is the examination for permission to practise in any State. It would greatly increase the value of these commissions if the State authorities in each State would confer on the bearers of them the right to practise in any State. This would also greatly advance the cause of interstate reciprocity and the creation of a standard of medical education in this country.

Our sister service, the navy, is always near a war footing, and necessarily cannot be rapidly enlarged, and so it does not suffer to the same extent from the wants, the neglects, the disgraces of a sudden and vast expansion for which provision has not been made in advance.

But for the army, the only limit to its expansion is the number of men capable of bearing arms. In the same way the only limit to the increase of the medical department in war is the number of physicians in the United States. It is, therefore, proper that each member of this society should regard himself as a part of the great medical reserve of the nation in arms. It is among all nations an obligation of the citizen to give service in arms to his country in time of need, and I take it to be the duty of a good citizen to take some thought and give some effort in the way of preparation against the evil day. It is at the beginning of wars that the sick and wounded have always suffered most from confusion and lack of organized method, and, therefore, any help which each of you will give to promote the preparedness of the medical service is a valuable and appropriate contribution in discharge of your patriotic duty.

SOME FEATURES OF THE MEDICAL DEPARTMENT OF THE NAVY IN PEACE AND IN WAR.

By CHARLES F. STOKES, M.D.,

SURGEON UNITED STATES NAVY.

As the scope of the duties of medical officers of the navy is so little appreciated outside the service, and particularly by physicians in civil life, it will perhaps be well to devote the few minutes allotted to a consideration of our field work in general rather than to dwell upon some interesting feature of our daily routine.

I know of no body of medical men who are taken less seriously by the public in general than are medical officers of the navy. The public knows that the requirements for entrance are of a high standard, and it believes that we, as a rule, are pretty well equipped at the outset; and it is equally true that it pictures us afterward comfortably housed in luxurious battleships, with little or nothing to do but to look after the trifling ailments of rugged, husky, young fighting men. It believes, too, that the navy offers a very limited field for develpoment along purely professional lines. Possibly this was true prior to the present decade, but conditions have changed radically since the Spanish-American War. The best minds in every corps of the navy are seeking to add to efficiency; the spirit of rivalry among the various corps keeps up enthusiasm and tends to do away with laggards. You have noted with pride, no doubt, the marvelous advance in numbers and types of ships and the wonderful strides in gunnery in recent years; it gives me pleasure to assure you that the medical corps has kept pace with the others, although, as is usual, little of the glory or glamour has come our way. The unceasing efforts of Surgeon-General Rixey have made this progress possible.

In taking you over our field of work it will be well to point out to you the material we have to work with, where it is recruited and how, what is done with it to shape it into the up-to-date fighting man, and how preventive medicine, including prophylaxis, hygiene, and sanitation, has been implanted upon the service. The drills in first aid to meet battle conditions on board ship and on shore and sanitary instruction will be considered. We shall thus far have dealt with the selection of suitable material for the personnel, its protection from mishap and disease, and the instruction given to care for the accidents and emergencies of peace times, which naturally is doubly important as a preparation for war. I shall then briefly state how and where the sicknesses and injuries these fighting men are incident to are cared for. You will be surprised, without doubt, at the extent of our equipment and the amount of work we are doing, and particularly the special lines of work that are being pursued. The question of handling the sick and wounded in time of war will also be discussed. Naturally, such a broad field can only be dealt with in a cursory way in the short time available; nevertheless, I shall endeavor to emphasize the special features of our work that merit particular attention and in the advancement of which we look to the great medical body in civil life for encouragement and support.

The fifty or sixty thousand sailors and marines of the fighting establishment represent but a small proportion of the number of individuals we care for. There is that great body of civil employes at our various navy yards and naval stations, officers' families, retired officers and their families, the inhabitants of our island possessions, and thousands at Panama and elsewhere.

You have never fully realized, in all probability, that each one of the fifty or sixty thousand officers and men is subjected to a painstaking, careful physical examination by a medical officer or a board of medical officers of the navy. In the case of the enlisted men, the examination comprises a lot of detail work, and is in no sense a perfunctory procedure. The sight is tested, the hearing tried, the color sense looked into, the teeth inspected, likewise the mouth, fauces and nares, and all abnormalities are noted, whether the applicant is rejected or not. He is stripped and looked over for ankyloses and

deformities—for hernia, for hemorrhoids, for fistula, for venereal diseases, and for lung and cardiac lesions. Each candidate is weighed and measured, and, for purposes of identification, all scars and physical characteristics are noted, and thumb and finger prints are recorded as well. This enlistment record follows the man throughout his career in the service, is added to from time to time, and is finally filed at the Navy Department for reference in connection with possible future pension applications.

Upon the care with which these important examinations are carried on depends the physical make-up of the fighting men of the navy. Loose recruiting methods have led to no end of trouble in the past, particularly when it has been necessary to employ the services of physicians in civil life who are generally not familiar with the peculiar features of the service that demand a high physical standard and no varying from it. The medical officer on recruiting duty, and when serving on boards for the physical examinations of officers and others, must assume the mental attitude of the insurance examiner, differing only in that he should be more painstaking in his examinations and more conservative in judgment, for he is dealing with the safety of human lives, possibly the destiny of the nation, not with dollars alone, as in the case of the insurance man. He should search for defects that may make the applicant a bad investment for the government—poor material to be whipped into shape, and which, if overlooked, might possibly lead to a life pension.

When we are detailed to serve on boards for the physical examination of midshipmen we have a complicated problem in hand. High physical standards are required. It is not at all difficult to determine who comes up to these standards and who does not. The findings of these boards should be final, but they are not so in any sense. When a midshipman learns that he has been found physically disqualified, and has been recommended by the board to be dropped, he at once sets his protective machinery at work. His Congressman is usually communicated with early, and the next move is to consult either the optimistic oculist, the optimistic heart man, or some other optimist in civil life. Armed with the every-ready optimistic certificate from the civil optimist, the Congressman calls upon the Secretary of the Navy, who is placed in a difficult situation, and naturally looks to the Surgeon-General to help him out. If the department does not dispose of the case at once, it is probable that the board will be asked to reconsider its findings. Having already carefuly considered the case on its physical merits, with the best interest of the service before it, and at the same time safeguarding the interests of the individual, the board rarely changes its conclusions, and in the end the Navy Department finally disposes of the case as it sees fit.

When you gentlemen are asked for a certificate as to the physical qualifications of a rejected midshipman, ask yourselves whether or not he is of the physical make-up to stand the enormous mental and physical responsibility of taking a great battleship with its thousand or more souls into action, or perhaps to lead a fleet into battle, when possibly the destinies of this great nation hinge upon his behavior. Only those who are physically and mentally sound can be relied upon under such conditions as these, and the country should have the services of this type and not those in the doubtful class, physically and mentally. When you, through sympathy or other perfectly natural motives, help to patch up and bolster through those who are physically defective, you assume a very grave responsibility. It is generally believed that we are not familiar with the refinements of diagnosis in heart cases, that we cannot appreciate or differentiate between hemic, accidental, so-called functional and cardiac-respiratory murmurs, and the valvular and other organic lesions. It is assumed that we know little about eye cases. To examine between eight and nine hundred midshipmen is an education along these lines in itself, particularly when one has become familiar with various types in the service. Bear in mind the marvelous changes that have taken place in the navy in very recent times. It was customary for ships to cruise singly; fires were hauled after getting to sea and ships proceeded under sail; there were few cables and little to disturb peace of mind. To-day ships cruise in fleets, cables are ever present, the wireless apparatus is going day and night, signals are incessant, evolutions are carried on constantly; the danger of collision is real and must be averted. Competition in gunnery is keen; drills are frequent. Then, too, we have duty on torpedo boats and submarines and shall soon be navigating airships. These changed conditions have made a serious impression upon naval officers already. Reflect upon the foregoing, put yourselves in our places, and you will, I believe, examine your midshipman from the only logical viewpoint.

So much for the material we have to deal with professionally. How do we safeguard this material from disease and injury? First, let us consider nutrition. All water in use on board ship for drinking purposes and in the preparation of food is distilled. The navy ration has been worked out upon scientific lines, and the necessary number of calories are provided for. The supply ships of the fleet are stocked with fresh meat and vegetables in abundance, and each warship is equipped with an ice plant. A much-needed school of cookery has been established for the instruction of navy cooks; this, in time, will lead to the proper preparation of the ration and the prevention of undue waste. Painstaking care has been devoted to the hygienic features of lighting, heating, and ventilation of living spaces on board ship. Dryness has supplanted moisture between decks, and the common drinking cup has disappeared. Each hospital ship carries a dentist, and it is amazing to see the numbers of men who, of their own accord, apply for dental treatment.

Enough has been said to show to what extent preventive measures prevail in naval practice. Most gratifying results have followed the systematic prophylactic treatment of venereal disease. In the old days I have seen a ship leave the Asiatic station with 90 per cent. of her crew syphilitic; to-day the percentage is not more than two or three, if that much. While these satisfactory conditions exist on board ship, we are unable to control our men on shore; and sooner or later, when we remain long in a port, they acquire a fair share of the prevailing diseases of that particular locality if given much shore leave. As our men are young and recruited from rural districts, where the common diseases of childhood do not prevail, these diseases find virgin soil in the navy, which accounts for the frequent outbreaks of measles, diphtheria, scarlet fever, chickenpox, and other diseases of this sort. When the Atlantic fleet arrived in Honolulu, 10 days from San Francisco, there were 59 cases of contagious diseases distributed among the ships.

Let us see what provision is made for the care of the sick and injured of the personnel afloat and ashore. This matter naturally is in the hands of the medical corps, which, with all vacancies filled, is one of the largest specialized bodies of medical men in the world. There will, when the corps is full, be 345 regular medical officers and 25 acting assistant surgeons, making a total of 370. There are about 1,100 hospital corps men and the recently organized female nurse corps serving under the medical department and already on duty. There are 18 hospitals now in commission, and they may be compared in size and capacity with the General Hospitals of the Army. Two new 350-bed hospitals are to be built in the near future, one on the Great Lakes, the other at Pearl Harbor, near Honolulu, in the Hawaiian Islands. In addition, we have two hospital ships, the Solace and the Relief. The medical and surgical equipment of these establishments is thoroughly up to date. In addition to the hospital ships, each warship has its own hospital or sick bay. Each of the battleships and armored cruisers is provided with a sick bay with a varying number of beds, bath room, operating room, store room, examining room, dispensary, and an isolation ward. Such a plant may be likened to a post hospital in the army. You will no doubt be surprised to learn that many of these hospitals are taxed to the limit of their capacity.

You will naturally be curious to know what classes of cases we treat in our hospitals. Much the same as you see in the great civil hospitals, barring women and children, while in the tropics—in Porto Rico, Samoa, Guam, the Philippines, and at Panama—tropical diseases prevail. As might be expected, various types of traumatism are of frequent occurrence on board ship, and these mishaps are apt to be met with at most inaccessible points, making transportation methods complicated and difficult. This will be appreciated when you stop to consider the many water-tight compartments, the turrets, magazines, coal bunkers, and the like which go to make up the modern fighting ship. The transportation apparatus which seems to meet these unusual conditons best is the splint stretcher devised by the writer several years ago, and now in use both in the army and navy.

You must not lose sight of the fact that naval medical officers serve in the field and on shore with the Marine Corps—some 10,000 officers and men—and, too, that there has been no recent war in which the navy has not participated in operations on shore. Many naval medical officers have served with foreign armies as well. It is evident that we should be prepared to cope with the exigencies of service with troops on shore.

A number of naval medical officers are engaged in special work. Some are devoting themselves to diseases of the eye, ear, nose, and throat; others are giving their attention to surgery; still others to tropical medicine, pathology and bacteriology, and to naval hygiene. One has command of the Hospital Corps Training School; another has charge of the Naval Medical Supply Depot, and purchases practically all the medical and surgical equipment for the navy. Others are on duty at the Naval Hospital at Las Animas, Colo., which is assigned to the treatment of tuberculosis, and where Surgeon Barton L. Wright, of the navy, has put his treatment of that disease, by means of succinimide of mercury, on a scientific basis and has attained brilliant results well worthy of careful study. At the Naval Medical School nearly all the instructors are naval medical officers who have specialized in the branches they teach. The Bureau of Medicine and Surgery publishes *The Bulletin*, a journal restricted to the observations of medical officers on board ship and at shore stations.

Let us now take up the question of the medical department of the navy in war. Theoretically, all departments of the navy should be on a war footing at all times. It is too late when war is imminent for the navy to attempt to expand. If actual hostilities were to be declared to-day, the breakdown in the medical department of the navy would be as appalling as any that has occurred in recent times. First-aid instruction as now given is utterly ineffective. On a battleship carrying nearly a thousand men, two medical officers have this instruction to give, and this for short periods at comparatively long intervals. The matter is not taken seriously. The line officers should instruct the men, and this instruction should be a part of every drill with guns, great or small. From 5 to 10 minutes of each drill period devoted to the work would soon solve this problem. The medical officers should confine their efforts in first aid to preparing the line.

The fighting men know what they can do in the matter of hits, and they should be made to realize that the enemy is going to be just about as effective as they, and that the preparation for probable injuries should be seriously considered and should be associated with the weapons of offense. Let us suppose that the Atlantic fleet on its recent cruise had engaged an equally powerful enemy, what would have been the result? From the lessons of the Russo-Japanese War we have learned that we must provide for 30 per cent. of casualties. What would we have done with 5,000 wounded if the action had taken place at a point far removed from a base? The hospital ship, Relief, with its 215 beds, would have been about as much use as a dressing station to an army. As a wireless outfit was denied this ship, in order to keep within signal distance, it would have been obliged to remain within the danger zone, and would therefore have stood a good chance of being destroyed. When one gives the best there is in one for one's country and one's flag, common humanity demands, aside from all questions of military efficiency, that proper provision be made to minimize one's suffering and make recovery possible, should one be wounded.

To meet this situation, there should be one spacious, stable hospital ship with a capacity of at least 500 beds with each fleet, and at least one fast ambulance ship with each fleet as well to act as tender and medical transport, to be employed in removing the wounded to shore hospitals. A naval medical reserve corps should be established, so that those whose services wil be required in war times shall be familiar with their duties and the peculiarities of the naval service. Properly appointed hospital ships should be specially built for the purpose. The ordinary merchant steamer is just about as useful as a hospital ship as it is as a fighting ship. At least two hospital ships should always be in commission for drill purposes, and each should always be commanded by a medical officer with a competent navigating officer under him. This arrangement worked with perfect satisfaction on board the Relief. To equip, organize, and run properly a 500-bed hospital afloat is an undertaking requiring executive ability, force, skill, and tact; the unusual problems incident to such a command should all be worked out

in actual practice in time of peace. The hospital ship should not be a novelty in the fleet. As a drill in the varied features of neutrality in naval warfare, its existence is justified. Had the hospital ship, Relief, continued on with the Atlantic fleet from Manila to Hampton Roads, it would have been in the vicinity of Messina at the time of the recent appalling disaster at that place; and with its many beds, superb equipment in the medical department, large quantities of medical stores and field outfit, it could have rendered a service which would have reflected great credit on this nation and have added another triumph of peace to the record of the battleship cruise.

Had the earnest pleadings of the Surgeon-General been successful, the Atlantic and Pacific fleets would each have had a spacious, well-equipped hospital ship at hand when earthquakes devastated Martinique and leveled Kingston in the Atlantic, and practically destroyed San Francisco on the Pacific side. At this moment, without doubt, if such a ship were in commission, it would be steaming toward Constantinople.

If this cursory consideration of some of the problems that daily confront the medical corps of the navy has brought anything new to your notice, I shall be well repaid for preparing it. The medical corps of the army and that of the navy work hand in hand, and I hope in the near future to see us in closer touch with the national guard and our colleagues in civil life.

THE NATIONAL GUARD SURGEON.

By WILLIAM G. LE BOUTILLIER, M.D.,

NEW YORK.

LIEUTENANT-COLONEL, DIVISION SURGEON, NATIONAL GUARD, N. Y.

In the National Guard of New York State there are about 120 officers commissioned as surgeons and assistant surgeons of varying rank. About one-half are stationed in Greater New York, 20 in Albany, Buffalo, and Rochester, 3 each in Binghamton, Troy, and Utica, and the remainder, 32, at 20 widely separated cities or towns where there are armories for separate companies.

Commissions are given by the Governor of the State to candidates who have passed the prescribed physical and professional examinations before a board of medical officers. The professional examination is oral. The board no longer examines in anatomy, physics, chemistry, and physiology, on which subjects few physicians are prepared for a real examination at the period after graduation when most candidates come before it. The principal subjects on entrance are general medicine and surgery, the treatment of diseases and injuries to which troops are exposed, and camp and personal hygiene. The examination for promotion is almost entirely on military subjects and administration.

The official title of surgeon or assistant surgeon is a relic of the days when a medical man in the militia was first and foremost and frequently only a doctor, with duties almost entirely confined to treating men after they had become sick or were wounded. These titles are now omitted when a physician is commissioned in the Army Medical Corps, and it is expected that this State will soon make the same change, which reflects the progress of preventive medicine and the corresponding change in the duties of a medical officer.

It is not many years since the chief qualifications of a physician for a commission as a surgeon in the organized militia apparently were a love of wearing a uniform with a liberal amount of gold lace, a facility in telling stories of easy virtue and any age, and the time and ability to stay as late at any social function as the supplies of tobacco and drinkables held out. Equally important was it that he could be readily hypnotized so as to perceive, at the suggestion of a recruiting officer, that an undersized or physically defective recruit was a husky citizen of unusual vigor and muscular development.

But these happy, careless times have passed, and the physicians who hold commissions in the Medical Department of the National Guard of this State at present are expected and required to have very different abilities and to work very hard. In a general way their duties resemble those of medical officers in the army, but there are some important differences. In the State service medical officers comparatively seldom have any military patients to treat; they do not ordinarily purchase or issue the medical stores needed; their hours of duty are not the daylight ones, for except for a week every year or two when in camps or at maneuvers, they give their services in the evening after attending to their daily occupations; and they spend a larger share of the time they give to the State in examining recruits, and in training the enlisted men of the hospital corps. With a regiment there are usually four medical officers, and if the work is to be satisfactorily done, each, as a rule, must spend at least two evenings a week at the armory for eight months of the year. In addition to this a large amount of time has to be given to reading and study.

When called into active service, or at camps and maneuvers, there is no essential difference in the duties of medical officers of the army or of the National Guard, except that in the State service more time has to be given to teaching both the hospital corps and the officers and men of the line. The National Guard is an educational organization and every officer has to be both a teacher and a student.

When not on active service the principal duties prescribed for medical officers in the National Guard are to enlist and train the men of the hospital corps, to examine recruits, to keep on hand in readiness for active service the medical supplies authorized for such service and issued by the Adjutant General of the State, to teach hygiene and sanitation and the principles of "first aid" to the line officers and the enlisted men of the hospital corps, and to learn to perform their own duties.

When at the camps or maneuvers, or on active duty in case of riot or strike, they advise commanding officers as to sanitation, make sanitary inspections and reports, care for and keep records of the sick, care for hospital corps men and train them in practical sanitation and field work.

From the point of view of the average line officer a medical officer is a necessity or a necessary evil in order that recruits may be examined physically. At some of our company posts they do without one and have their recruits examined by physicians not in the National Guard. The line officer rarely takes any interest in the hospital corps or in the training of the medical officer to perform his military duties, nor does he at present often realize that in the field an efficient medical department is as important as the supply of food, shelter, and ammunition.

The examination of recruits is indeed a very important duty and one that requires some training to perform quickly and skilfully, though it is of far

less importance than the line officer apparently regards it. The rejection of those recruits who do not fully satisfy the standard requirements is essential, so that the troops may be physically sound and able to respond to the calls on their strength and endurance that will certainly be made upon them in any active service. The examination should be as cold-blooded in its requirement of fitness as the judgment of a veterinary surgeon as to the soundness of a horse. It is not exactly like an examination for life insurance, and it is very unlike the physical examination of a patient in whose case treatment is to follow the diagnosis. To acquire a correct judgment of physical endurance and fitness takes some experience both in the actual examination of recruits and in the strain upon the soldiers incident to field service. The State wants only the best recruits and the best can be had. It is the duty of the medical officer to reject the others. We have so little field service and marching that many medical officers do not appreciate how much strength and endurance a soldier must have to march with his heavy load of field equipment, and they accept at times and too often unfit men on whose training the State wastes large sums of money, as a few days of active service exhausts them and they go on the sick list with claims for pay and can ask for pensions.

The enlistment and training of men for the hospital corps takes, or should take, rather, more than half the time of the National Guard surgeon. There are authorized to serve with each regiment thirty hospital corps men. Their duties are to care for the sick in the field, and to give "first aid" in case of accidents, to act as bearers, to pitch and equip tents, cook, drive and load ambulances, and care for the horses or mules used by the medical department. The number of them reported enlisted in February was 438, a gain of 15 in the preceding six months, but 200 less than the authorized strength. Of those enlisted August 31, 1908, there were 21 physicians, 9 medical students, 36 pharmacists or druggists, 5 trained nurses, 2 nurses, 5 hospital orderlies, 3 laboratory assistants, 3 veterinary surgeons, 1 chiropodist, 1 radiographer, 10 drivers, 2 horsemen or hostlers, or 108 men, one-quarter of the total strength whose daily occupation was in direct relation with the care, treatment, or transportation of the sick. But it should be noted that only 12, not 3 per cent., were nurses of any sort. The majority 107, of the other men of the hospital corps were clerks and salesmen, and 73 were mechanics or had some trade. Hardly any are laborers, and the average of intelligence is fairly high and sufficient for their duties.

The kind of training and degree of training that can be given to the hospital corps man is of interest. The National Guard maintains no permanent hospitals, and has no way of finding any clinical material to use for training in the actual care of the sick except when troops are in camp or on active service. At such times the number of patients is very small so that no adequate training as nurses or in minor surgery can possibly be given. In the State military service it would be a medical crime to keep the sick with the troops in tents, with rough field cooking, and incompetent nurses, as there are large numbers of hospitals accessible from any place where troops may be located. Accordingly the practice for some years has been to transfer all the seriously sick as soon as possible from the camp to some well-equipped civilian hospital where there are trained nurses, and place their medical or surgical treatment in the hands of physicians who are not necessarily in the military service. This of course entirely prevents training the hospital corps men as nurses, but it is more economical for the State, more humane to the sick for whose care and comfort better provision is made. It also avoids the danger of spreading communicable disease to the troops, makes the troops more mobile as they are not encumbered by sick, and leaves more time for sanitary inspection by medical officers.

What can be done with the hospital corps men is to train them to be soldierly and disciplined, to act as bearers and give "first aid," to erect and equip the hospital tents, to cook, and to transport the sick and wounded.

The field hospital mustered in three years ago is an organization whose real function is to transport the sick, not to treat them except when absolutely necessary, as after a fight. The National Guard being organized as a division, should have four field hospitals instead of only the one that as yet exists, and the number of enlisted men in each should be 118, while only 80 are authorized now on account of lack of armory space and money to provide uniforms and equipment. As the field hospital has little recruiting to do compared with other detachments of the medical department, it has been possible for its commanding officer, Major William S. Terriberry, to arrange a satisfactory course of instruction for its officers and men in their military duties. Nowhere else in the State are the medical officers and hospital corps men so well trained for their actual duties in the field. In the field a large number of them must ride, but at present they have little or no opportunity to learn to do so or to care for horses except those who are in the field hospital and about twelve officers and twenty hospital corps men attached to cavalry, field artillery, and signal corps organizations.

Actually the most important duty of the National Guard surgeon is to study military hygiene, the military law, regulations and orders, to prepare himself for service in the field and at the front. His duties bring him into constant and close relations with other departments, and he must know almost as much about subsistence and transportation as a commissary or quartermaster. He must know all about the management and control of a company as he has to care for his hospital corps men and the sick in hospital in the same way that the captain of a company of infantry or cavalry cares for his men. There is indeed nothing that he can know about military matters that is not likely to be at some time of service both to himself and to the troops with which he is on duty, and to increase his value and efficiency as a purely medical officer.

The National Guard surgeon must learn field sanitation not only by reading books but by acutal field experience. His responsibility is not for what is actually done in the field by the troops but for giving correct advice to his commanding officer. A highly important duty is to teach sanitation to the line officer, and to so conduct himself that he gains the confidence of his commanding officer so that his recommendations will be considered judicious and put in force. To care for troops properly it is necessary that every line officer should be interested and trained in military hygiene. If only the physically fit are enlisted, enlightened care of troops will maintain them in health, unless military necessity requires their expenditure by disease or

overwork just as any munition of war is expended to defeat the enemy. When the medical officer has taught the line officer that most disease is preventable, and how, the day will have dawned when troops will have to fear death from the enemy's weapons as much as from the ignorance or carelessness of their own commanding officers. To bring about such a degree of knowledge is a large and constant task for the physician in the military service. To those who are working toward its accomplishment the medical profession and the public owe a great deal, for the service is a very necessary one and the compensation quite inadequate.

170 West Seventy-third Street.

THE HYGIENE OF THE REGIMENT.

By HARLOW BROOKS, M.D.,

NEW YORK.

CAPTAIN AND ASSISTANT SURGEON, SEVENTH REGIMENT, N. G. N. Y.

This very brief paper has been prepared in order that an idea might be given of those features of national guard life which render service in this organization attractive to medical men.

A doctor who joins the national guard does so, in most instances, I think, from a feeling of patriotism and in the expectation that his experiences in this service may prepare him for the duties of a medical officer of volunteers, should the country at some time need his services. It is all too generally thought among medical men that all that is necessary for a man to be an efficient medical officer is for him to be a good doctor. Our preceptors of the regular services can tell you that this is, on the contrary, but the primary or preparatory essential. Some of the most important duties of the military medical man are but little appreciated by those of us exclusively in civil practice.

One illustration of the difference in standpoint will perhaps suffice. In civil life we are chiefly occupied with the care and treatment of the sick; in military medical life one is chiefly concerned with the care and management of the well, that they may not become sick, and in case of sickness the chief duty to so dispose of the patient that without detriment to him he may not by his presence or helplessness hamper the activity of the military body. His treatment, except that which may be classed as emergency, may be well left to civil physicians. It is a somewhat brutal but none the less true saying that from a military standpoint a dead soldier is twice as valuable to a nation as one sick soldier; this because of the attendance and care which must necessarily be provided for the military sick and which must therefore be deducted from the fighting strength of any command.

Hence it is that the medical officer of a regiment is chiefly concerned with hygienic problems, and in this respect he should be far more efficient than a civil physician, both because of his special technical training and because of the authority vested in him by his rank, and therefore his ability to order and to put into force needful, though perhaps onerous, rules which would never be tolerated in civil communities. It is chiefly the experience and interest in this active, aggressive and militant hygiene which renders service in the medical department of the national guard attractive to the physician. He who enters the service with any other ideas or ambitions in mind is doomed to probable disappointment and his organization to more or less military inefficiency.

It is primarily assumed that the personal of the regiment is composed of healthy and altogether sound men. That this be so is the united duty of the line and the medical recruiting officers. It is then the primary duty of the regimental surgeon to see that each man remains in such condition that at all times he may be found in a physical condition fit for active service.

Among the most important duties of regimental medical officers serving with foot soldiers is the supervision of the care of the feet. All the care and solicitude which the mounted man bestows on his horse, for the infantryman should be directed to his feet. Even relatively slight defects of the feet are the cause of the absolute rejection of a recruit, and it is all the more essential that, once enlisted, this most important detail for the foot soldier should be thoroughly enforced. Regular inspection of the feet, either by the surgeon or by the company officer under the supervision of the medical officer, must be made. The persistent bathing of the feet and early attention to all blisters, corns, and chafed areas must be insisted upon. A very trivial blister or corn on the sole of the foot will disqualify and render a charge of the best soldiers. Supervision of the shoes, of the character and cleanliness of the stockings are therefore of very essential import for the military medical man.

The skin of the men must be looked after, all diseases due to vermin must be detected early and efficiently quarantined, or a whole company may become infected and perhaps disqualified for service. Officers must see that the men bathe as often as the conditions of service permit. Soiled underclothing must not be worn. The changes in uniform in accordance with climatic variations are customarily regulated by the commanding officer under the advice of the senior surgeon; thus the military medical man becomes, in an important way, a weather prophet.

It is very important that the soldiers' teeth remain in good condition; poor teeth mean poor mastication and consequent deficient digestion and absorption of food. Underfed soldiers are inefficient; therefore the military medical man must act as dentist and not only advise but see that his advice is acted upon.

Second in importance to the personal hygiene is the supervision of the food; the military medical man must be also an expert grocer and butcher. It is his duty to pass on the quality of the food, on its preparation, and even on the manner in which it is served; he must be an efficient cook and head waiter. How many of you know just exactly what constitutes a good cut of beef, just how beans should be cooked, and under what geographical and climatic conditions this or that food is to be issued or rejected? The military medical man must be fully acquainted with all these questions, and he must be prompt in his decisions, for more than the welfare of his men depends on it; perhaps even the loss of a battle or of a cause.

Even in civil life I think that the importance of the drinking and cooking water is fully appreciated. Nearly all the serious epidemic camp diseases, as typhoid, cholera, dysentery, are, at least at times, water-borne. With all this we are familiar, but in camp at times impure water is all that is available. Of course, boiling it renders it safe, but though it is not always easy in civil life to see that our clients do this, if they do not in military life it is the medical officer who is blamed. On the other hand, it is under his recommendations that guards may be posted

over suspicious water supplies and all the water available is directly under his absolute military control.

The disposal of the waste, especially of the human excreta, is the subject fully appreciated in civil practice. I shall therefore but mention it, for even under the most disadvantageous conditions the medical officer is competent to cope with this perhaps even more efficiently than is his civil colleague whose experience in camp life and its conditions may be limited. Relatively little attention is devoted in civil life to the disposal of the urine, and yet Vaughn has shown that typhoid, cholera, and doubtless other diseases are commonly disseminated in camp life by the urine. Special orders in regard to the disposal of this fluid must be not only published but most rigidly enforced. In civil life a doctor is rarely consulted as to the disposal of horse manure, but in regimental camps this becomes a matter of great hygienic value, for flies breed chiefly in this material, and flies disseminate throughout camps typhoid, dysentery, and cholera. Not only must the breeding of flies be prevented, but that of mosquitos as well. The regimental doctor of this century is expected to be an expert entomologist; he must be able to distinguish the anopheles and the stegomia—not only this, but it is his duty to see that their breeding spots are ferreted out and eradicated. He must see that all patients with malaria or yellow fever are carefully screened with insect-proof web so that no mosquitos may bite them and thus transmit the disease to others. Is there any hospital in New York City where the ward patients are thus protected from malarial cases in the same room?

The venereal problem, so troublesome in civil practice, is even more so in the military, where gonorrhea and syphilis may cause the loss of a battle or perhaps determine the fate of a whole nation. As perhaps some of you know, the old Greeks coped with this problem in a most efficient way. Modern conceptions of morality prevent this with us, but I have heard it whispered that our brothers of the regular services when far enough distant from the various meddlesome organizations of modern society find also very effective means for eradicating this extremely serious difficulty. Quarantine of these patients in the regular service is effectively carried out, but in militia camps this is a matter of the greatest difficulty and under present conditions largely beyond our control. All that the medical officer can do is to advise, and it has been my experience both with line officers and with enlisted men that the counsels of the medical officer receive every respect and attention.

Many of the important duties involved in the selection of camp sites, their hygienic control and policing fall among the duties of the medical officers; this is a great study in itself and here the medical man becomes by turns the engineer, chemist, and military commander.

I have of course only very briefly suggested certain of the duties of the regimental medical officer in regard to the hygiene of his command. All may be briefly summarized in the statement that it is his duty to see that at all times all his command is physically efficient and prepared for the firing line. Ten years' study of these problems in the national guard service has made me extremely modest in these matters and very respectful of the knowledge possessed by the average medical officer of our regular services. None the less, I fully believe that should war break out, under the present efficient management of the Medical Department of the National Guard in New York, the camps of the New York State troops would be found relatively free from typhoid, dysentery, and the other epidemic diseases which have in the past been our chief cause of fatalities and military failures.

I have presented to you a very few of the many subjects which make this side of military science interesting to the medical man; if I have interested some of you sufficiently to make you feel that it is worth your while, I am content, and, in the words of St. Paul, I invite you to "Come over into Macedonia and help us."

44 West Ninth Street.

INSTRUCTION OF THE HOSPITAL CORPS.

By EDMUND PRINCE FOWLER, M.D.,
NEW YORK.
SERGEANT FIRST CLASS, SEVENTH REGIMENT, N. G. N. Y.

The work of the hospital corps necessitates instruction in more varied and diverse fields than that of any other department of the army, and as the success of a campaign depends largely upon the mental and bodily health of the troops engaged, the work of the medical department is of fundamental importance. To be competent, the men must be thoroughly versed and drilled, not only in the drill regulations and outlines of first aid, but in horsemanship, cooking, nursing, hygiene, sanitary matters, etc.

The general principles, school of the soldier, setting up exercises, steps and marching, are best learned by drilling with the companies of the command to which the corps is attached, for one of the prime requisites in hospital corps work is to become thoroughly acquainted with the organization, methods, and practices of the troops with whom one's lot is cast. The school of the detachment, litter drill, handling of the wounded with and without litters, the use of the ambulance, travois, horses, and the hospital and shelter tents can be taught at the regular drills of the detachment. Lectures on and practice in first aid, particularly the use of the first aid packet, the use and improvision of litters, bandages, dressings, splints and slings must be regularly held, and the men should be required to demonstrate these to the troops. This will better fit them for their duties and enable them to become, in case of necessity, competent instructors to the enlisted men of the command.

One important function of the hospital corps is to keep the surgeon in command constantly cognizant of the hygienic and sanitary conditions under his supervision, and of the thoroughness and promptness with which his orders have been carried out. In other words, to act as sanitary police.

In time of peace the hospital corps in the guard are at a great disadvantage in regard to obtaining satisfactory instruction in the care and treatment of the sick and wounded, there being practically none to care for. Imagine a hospital without patients whose personnel consisted of several physicians and surgeons little versed in management and ignorant of the methods of ordering, obtaining, or distributing medical, surgical, food, and other supplies. Imagine under them a few nurses, but many orderlies and helpers whose only information regarding their duties had been obtained from books and weekly drills. Imagine, further, that the ambulance drivers, cooks, and servants had real instruction in their work once in two

years, and that few actual patients were cared for. If this hospital outfit were suddenly sent to a distant city in which there had occurred a terrible disaster what would they accomplish, and how would their organization and training fit them for the emergency? If war should occur in the near future, many hospital corps would present a picture hardly less deplorable than the above, and the most learned surgeons would find themselves so handicapped that their services would be of little avail under the circumstances. The surgeon from civil life, untrained in army methods, can be of use in the army only in the home or base hospitals, or on certain advisory boards.

Fortunately, the work of building up a satisfactory corps in the national guard is making headway, and we hope within a year or so to be prepared, at least in skeleton formation, for the inevitable. In all departments of human endeavor men differ greatly in their training and fitness for specific duties, and we should realize this and assign them accordingly. I believe the only satisfactory solution of the problem in the national guard is to enlist in our hospital corps a sufficient number of physicians, pharmacists, and trained nurses (about 25 per cent. of the corps) so that in time of war these may give to their country not only their services as men, but their services as soldiers disciplined in the work they are called upon to perform, and especially as trained attendants of the sick and injured.

The basis of the corps is the litter squad, consisting of two men, one of whom is experienced and is in command. If, then, even a small detachment be well instructed, we have a solid basis for quickly instructing the green bearers in their duties and of thus enlarging the corps to the requisite number. Most men can be quickly taught to carry the wounded, but it requires constant practice in the sick room to become a competent nurse. Therefore, the trained nurses should be so distributed that they may be used in nursing, namely, at the dressing and ambulance stations at the field hospitals and, if a sufficient number be obtainable, in command of litter squads. The place for the female nurse is in the base or home hospitals, and not with the fighting line.

The army hospital corps pouch contains one bottle spirits of aromatic ammonia; sterile gauze bandages; one case with pins, scissors, dressing forceps; one jack-knife with saw and corkscrew blades; one rubber bandage; one wire splint, and eight first-aid packets. It is simple, compact, and ample for most emergencies. This pouch is carried by the privates in the hospital corps, and every man in a command should be provided with a first aid packet, and instruction in its use should be imparted by lectures and demonstrations, the men being required to practice bandaging and applying dressings and compresses to the different parts of the body.

The first aid packets contain two antiseptic compresses of sublimated gauze in oiled paper, one antiseptic bandage of sublimated cambric with safety pins, and one triangular bandage with safety pins, and mode of application illustrated on same. Directions for using the compresses are printed on the packet. I quote from "Outlines of First Aid," p. 146:

"As most of the first-aid work in war under present conditions will be done by the individual soldier acting alone, and not by a squad of two or more men, it is important that his training should be largely individual and such as will develop self-reliance and resourcefulness. The object of any teaching upon first aid, or early assistance of the injured or sick, is not only to enable one person to help another, but in some measure to help himself. The purpose of these directions is to show how this may be done with simple means and by simple methods. It is a mistake to think that you must know many things to be helpful, but you must understand a few things clearly in order to assist the patient in the severer cases until he can be seen by the surgeon or those who are thoroughly trained. In ordinary cases what you can do may often be all that is necessary."

The orderly pouches are larger than the hospital corps pouches and contain a more elaborate outfit of medicines and appliances.

In service the injured must be promptly reached and a temporary dressing applied to their wounds. The patient is carried to the nearest dressing station. A diagnosis tag is attached to his clothing, and if necessary the wound is redressed. Often the first dressing is all that is needed for several days, and the importance of making this dressing carefully cannot be too strongly insisted upon. From the dressing stations the wounded are carried to the ambulance stations (unless their condition prohibits this) and thence transferred to the field hospital or further to the rear. As soon as practicable, all patients who cannot return to duty are shipped to the hospitals at the base of the army or at home.

In the guard, the instruction must be carefully planned, so that every year the whole subject may be systematically rehearsed. It is unwise to demand too much time of the men, as their value to the State and nation depends not only on their ability as soldiers in the corps, but as self-supporting members of the community. If in their enthusiasm they are led to neglect their business and the support of their families, they cease to be of use in the national guard, as the State will not supply them their daily bread. Membership in the National Guard Hospital Corps is of real benefit. It teaches the men many things which are useful in every-day life, and prepares them for emergencies. It promotes good fellowship, esprit de corps, and the enjoyment concomitant with these.

In the Seventh Regiment all the sergeants in the Hospital Corps are physicians, and the other enlisted men are trained nurses. Three of my men have kindly offered their services that I might demonstrate to you some of our methods of transporting the wounded and some of the simpler ways of improvising splints, slings, etc. As splints we can use rifles, leggins, straw, sticks, etc. Litters may be improvised from rifles and blankets, rifles and overcoats, etc., camp cots, shutters, doors, ladders, etc. (all padded); sacks or bags with poles, and crosspieces to keep them apart; bed ticks, matting, carpets, framework of poles or cross sticks, or, better still, ropes and rawhides. For bedding use weeds, hay, straw, leafy twigs, covered or not with blanket.

57 West Seventy-sixth Street.

Comparative Value of Different Methods of Hebotomy.—Cyrille Jeannin considers hebotomy a real advance over symphysectomy. As to the best method of performing the operation, he prefers the open method, which allows of prevention of wounds of the bladder, better hemostasis, and better drainage. The incision of Gigli is too far inward, that of Van der Velde too far outward, the median incision of Codereini being the best. In the subcutaneous method we have the danger of wounding the bladder, and that of thrombosis and infection.—*La Presse Médicale*

MEDICAL EDUCATION IN FRANCE AND GERMANY.*

By EUGENE ST. JACQUES, A.B., M.D.,

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The foreigner who travels through Germany, and particularly he who resides for some time in the country, cannot but be impressed with three things: The ever-present military, the countless chimneys of its manufactories, testifying to its ever-increasing industrial activity, and last, but not least, the importance that higher education holds in the life of the country.

Should he examine an educational map of the country, he would find it studded with 22 dots, representing as many universities. Should he consult the General University Calendar, he would learn that they are attended by 33,000 students, divided into: Philosophy and Letters, 15,000; Law, 12,000; Medicine, 7,000; Theology, 4,000.

How has it come to be that 22 universities were founded, could develop and attain as a whole the world-wide reputation which attaches, as we all know, to the German universities? The German Empire is only of yesterday. Each component part had developed independently. Kings and kinglets, dukes and princes, had for centuries past rivalled one another, in the military field. Men gradually became more civilized and refined, and with the fourteenth century sprang that movement of renovation which swept over all of Europe. The spirit was beginning to muzzle the brutal instincts which had till then governed men, so to speak.

Italy was the first to awaken to the Renaissance, and the Universities of Bologna and Padua were the leaders in the regeneration of medicine. The school of Montpelier and Paris soon became famous, and Wenceslas, who had studied on the banks of the Seine, founded in 1348, on his return to Prague, the first university of the so-called German countries. Before the century ended the Universities of Vienna and Heidelberg were born.

From that time every king and prince, through ambition and jealousy of his neighbor, wanted to have a university of his own, who could outrival the others. So it came that with the opening of the Nineteenth century 22 universities could be found scattered from the Alps to the Baltic, and from the Elba to the Rhine.

Philosophy and law were everywhere leading, while medicine occupied only a very modest place. Sure to say, during the Eighteenth century the English had added to the knowledge left by Sydenham. Hunter the Argus-eyed, Cullen and Brown were then the propounders of medical thought. But our art was still in its infancy.

With the French anatomist, Bichat, medicine awakened at the opening of the Nineteenth century. He differentiated the tissues and called attention to the fact that the manifestation of disease were due to lesions of these different tissues. Dupuytren and Cruveillier continued his work and established gross pathological anatomy, whilst Laennec, Louis, and Grisolle were laying the foundations of our clinical methods. "All students flocked to Paris in the fourth decade," remarks Osler.

But soon the Vienna school came to pre-eminence. While Rokitansky explained the gross pathological lesions, Skoda was showing the relation between the symptoms and the lesions. Modern chemical methods were that day created.

Germany was soon to startle the medical world with Virchow's magnificent researches on cellular pathology, and carry the searching eye of science still further into the secrets of nature.

But glory is as unsteady as the goddess who distributes its laurels, and a few years had scarcely elapsed that the fickle goddess was again crossing the Rhine bringing the astonished and incredulous world to the school of Pasteur. Had these two nations only been the chosen ones as benefactors of suffering mankind, there might have been recrimination. And so it was that England was allotted also its large share. It was to be given to Lister to make modern surgery a possibility. And so nowadays, three great schools are at the helm, imparting to medicine its onward march toward a goal still far distant, but all the time leaving on its tread, instead of despair, relief and hope.

And now, if we give a closer consideration to matters educational, and particularly, medical, and inquire into the causes which have given to German universities such a world-wide influence, we cannot but be impressed with three factors, which stand out pre-eminently: The high standard of the professorial corps; the number and perfect equipment of its laboratories; the educational methods.

1. The Teaching Staff.—The general university organization consists of a central board or council, whose members are delegated by the different faculties. This council busies itself with things of interest to the general welfare of the university, while each faculty has, so to speak, a free hand to deal with its own affairs.

The first rung in the ladder to the professorship is the Privat-Dozent. The title is a rather easy one to obtain. It is not gained by competition, by concourse, but simply on presentation and discussion of a thesis before the faculty. The candidate moreover must have to his credit a number of medical essays or investigations.

Germany is the land of specialization. From the very day the young M. D. has his diploma, he must bend all his energies in one direction; his aim is and must be to become a specialist. So, from the start, his field is narrowed down; what he will lose in breadth he will gain in depth. The title of Privat-Dozent is only an official recognition that he is working toward professorship. It confers on him no absolute right nor obligation to lecture, nor any salary. But with the approval of the faculty he may at his own risk give public lectures, which students are at liberty to attend or not. Very often if he has already given proof of ability he will be officially charged with lecturing on special subjects. In short, this title is an encouragement to further work and investigation. The Privat-Dozent may remain such all his life and die a simple P. D., but if he is a man of teaching ability and investigating mind, opportunity lies open to him and he will climb the ladder.

Next to the Privat-Dozent is the Extraordinary Professor, which title is granted to very talented men, but does not yet make of them members of the Faculty.

Finally, how is a vacancy in a chair filled? Here lies one of the peculiarities of the German organization. The faculty is absolutely free in the choice of the successor, who must receive the sanction of the Minister of Public Instruction. They may choose

*Read before the Medico-Chirurgical Society of Montreal, Can.

him from among their ranks, or call him from another university, or even pick him from outside; what is wanted is the best, and best they have at at any cost. And so it was that Billroth, who was only a relatively young professor at the university of Zurich, but already drawing to his clinic students from the world over, was offered the clinical professorship in surgery at the university of Vienna. And so long as the old master was alive, Vienna was the German Mecca of surgeons, just as years later Bergmann and Mikulicz diverted strongly the tide towards Prussia—to Berlin and Breslau—and nearer to us, we find Garre called from Königsberg to succeed the lamented Mikulicz in Breslau, and Bier, of lumbar analgesia fame, invited from Hamburg to Bonn on the death of Schede, and more recently to succeed the lamented v. Bergmann in Berlin.

The faculty is free to choose its members where it pleases, but in return the students are at liberty to follow or not his lectures or clinics. And herein lies one of the causes of the success of the German professor, strange though it may appear. I well remember the days when we had choice between the medical clinics of Gebhardt, Senator, and v. Leyden, or Olshausen and Gusserow in gynecology, or Bergmann or Koenig in surgery, or, again, between the lectures of Virchow or Langerhans.

As the student in Germany pays only for such lectures or clinics as he chooses to attend, nine-tenths of such fees going to the teacher, the necessary corollary to all this is clearly obvious. One will follow only the man who is the best teacher, who is most practical, whose lectures are most instructive; the other will have students and income only so long as he pays attention to his duties and takes pains to make his clinics interesting in the full sense of the word. Carelessness and sluggish attendance on the part of the professor and unscientific teaching are things unknown in Germany, for he would lecture before empty benches ere the semester was at an end. And so it is that all the professors are active and energetic and few among them are old, in the Osler sense of the word.

Moreover, as the medical curriculum is to a certain extent the same through the land, it is possible for a student to study histology or pathological anatomy in Berlin, for example, bacteriology with Behring in Marburg, internal medicine with v. Leyden in Berlin or Schultz in Bonn, or gynecology with Olshausen in Berlin or Zweifel in Leipsic, or again, surgery with Bier in Berlin or Trendelenburg in Leipsic. And in fact the German student is to a certain extent a "Bohemian," going from one place to another, resembling the student of the Fifteenth and Sixteenth centuries, who roamed about from Bologna and Padua to Montpellier and Paris, or from Oxford to Vienna, according to the renown of the professors.

2. The second factor, as I said, to the fame of the German university is their *"splendid endowement and laboratory equipment."* The budget of public education in Germany is the highest of all countries, with the exception of the United States, where private enterprise has taken higher education in hand, and with what generosity we all know. In fact we must recognize that the German government is rather lavish about it, thinking rightly that the élite of the nation cannot be too well prepared and equipped, since sooner or later they will be the makers of the destiny of the country, be they jurists or philosophers, theologians or men of letters, engineers or physicians. I shall necessarily be brief on this matter, since I can speak only in a general way.

Every clinic has its own laboratories, and the two best installations I have seen of the kind in Germany are those of Bier and Trendelenburg. Not only has Trendelenburg pathological and bacteriological laboratories, cabinets of photography, microphotography, and radiography of his own, but also quite a considerable museum of pathological specimens just next to the clinical amphitheater. Moreover, a simple pressure on an electric button will bring down the window curtains and a special apparatus made by Zeiss—an epidiascope—will throw on the screen not only radiograms or lantern slides, but also any picture or design, or still better, the pathological specimen itself, magnified and preserving its natural coloring.

The pathological museum in Berlin, which was inaugurated on the fiftieth anniversary of Virchow's professorship, is probably the greatest institution of its kind in the world. All the specimens are mounted by the Kaiserling method, which, as we all know, allows the different tissues to retain their normal color.

3. The German methods I indicated as being the third factor. Teaching is not all in university work, and the faculty whose staff would be content with simply transmitting what tradition has delivered them would indeed be far from performing their duty. Modern science requires more of its priests. Not only must they know the past, but also look into the future, scrutinize the sphinx, and plough through untreaded land; in a word, the modern professor must be at the same time a teacher and an investigator. Investigation and teaching have at all times been the double aim of German universities, and much more so since science has renovated, modernized itself.

Laboratories are numerous and splendidly equipped all through the land. Physikalishen und Pathologishen Instituten stand out preeminently at every university, and in fact the strength of the German medical curriculum rests with the teaching of the so-called preparatory branches, physical and biological sciences, dissection and microscopical anatomy, pharmacy and bacteriology, what, in fact, corresponds to the preliminary scientific and intermediate examinations of the English programme. Each and every one of these branches is most thoroughly and practically taught to the German student, the foundation for the superstructure is nowhere better laid than in Germany. As for medicine proper, or pathology, there is one thing which stands out forcibly here, as in fact also in Vienna and Paris, viz., the little importance attached to theoretical teaching and to lecturing. This is reduced to the smallest possible quantity. But *en revanche* the German student must attend to clinical work, and in fact he spends his whole day in the hospital—let me be more precise, in the amphitheater. And here lies, in my opinion, one of the drawbacks, and an important one, of the German methods. The student has little if any ward work. Dispensary attendance and bedside instruction which hold, and rightly, such an important part in the English and American schools, are in Germany almost if not altogether neglected. The clinical work is done in the amphitheater, in presence of large audiences, one or two students being called down to read the clinical history of the patient which has been recorded by a qualified assistant before-

hand, the student is questioned before the class concerning the patient, and the lecture thus goes on. To sum up, the student has very little personal contact with the patient, no prolonged, nor repeated, nor daily contact with the sick, as he ought to have, as he is given in London and Paris, in Johns Hopkins and Harvard.

Conditions are different if we speak of post-graduate work, for then the physician who desires to specialize will take private lessons either personally or in small groups. These must, of course, be paid for, and in the long run would be too expensive for the students.

As regards post-graduate work, what are the facilities offered in Germany?

Twice a year, in the fall and at Easter, special and limited courses which cover nearly all the different fields of the healing art are given at the large universities. Such courses are given by the assistants generally. All the hospital material is used for clinical purposes and for the benefit of the doctors only, no student being admitted to such lectures, which cover a period of four or five weeks. Here again the greater part of the teaching is done at the amphitheater—though limited ward classes can also be arranged for. If one is desirious of doing special laboratory work, ample opportunities in that direction are offered all the year round, and he will receive a hearty welcome from the German master and find attentive and interested "coachers" in his assistants, for very reasonable fees.

The importance of advanced work is so well realized in Germany that a new school has just been established for the express purpose of post-graduate students. Prof. Witzel of the University of Bonn was the organizer and is the director of the new Institute. The professors are among the best of the land, and no money is being spared in order to have a model Institute. The clinics have opened with 800 beds to begin with, plans being made to increase the number to 1,200. Laboratories are of the best, most complete, and modern. The new Institute, situated in Düsseldorf on the Rhine, near Cologne, in a densely populated and industrial part of the country, has already attained quite a degree of fame.

Such are the organization and methods of the German universities and the facilities offered for medical work in the Kaiser's land.

And now let us cross the Rhine and examine things medical in France. We have seen that in Germany the universities, some of them centuries old, already existed independently scattered through the land. With the organization of the Empire followed the unification of the military system and soon the reorganization of higher education—it was a synthesis. In France it has been just the opposite—a "decentralization."

Up to some twenty years ago Paris was the great center of learning in France—as in fact it still remains to-day. But the Paris University was then the only very important one of the land. Medical schools and faculties of law, of letters, of philosophy had long existed scattered through the country. But there was no unification, the faculties were independent of one another, with no link to make a whole of these scattered parts. In 1885 a government decree organized universities in the larger cities besides Paris, by grouping the different faculties and schools. Napoleon had centered everything in Paris under his hand—now Paris was to give back some of its prestige and power. And so it is that to-day there exist through France sixteen universities, the best known of which are, besides Paris, Lyons, Bordeaux, Montpellier, Toulouse, Nancy, and Lille. If we total the number of students for medicine and law, letters and philosophy, we come to the respectable figures of 33,000, 14 per cent. of whom are strangers.

Let us look into the medical organization and see how things are conducted. I shall speak of Paris, being the most interesting and complete medical center in France.

The Hospitals.—There are thirty hospitals and all are under control of the city, whose hospital budget amounts every year to $8,000,000, which gives an average of $200,000 to $300,000 per hospital according to its size and importance. Their physicians and surgeons are appointed after competitive examinations. The first is eliminatory, with three sittings—two or three hours' duration for a written subject—the third is a clinical lecture which must last one hour. The second is definitive and nominative, consisting of a written consultation and a clinic of twenty minutes duration after a few minutes allowed for the examination of the patient.

Those elected will only be given charge of the ward work—no teaching.

The Teaching Staff.—This department is under exclusive control of the faculty, and every position must be obtained by competition. It begins early for the assistantship.

All assistants are students in France, be they externes or internes, dressing clerks or house physicians or surgeons, while in Germany they are full-fledged physicians. Let me add that the former are in no way inferior to the latter, as we shall presently see. To give an example how these 250 positions are sought for, let me say that for the 60 vacancies in 1,900, 600 candidates competed. These examinations are more severe than for the degree of M.D.—and as the position adds three more years of exclusive hospital work, these assistants are bound to know something when they take their degree of M.D.

The next step, in surgery, for example, is to compete for a position of demonstrator in anatomy, then for clinical assistantship, such positions being opened only to physicians of many years' standing. As the aspirant climbs, the concour or competition becomes more severe, and to become an agrégé requires knowledge and teaching abilities quite uncommon. The agrégé must specialize in one of three sections:—Biological Sciences, Medicine, Surgery, and Midwifery.

The following are the conditions of the concour: 1. Eliminatory; (*a*) the candidate must state orally what work he has done and investigations he has carried on. (*b*) After three hours' preparation he must give a lecture lasting forty-five minutes. (*c*) He must undergo a written examination on anatomy, physiology, and the physical sciences.

2. Decisive, consisting in (*a*) Laboratory exercises; (*b*) A one hour theoretical lecture; (*c*) A clinical lesson. It is evident that not only must the candidate be well learned and versed in the medical sciences, but he must have the talent of conveying what he knows in a clear and interesting form. And here is one of the characteristics of the French medical schools—the unsurpassed and rarely equalled talent of clinical exposition of its teachers.

These agrégés are appointed for nine years, after which, if in the meantime they have not climbed a step further, they lose title and privileges.

The professor is chosen, as in Germany, by the council of the faculty—either from among the agrégés or called from a sister university; the fittest to the position. The senate of the university and the minister of public education must and generally do approve of the nomination. En passant, let me note one of the peculiarities of the French system. There is to the professorship an "age limit," at which the professor must climb a step higher and be contented with an honorary degree. It is a strength to the faculty and one of the conditions of its effective and productive vitality.

And what about the student? This brings us to the teaching methods. Paris numbers 3,200 "registered medical students"—which does not include the great number of foreigners who, not registering to take the regular M.D. diploma, nevertheless come to Paris for post-graduate work. The medical curriculum extends from five years up. Natural sciences—the preliminary scientific examinations of the English curriculum—have already been attended to. Before beginning the study of medicine, the student must have his P.C.N. diploma (Physique, Chimie et Sciences Naturelles).

Part of the program is obligatory, the rest is not. Laboratory work and hospital attendance are obligatory; theoretical lectures are not. If we follow the student through his years of medical apprenticeship and glance over the program of the medical studies in France, we cannot but be impressed with the fact that, as regards the theoretical part, the student attends as he chooses. Theoretical lectures are given at the university, but do not in any way cover the whole subject. They are most thoroughly and most brilliantly given, but limited to certain fields. As we readily understand, the student is at liberty to attend these lectures or not—which are free to everybody. And so it is that the student must study at home his theory of medicine. In fact this is not peculiar to Paris alone, nor to the French schools, but is met with also in Germany, as I have already pointed out. What is aimed at abroad is practical work in all departments.

To the same degree as medicine was principally a theoretical art up to a century ago or so, so is it looked upon nowadays as a practical science; its secrets are to be learned very little from books. Its foundations must be laid in the laboratories of physical and natural sciences. There, and there only, these are learned thoroughly—just as pathology is learned at the hospital. And the more a medical school is progressive, the more we see the number of its theoretical lectures diminish, while larger and larger grows yearly the time devoted to work in the laboratories and in the hospital.

What has been propounded again and again by Osler, whose experience in teaching is not to be minimized, is: "Take the student from the lecture room; take him from the amphitheater; put him in the laboratories; put him in the out-patient department; put him in the wards. The work of the third and fourth year should be taken out of the medical school entirely and transferred to the hospital." But Prof. Osler is not original in his saying, for more than a score of years ago that most astute of minds, Oliver Wendell Holmes, had said: "The most essential part of a student's instruction is obtained, as I believe, not in the lecture room, but at the bedside; for nothing seen there is lost." Still a hundred years before, Abernethy wrote: "The hospital is the only proper college in which to rear a true disciple of Æsculapius."

Facilities for dissection are simply perfect in Paris. Anatomy is taught in the dissecting room by a staff of twenty-four assistants. Operative medicine is one of the great points of the Paris school, students being grouped in squads of ninety, in turn subdivided, and the demonstrations on the cadaver being completed by colored drawings on the walls, done by the best artists familiar with anatomy.

Where the French methods stand unsurpassed and I think unequaled are for hospital work. The nearest to them I have seen is in some of the London schools and more particularly at the University College Hospital and at Johns Hopkins. All the medical students from the second year up have to attend the hospital; this is obligatory. In groups of fifteen or twenty they are attached to the different services, where they must be in attendance every morning—the roll call testifying to their presence. Their work is to write down the clinical history of the patients and examine them, do the dressings, and lend a helping hand in all minor and practical operations. They must give at least twenty months—three and one-half semesters—to such work. The first twelve months to general medicine and surgery alternately, three months in a maternity, and the balance to the specialties of their choice.

Three days a week, the physician or surgeon, as the case may be, goes through the ward with his assistants—internes, externes, and the students—examines the new patients and gives bedside instruction. On the other days, after a rapid visit to the wards, he goes to the amphitheater where he lectures on a given subject, one or two patients of the wards furnishing the material for the clinic. They are generally brought before the class, the history of the case being gone over, the differential diagnosis made, and then the whole question is expounded.

Now I would refer to some of the things which strike more forcibly the visitor to the medical school of Paris.

1. All tuition is free, nothing to pay, only a fee by the student when he goes up for examination. All visitors are welcome to the lectures and clinics. Special group classes are organized for advance work in all departments; for such private courses very moderate fees are now being charged.

2. I would call your attention to this point: the free access to the patients in the wards. The simple presentation of one's card will make one welcome to the service where one will be at liberty to examine cases when the chief makes his visits and also between times if desired.

3. I would recall what I have already mentioned in regard to the French professor as a clinician. He is a born brilliant speaker; his facility of elocution only equals his clearness of conception—the "charming lucidity" of which Osler speaks as his characteristic.

But the teaching of a medical school whose aim is to become a factor in the international medical movement must not be confined exclusively to undergraduates. It must busy itself with advanced work for post-graduates. And here Paris offers great advantages. Let us examine some of them.

Are there any specialties in medicine in which Paris takes the lead? Yes, surely, as in others Berlin and Vienna are superior. I know of no school yet which eclipses all others on the whole line—be it London or Edinburgh, Berlin or Leipsic, Vienna or Munich, Paris or Lyons.

Let us see in what branches Paris excels.

In the study of *skin diseases*, Paris is of all schools the leader. The St. Louis Hospital with its 1,200 beds and its out-door department, where from 9 A.M to 3 or 4 P.M. one can witness a continuous flow of humanity (I recollect the number of 283 patients one morning), offers unrivalled opportunities. Next to the out-door department is the museum with the world-known Baretta collections of wax models of skin diseases in the natural coloring. And this is only the most important skin clinic in Paris, as there are many other smaller ones.

As for the study of *nervous diseases* the Salpêtrière Hospital with its 3,000 beds is too well known for it to be necessary for me to dwell on it. Profs. Raymond and Déjerine, pupils of the great Charcot, uphold the traditions of the school, while Dr. Alquier in charge of the laboratory of pathological anatomy will always welcome anyone desirous of pursuing advanced work in this special line. Prof. Ballet holds twice a week clinical lectures at the St. Anne Hospital, which are always eagerly sought for by specialists.

When I speak of the study of *genitourinary diseases*, the names of Prof. Guyon and of Prof. Albarran and his clinic of the Necker Hospital will at once come to the mind of those interested in this special branch. Though Berlin has its Casper and Nitze, Paris outrivals others with the facilities it offers in this line. Not that more of these diseases are met with here—all large European cities are more or less alike on this point and none holds yet a diploma for virtue. But Paris has the best organization and Albarran's clinical lectures are as well sought for by the specialist as were those of the great Thompson. The material here is ample and the clinics given twice a week, before operations are performed in the presence of the class, are never purely theoretical as I have seen them at some of Berlin's most celebrated clinics, for lack of patients. Attached to the service is an interesting museum and a perfectly equipped laboratory where such men as Prof. Albarran and Legueu have made their research work and where one would find Prof. Motz, the pathologist of a score of years, coaching specialists in some research work. Next to the Necker Hospital, and secondary to it in importance, is the genitourinary department of the Lariboisière Hospital under the direction of Hartmann.

If I should speak of *surgery*, Paris stands second to none. Dissection facilities are all that could be wished for. Then twice a year, in the spring and in the fall, series of surgical technique exercises covering all the specialties of surgery are arranged for, under the direction of Profs. Segond and Hartmann, where every operation is repeated on the cadaver by those taking the course, for which a very nominal fee is asked. Let us moreover recall the daily visits to the wards, the clinical teaching in the amphitheater and the possibility of seeing the operative work close by the operating table—all these are facilities as great as one can wish for.

In *bacteriology*, the Pasteur Institute offers once a year a four-months' course, where everything in this line is taught and practical exercises constitute the main part of the teaching. Besides, should any one be desirious of pursuing special research work, he will always find a ready welcome from some of the directors of the Institute, Roux, Metchnikoff, Borel, or others.

In the *head specialities*—eye, ear, nose, and throat—it would be hard to shake off anything of the luster of the Vienna school. Suffice it to say, nevertheless, that the specialist will find his time amply repaid by a stay, even a long one, in Paris, which offers more and more every year great facilities for *personal work* in this special line.

And now were I to draw conclusions in the form of comparison, I would thus tabulate my final remarks.

Laboratories are more numerous and more completely equipped in Germany—the government being more lavish.

Then again *research work* is extensively carried on at every German university. Germany seems to be the land of *investigation* in the scientific field. Not that other countries are inactive in this direction, but they do not carry it on such an extensive scale.

Nevertheless there are two points where Paris surely stands equal to any other rival, not to say more—these are *dissection* and *bacteriology*.

As for *clinical facilities* they are superior in France—for the teaching is of a higher grade and then the daily access to the wards and patients gives it a most practical character and allows of more personal work.

Now as regards *post-graduate work*, it is more practically organized in Germany—but from a certain point of view—I allude to the vacation courses. Should a physician from the country or from a foreign land have only a few weeks to spare, he can run to Berlin in October or April, sure of finding during four weeks or so courses in clinical lectures covering every branch of medicine. This method of post-graduate work—for *men in a hurry*—is not yet so perfectly, so completely organized in France as in Germany—though immense strides have been made in that direction of late years. But what already exists in that line is more practical than in Germany, because it rest on *ward work, on personal contact* with the patient, and not purely on simple amphitheater demonstration.

As to the *future specialist* who must give many months, many years to preparatory work, Paris offers unsurpassed advantages and unrivalled facilities, particularly in *skin*, *genitourinary* and *nervous diseases*, and in *surgery*.

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TRAUMATIC HYSTERIA IN ITS RELATION TO SURGERY.*

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Anyone who has observed traumatic hysteria or neurasthenia in its various aspects cannot fail to have been impressed by the large variety of accidents which have been held responsible for the trouble, and one will be equally impressed by the entire lack of relation between the severity of the injury sustained and the nervous results. It often seems, indeed, as if the nervous after effects were in almost inverse proportion to the severity of the injury; that is, that a severe traumatism seldom results in nervous trouble, while a comparatively slight accident is often followed by very profound and persistent nervous symptoms. I do not say that this is exactly the case; in fact, I do not think the severity of the injury has any definite relation to the nerv-

*Read before the Syracuse Academy of Medicine, April 20, 1909.

ous after effects; but these seem to depend more on the individual peculiarity of the person who happens to suffer from the accident or traumatism, and the psychic environment into which he is thrown. Thus we see traumatic hysteria develop after severe injuries, and after accidents where the trauma was almost nothing; and in fact we sometimes find the same condition induced where the exciting cause was merely a fright in anticipation of an accident that never occurred. In other words, a pure psychic insult may initiate all that train of symptoms which are usually attributed to traumatism.

The question then arises: Can these cases of traumatic hysteria be prevented? or, when early recognized, can they be aborted? The answer is yes, to a degree. Of course, prevention depends on the recognition of the type of person who is likely to become a victim of the trouble whenever opportunity offers. This is manifestly impossible where the traumatism is a pure accident, such as a shakeup in a trolley or railroad collision, but the physician is supposed to know his patent's characteristics in a way very different from the knowledge a trolley company could possibly have of its patrons, and he should be on the alert for such possibilities. My attention was first called to this subject some sixteen years ago, when I was consulted by a Mr. J. H. B., of Hughesville, Pa., a prosperous furniture manufacturer, who had recently been operated on in Philadelphia for the removal of enlarged turbinated bones. He had completely collapsed nervously, and came to the sanitarium where I then was practising in a special car, attended by his physician, a trained nurse, and his whole family, for he would hardly let one of them out of his sight fearing that he was in imminent danger of death. All this distressing sequel to his slight operation he attributed to too much cocaine.

My next reminder came a short time later, in the case of Mr. W. H. G. of this city. He had recently passed through a similar operation for some nasal or throat trouble, but was not quite so badly affected nervously, though he had given up work. Here, again, cocaine received the blame. Recoveries occurred in both cases, though rather slowly. About fourteen years ago I had under my care also two cases following removal of the hemorrhoidal area, and cocaine bore no relation to either as a general anesthetic was used in both. Of these one was a man operated on in New York, the other a woman operated on in Chicago. Both operations were done by eminent surgeons, and were surgically successes, but the nervous results were among the most profound I have ever seen in this class of cases, and were months in recovering.

While preparing this paper I have had an opportunity to collect the cases from only one-half my notes, but I find in that half five cases of hysteria or neurasthenia following some distinctly surgical procedure which bore the same relation to the nervous trouble that accidents do to the ordinary traumatic hysteria. Three of these occurred after major operations, one after *x*-ray treatment for a rodent ulcer, and one after labor in which instruments were used. All these cases were surgically successful, but the patients were worse off with the nervous state than they were with the surgical condition. No one would think it just to hold a corporation responsible for the full extent of disability caused by traumatic hysteria following an accident in which an employee or passenger is hurt, and no one would think a surgeon responsible for the neurasthenic results which may follow his operations. Yet it is well to be forewarned and thereby forearmed so that the first signs of nervous trouble shall receive prompt and appropriate attention before the condition becomes chronic.

I will report two of my cases in considerable detail, as there is something of interest in each.

Case I.—Miss M. C. H. was referred to me by Dr. A. B. Miller on Sept. 8, 1902. He had operated on her for a tumor and a diseased appendix in 1899. She had also had her tonsils and uvula amputated, but this was some time previous to her abdominal operation. She had made a good recovery from the surgical procedure, but soon began to complain of vague nervous symptoms, such as vertigo, weakness, and pain in the back of the neck extending up into the head. She had been fitted with glasses, and various kinds of treatment employed with negative results. My notes taken at the time of first examination describe a woman 48 years of age, short, stocky, slow of speech, and apparently slow of perception. The eyes were sensitive to light, and the pupils reacted normally. There was a slight excess of both the ankle and knee reflexes. The station was normal, the weight was 122 pounds. The stomach was slightly prolapsed. There was tenderness over a great portion of the muscular territory of the body. She was especially hyperesthetic over the spine nearly its entire length, over the lumbar muscles, and over the lower abdomen. A firm scar in the median line marked the site of the operation. Her bowels were constipated, the bladder irritable, but the urine was normal. Her pulse was from 80 to 90, and the temperature normal. She complained of gas and burning in the stomach, worse at night. She had a good appetite and ate heartily. She was advised to come into the hospital where she could be under closer observation, as she lived out in the country. She came in for two weeks, during which time it was observed that she suffered from astasia abasia. She would stand or walk correctly under the direct influence of my command, but when attempting to do the same thing alone she not infrequently would begin to fall backward, and, in trying to save herself, would run backward till she was stopped by a wall or actually fell. She improved very nicely while under the inspiration of frequent visits and powerful psychic stimulation, but drifted back into the old condition and gradually grew worse, when she abandoned regular treatment.

For the past six years she has called a doctor only when some acute trouble like influenza or bronchitis supervened, or sent someone occasionally for medicine for her muscular pains, which she calls rheumatism. Her general condition has stayed about the same except that she has grown quite stout. On Sept. 10, 1908, I took occasion to make another careful study of her condition and found all the reflexes normal, with possibly a slightly exaggerated knee jerk. The station was normal. The pupils reacted normally to light, though the patient kept her eyes shut much of the time. She complained of much pain of a muscular nature, was apparently very helpless, often falling, and occasionally hurting herself. She got up from a chair or the bed very slowly, and a relatively long time seemed to elapse after she was asked to do something before she began to make a motion, as though it took an unusual time for her mental impulse to reach her muscles. She showed a grip by the dynamometer of 27 in the right hand and 26 in the left, which is

about two-thirds that of the average woman, but she acted much weaker than that would indicate. She had become very dependent on the woman with whom she lives to help her dress and walk, and, while she had grown stout, and ate heartily, she did so very slowly and often spilled her food. There seemed to be no decision about her movements. Now, with all this, when spoken to sharply so as to rouse her to effort, she could do much better than I have described; in fact, could stoop over and pick up something from the floor, or walk or stand with eyes open or shut without falling. I have long been convinced that hers was a case of traumatic hysteria, and the pity is that there seemed no way by which she could be held to discipline long enough to recover. The only thing which could confuse the diagnosis was the possibility of multiple sclerosis, which can be excluded by the condition of her eyes and the way she responds to strong psychic stimulation.

Case II.—Mr. G. F. H., 63 years of age, consulted me on Feb. 5, 1904. He had been a dry goods salesman for more than thirty years. Twenty-eight years ago he had a tape worm, and the treatment for this was followed by a severe attack of insomnia from which he took months to recover. For several years he had suffered from a rodent ulcer on his head, and recently one had broken out on his left cheek, apparently resulting from a cut by a barber while shaving him. When he consulted me he had recently completed a course of *x*-ray treatment which had been successful in healing the ulcers, but he had collapsed nervously, and had been under treatment for his nerves for about three weeks. The conversation he heard in the course of his *x*-ray treatments had brought the subject of cancer into his mind, and when I first saw him he imagined he had cancers inside as well as out, and that he was doomed to a horrible death. This fear so wrought on his mind that he could neither sleep nor eat, and he had no power to concentrate his mind on his work, and had been given an indefinite vacation. It required about four months to get him back into the habit of sleeping and reestablish his judgment and self-control so that he could take up his work again, instead of daily imagining himself dying from cancer. He has remained well and at work up to the present time, though the ulcer on his head has opened again, but he prefers the ulcer to the danger he fears from more *x*-ray treatment. In this last case it seems probable that if his nervous temperament had been recognized, as it could have been by a study of his history as well as his present condition, the nervous results of his *x*-ray treatment might have been avoided, much to the comfort of the patient as well as to the credit of the practice of medicine.

In regard to judging of one's liability to hysterical developments, it may be said that, like the art of diagnosis in general, beside the art of careful observation, and a judicial mind, there is also a place for that sort of instinctive power we call intuition, which may be of great service in arriving at a conclusion. I do not mean that one should depend on intuitive impressions, but I do mean that such impressions should be cultivated and considered of sufficient importance to be investigated.

In conclusion, I may say that the cases referred to in this paper represent only a small portion of the observations made on this subject, but they are sufficient to bring the subject before you for consideration. There has been no attempt made in this paper to advocate any particular method of treating hysteria, traumatic or otherwise, or to describe the treatment employed in the cases mentioned, the object of the paper being simply to call attention to the not infrequent relation that exists between surgical operations and hysteria of the traumatic type.

Fayette Park.

THE HYGIENE OF THE AIR PASSAGES.

By ADONIRAM B. JUDSON, M.D.,

NEW YORK.

The impulse to clear an obstructed air passage is perfectly natural, but it is well to give to the subject a brief critical consideration. When air fails to pass freely it is usually because the passage is narrowed by congestion and swelling of its lining membrane. But a person thus affected is apt to think that the trouble is caused by an obstruction which must be removed by forcing through the tube a column of air under pressure. He therefore either coughs, clears his throat, or blows his nose.

The facts are about as follows. An extra supply of blood is summoned to resist an invading foe, and irritation, swelling and secretion are incidents of the ensuing conflict. It may be said that irritation sounds the alarm, swelling indicates the presence of reinforcements, and secretion provides a covered way under which the affected part returns to a normal condition. The removal of mucus by the successful application of a blast of air does not justify the effort made, but really indicates that a natural protection has been surrendered. A similar situation is seen in the case of a cutaneous abrasion. It would not be good practice to wipe the part by the frequent application of a brush. It would be better to leave it untouched until healing takes place under the protective coat which inflammatory action has brought and spread over the affected part. When the throat is sore interference aggravates the irritation and the irritation in turn prompts further interference, forming a "vicious circle," which calls for the exercise of reason and self-control. Excessive secretion induced by repeated muscular effort does not prove that the case is a severe one and that action was justifiable. It indicates rather that inflammation and its products have been increased by ill-advised exertion. It is better to omit trying to remove obstructions which do not exist, and to apply if necessary for professional advice. When the surface is visible, it is seen to be reddened like the membrane in conjunctivitis, which produces a sensation like that caused by the presence of a grain of sand, when the patient is told not to rub the eye, recalling the sapient admonition not to rub the eye except with the elbow.

The mechanics of clearing the air passages have not received much attention. It is believed that a brief review of the facts will show that it is desirable to omit so far as is practicable customary efforts to obtain relief. The muscles brought into action are among the strongest in the body. They are the great expulsive groups of the chest and abdomen, capable of acting with extreme violence. In *clearing the throat*, the glottis is contracted and the rush of air displaces mucus that may have burdened the vocal cords. This action may be necessary after prolonged vocalization, but it easily becomes an obnoxious habit.

In *blowing the nose*, a column of air is applied under pressure for the removal of mucus from the nasal passages. This also is necessary at times, but

it is an action to be avoided if possible. It may be objected that failure to act leaves the face unclean. The removal of what appears on the surface calls for attention in any case, and occasionally, as in acute catarrh and hay fever, the annoyance may be extreme. The best must then be done in a bad situation, in which it should be recalled that the less the air ducts are disturbed the less will be the discomfort and the shorter the road to recovery.

When a person has what is called a cold in the head it sometimes happens that the severity of the attack makes it almost impossible to breathe through the congested nasal passages. In such a crisis it is interesting to know that relief may be immediately obtained by making a forcible expiration and then ceasing to breathe for a fraction of a minute, when breathing through the nose becomes easy at once. The good effect may be prolonged by keeping the volume of respired air at the minimum. The relief may be explained by the statement that the congestion of the lining membrane is reduced by the withdrawal of venous blood into the depleted lungs.

To contract the habit of blowing the nose seems to be a sure way of converting an acute state into a chronic catarrh, which is evidently the result of unceasing efforts to keep the passages clear, in ignorance of the fact that recovery from either acute or chronic catarrh will surely follow intelligent expectation under proper advice and after exceptional watchfulness and considerable endurance of personal discomfort.

In *coughing*, the power of the expulsive muscles is displayed in severe compression alternating with sudden release and agitation of the whole respiratory apparatus, while the compressed air is driven through the tubes with violence which reminds one of the action of a steam pencil, wanting only the mordant agent to become an excoriating sand-blast. The custom of resorting to this form of violent exercise can surely be modified by intelligent effort. It is not easy to ignore laryngeal irritation and temptations to cough when the habit is fixed. Reform is a tedious process, because it takes longer to go up hill than down. Neither is it altogether frivolous to say that if you do not cough the first time you do not have any cough. Expectoration, when unavoidable, may be facilitated by assuming for a moment an attitude in which the direction of the air passage is changed from the vertical to a downward inclination, when gravitation and a slight effort provide a harmless exit. In such straits quadrupeds have an advantage with their inclined windpipes, as was seen during the epizootic which visited American horses in 1872. A recent writer advises that drainage be promoted in certain forms of respiratory trouble by elevating the foot of the bed, and another seeks the same object by devising an ingenious inclined chair or table on which the patient lies prone. Since protection from local violence is part of a correct environment in lung disease, the omission of coughing is prescribed in the treatment of pulmonary tuberculosis.

It is generally known that *sneezing* may be prevented by pressing with the finger in the median line at the junction of the nose and upper lip. This stops the desire to sneeze by interfering with the nervous excitement which precipitates the spasm. Another way, novel perhaps, is to empty the lungs by a forcible expiration just before the muscular spasm is expected. The sneeze then takes place with the usual sensation, but there is very little noise and no column of air is sent through the passages as in the ordinary convulsion. The cap is snapped, in military phrase, but, as there is no charge in the barrel, there is no explosion. Although considerable violence attends a sneeze it is not likely that any harm results.

Ceasing to breathe by an effort of the will after a forcible expiration is a ready method of modifying the action of the heart. A weak pulse immediately becomes rapid, full, and strong, with peripheral vasomotor relaxation. This experiment cannot be continued long before the demand for air becomes distressing. By admitting air in small quantities, and thus gradually satisfying the want, the effect on the heart may be continued for some time without too great a demand on the endurance. It may be that full discussion has already been given to the questions prompted by this suggestion, which seems at the first glance to contain the germ of something useful and practical.

SKIN DISINFECTION WITH IODINE IN ABDOMINAL AND OTHER OPERATIONS.

By CHARLES JEWETT, M.D.,

BROOKLYN, N. Y.

THE iodine method of skin disinfection in preparing the abdomen for laparotomy has apparently attracted less attention than its importance deserves. It was first published by Grossich in the *Zentralblatt für Chirurgie* for Oct. 31, 1908. In the writer's work the results under iodine disinfection have shown a marked improvement over those of the usual soap and water scrubbing and mercurial or other commonly used antiseptic compresses.

While it is not possible by any method always to escape infection of skin wounds, in the writer's experience with iodine so far in clean cases no wound has broken down. Per primam healing has occurred uniformly.

The method obviously is equally applicable in preparation for practically all skin incisions. In a modified form doubtless it may assure equally good results in vaginal operations and upon other mucous surfaces.

The procedure as practised by Grossich is as follows: Some hours before operation the operation field is shaved dry and is then painted with a 10 or 12 per cent. tincture of iodine. No water or other liquid than the iodine tincture must be permitted to come in contact with the skin. The surface is covered with a dry sterile dressing. On the operating table shortly before the first incision the painting is repeated.

In my own work care is taken not to wound the skin in shaving and, unnecessarily, perhaps, the field has usually been cleansed carefully about twelve hours before the iodine preparation with soap and water and a gauze compress, shaved, dried, and protected with a dry sterile covering. The process is so simple that even an inexperienced nurse can scarcely go astray in carrying it out.

The tincture of iodine should be especially prepared for the purpose and should be kept in a bottle well stoppered with a rubber or glass stopper to maintain the due proportion of iodine.

It will be remembered that the tincture of iodine of the U. S. P., Revision of 1900, contains 7 per cent. of iodine and 5 per cent. of potassium iodide. The preparation which has been used by the writer differs from the official tincture only in the reduced proportion of alcohol.

MEDICAL RECORD.

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LIFE INSURANCE AND PREVENTIVE MEDICINE.

THREE events of signal importance to the medical profession have recently been chronicled in the daily press. At the Convention of the Presidents of Life Insurance Companies, held a few months ago, it was generally agreed that the time had come when these companies could no longer regard with indifference the problems connected with public health, and the campaign, hitherto fought solely by the medical profession, for diminishing disease and increasing longevity. As a proposition of sound economic importance, this propaganda appealed with incisive logic to the business instincts of the heads of financial institutions. The postponement of the age of death would increase the income of these companies in two ways: first, by diminishing the number of death claims paid, and, second, through the general reduction in the rate of premiums, by increasing the number of those individuals who were willing or able to purchase life insurance. The benefits to the company and to the insured would obviously be mutual.

This discussion has already borne fruit. One of the largest companies has proposed to build a sanatorium for the treatment of tuberculosis among its extensive force of office and field employees, and among those of its policy-holders who care to avail themselves of this opportunity of getting cured or of having the disease arrested. Another powerful company has inaugurated a campaign of education among its policy-holders, through the dissemination of literature dealing with personal hygiene and preventive medicine. Moreover, it proposes, at no cost to the applicant, to furnish the policy-holder, whenever he may desire it, a complete physical examination, and whatever advice he may need to enable him to prevent or overcome any threatening or existing defect or disease. The former plan, involving the expenditure of funds for building and equipping sanatoria, has not been sanctioned by the Superintendent of Insurance of New York State, who has ruled that the present insurance laws do not permit such an investment of the funds of insurance companies. New legislation will doubtless, however, remove the technical restriction.

To the system of the education of policy-holders in the ways of right living there can be no legal objection. In view of the large number of individuals whose lives are insured, the inauguration of such a campaign of education by all companies would not fail to be of decided influence in improving the conditions of health not only among the large force of policy-holders, but also among the larger army of those who are closely related to them. The detection of incipient disease would necessarily suggest the proper hygienic and remedial measures. This effort toward diminishing the prevalence of disease and reducing mortality finds its perfect analogy in the measures taken by fire insurance companies in safeguarding property from fire, by means of a rigid inspection of buildings, and by the framing of rules regulating the proper form of fireproof construction, the storage of explosives, etc.

The influence of life insurance companies in uplifting the general health and mode of living has existed as a silent force from the very beginning of the inauguration of this institution. Countless have been those individuals who first learned of some existing defect, disease, or pathological tendency through the examination made when they applied for life insurance. How incalculable therefore must have been the efforts made to eradicate these defects and check these tendencies, which the applicants were impelled to make in order to qualify for a subsequent examination. The arresting of injurious habits of excessive indulgence in alcohol or tobacco, the avoidance of overwork, particularly the relaxing of the severe tension of business activities during and shortly after middle life, are familiar examples of some of the wholesome influences that life insurance examinations have created.

The era of preventive medicine has barely dawned. Statesmen are beginning to open their eyes to the vast importance of conserving the health of the nation in order to insure its civic integrity and permanence. The industrial world is not only no longer unwillingly yielding to wise laws designed to safeguard the health of the laboring classes, but is actually initiating, of its own volition, measures for improving the physical welfare, and therefore indirectly the industrial efficiency of the workers. The educational authorities are beginning to focus their attention upon the bodily health of the child, for without this, all efforts at mental training are worse than useless. The insurance interests, which have become an integral and indispensable part in the modern machinery of society, are merely falling in line with this universal tendency.

REGULATION OF MIDWIVES.

THE question of the proper care of the poor woman in pregnancy and labor is one of no little importance. In the country, where the family doctor must cover a number of square miles, it becomes impossible for him to attend all the midwifery cases that occur, and in those regions some woman with a limited acquaintance with the art of obstetrics is called in, in normal cases, to cut the cord and dispose of the placenta, when the doctor does not arrive in time. In the great congested centers, like New York, there is a large class of women of

foreign birth who have been accustomed to the more or less skilled services of the European midwife, who has in many instances had a fair training in obstetrics. It is impossible for these poor people to pay an adequate fee for the attendance of a physician, with the added expense of a woman to act as monthly nurse; she therefore turns to the midwife who makes a daily visit and gives whatever skilled or unskilled care the woman has. For these reasons we should have a class of skilled midwives in this country, who will be competent for attendance at normal labor cases, and will know when a physician should be called for further attendance. There has been some attempt made by the Health Department of this city to regulate the licensing of these women, and at present each woman who attends a case of labor must have a permit from the department, and that permit must be renewed each year. The applicant is not required to have undergone any specified course of instruction, but must present evidence of being twenty-one years of age and of good moral character, must be recommended by two physicians, and have attended at least twenty cases of labor under the superintendence of a regular physician, and have had the care of the mothers and of the infants. She must be clean and of healthy appearance.

Such are the regulations, however inadequate, under which labor is at present carried on among the poor. No wonder that not all labors terminate favorably for mother and child. Let us see what appears to be the actual status of these women as to possibilities of asepsis in care of labor cases. The Health Department rules describe the simple equipment which every midwife should carry with her, including antiseptic solutions, means for cleansing the nails, hands, and arms, before examination of a patient, douche apparatus, etc. These articles are to be ready at all times in a bag having a washable lining which can be sterilized by boiling. Actual examination of these bags has shown, however, that they are often old and dirty, and in no case examined did they have a washable lining. The bags contained practically no articles necessary for use. The prescribed articles would be collected from all parts of the midwife's establishment. In one case ergot was a part of the armamentarium, a drug which no midwife is allowed to carry. A clinical thermometer was missing in some cases. Whatever douche bag and nozzle might be found at the patient's house were used when needed. The solution for the child's eyes, a weak silver nitrate solution, and the medicine dropper were not in evidence. None of the articles found showed any signs of having been recently sterilized by boiling. Vaseline was usually carried in a bottle that had been repeatedly opened. It seems very doubtful whether the precautions for asepsis are ever carried out. Yet one woman had attended sixty cases in about six months. Under the circumstances it is not unreasonable on the part of the Health Department to insist upon better condition before giving a license.

The same question is even more pressing in France, where the midwife attends most cases of uncomplicated labor. V. Cocq, in the *Bulletin de la Société Belge de Gynécologie et d'Obstetrique*, for February 6, 1909, discusses this very matter. In France the midwife must have been graduated after a regular course of instruction, and must carry a similar equipment and observe similar rules to those prescribed in this city. The author, however, believes that the improvement necessary in the education of the midwife can be carried out only through attempts to raise the moral and mental status of the midwife. She must have a better preliminary education; she must be a woman of higher class to begin with; no one should be admitted to practise midwifery who has not had both theoretical and practical courses of instruction for at least two years in a recognized school of midwifery, connected with a maternity hospital; there should be greater care taken in the admission of candidates for these schools; they must be of better moral and intellectual caliber; they should have some means of income aside from their professional fees which are very small. Having entered their profession well equipped in knowledge, they should be held up to asepsis in the care of their materials, the cleansing of their hands, and that of the patient. It should be made for their interest to call in a physician when there is an abnormality of presentation or other dangerous conditions, instead of having to pocket their pride when they need the assistance of a physician. There would then be fewer bad cases of neglected labor in deformed pelves, of delayed labor from malpositions, and of sepsis following frequent examinations and hours of suffering, to attend to, and there would be fewer still-born infants.

As a matter of fact most of the serious cases brought into a maternity hospital during labor are those that have been attended by a well meaning but ignorant midwife, and in which complicated conditions have been allowed to proceed until delivery had become impossible without greater danger to the mother, and the necessity of sacrificing the life of the infant in many cases.

ANTITUBERCULOUS WORK AMONG THE NEGROES.

It is well known that the negro is especially prone to suffer from tuberculosis, the ratio of tuberculosis deaths to the general population being nearly four times larger in the colored race, especially those of mixed blood, than among the whites. The necessity, therefore, of caring for the tuberculous negro and of inculcating hygienic habits in the race is most apparent, yet there seems to have been little or nothing done in an organized way until recently. In the North, inspired by the example of their white neighbors and by the tuberculosis exhibits in the larger cities and at the county fairs, the educated negroes have done more or less in the way of inculcating sound hygienic doctrine among their people. For example, the observance of the "health month" last February, during which it was urged that the subject, "Tuberculosis Among the Negroes: What Are We Going to Do About It?" be discussed in every colored church, lodge, and society, did much to awaken interest in the question. In the

South the first Negro Congress on Tuberculosis was held at Tuskegee the third week in December of last year; at this meeting it was decided to establish permanent tuberculosis committees at Tuskegee, Hampton, Shaw, and other negro institutions, each to push the antituberculosis campaign in its own neighborhood by means of lectures, articles in the colored press, and the distribution of leaflets to be supplied by the State boards of health.

This most commendable movement has recently acquired a new impetus through the labors of Dr. Wertenbaker of the Public Health and Marine-Hospital Service. At the conclusion of a lecture on tuberculosis, which he gave in February last before a negro farmers' conference at Savannah, he suggested the organization of a State Antituberculosis League for Negroes, with a vice-president in each county whose duty it should be to organize a branch of the league in every negro church in his county. The suggestion was at once acted upon and the plan, as we learn from *Public Health Reports* for August 6, has met with general approval. The movement has spread from Georgia to the other Southern States, leagues having already been established in Georgia, Louisiana, Mississippi, North Carolina, and Virginia. Furthermore, at a recent meeting of the National Association of Colored Teachers at Asheville, N. C., a committee consisting of one representative from each of twelve States was appointed to urge the organization of such leagues in their respective States, and the prospects are that quite a number of States will soon be organized. The movement was also heartily endorsed by the latest conference of State and Territorial boards of health, the conference urging upon the members the desirability of promoting as far as possible its inauguration and success.

No argument is needed to prove the benefits which will follow upon arousing the enthusiasm of the negroes, especially in the South, in the war against tuberculosis. These benefits will be felt in equal if not greater degree by the whites, for as Wertenbaker says, any improvement in the health conditions among the negroes will also be beneficial to the white race. In the South, where the negroes are chiefly employed as cooks, nurses, house servants, etc., they are brought into intimate contact with the whites, and infection among the negro servants is liable to be communicated to the white members of the household. The Public Health and Marine-Hospital Service has, in the encouragement it has given to this movement, again justified its establishment as a national health organization, and no one can doubt the still greater good it will do when it is detached as a bureau from the Treasury Department and made an independent department of the national government.

Paralysis of the Tongue Following Staphylococcus Angina.

The appearance of paralysis of any form following closely upon a severe, or even a mild, attack of sore throat is usually considered as *prima facie* evidence of the action of the diphtheria bacillus, and not infrequently the diagnosis of diphtheria is made on these two symptoms alone even when, at the time of the examination, the inflammation of the throat has disappeared, and a culture fails to reveal the presence of the specific organism of the disease. Osler goes so far as to state that the appearance of paralytic symptoms after a supposed follicular tonsillitis indicates a diagnostic error. On the other hand it is known that one form or another of paralysis may occur as a more or less rare exception after practically every infectious disease, and though it is undoubtedly a decided rarity for it to occur after a simple tonsillitis, such a possibility should not be ignored. A peculiar form of postanginal paralysis is described in the *Deutsche medizinische Wochenschrift* for July 15, 1909, by Schlippe of Darmstadt. His patient, a young woman with a decided predisposition to angina attacks, was taken acutely ill with high fever, sore throat, extreme bilateral tonsillar swelling and exudate, difficulty in opening the mouth, marked lymphadenitis, and edema under the chin. Repeated cultures from the throat showed staphylococci but no diphtheria bacilli. After a few days, during the acute febrile attack, the patient noticed an inability to use the tongue properly and a definite paralysis of the left side of the organ was discovered. This remained after the patient's recovery, but gradually disappeared three months later. There was hemiatrophy of the tongue and the electrical examination showed the reactions of degeneration on the atrophied side. The hyoid branch of the hypoglossal nerve did not appear to be involved, and no other paralyses were to be found. Five similar cases are recorded in the literature, all of which, however, differed from the present case in that the paralytic symptoms appeared from two to four weeks after the acute illness. All recovered after periods varying from ten days to three years. The paralysis seemed to be entirely peripheral in type and to have involved only the lingual branch of the hypoglossal nerve. Whether it was toxic in origin or due to direct extension of the inflammation from the throat was difficult to determine.

Eruptions After Abdominal Operations.

Surgeons are very often made uneasy by the appearance of rashes in patients after abdominal operations. Such rashes immediately suggest the development of general sepsis or of a complicating disease such as scarlet fever, which, as is well known, often makes its appearance in connection with wounds. However, the patient is usually but little the worse for the rash, for the latter fades sooner or later while the healing of the wound goes on to its usual termination. It has therefore become quite the fashion to blame for the appearance of the rash the various coal-tar preparations so often administered to patients after operations. Writing in the *Journal of Cutaneous Diseases* for July, 1909, Francis J. Shepherd brings forward a great deal of convincing evidence against this explanation. When the coal-tar drugs were discontinued by him eruptions still appeared from time to time among patients who underwent various abdominal operations. It finally occurred to the writer that the enemata which are almost universally administered after operations might have something to do with the appearance of rashes, especially as turpentine was a frequent ingredient. However, the omission of this substance seemed to have no effect upon the frequency of eruptions. It was then noticed that usually yellow soap was used in making

up the soap and water mixture for the enemata, though occasionally castile soap was employed. The possible explanation of the eruptions then suggested itself when a patient developed a rash after an enema of soap-suds made of plain yellow soap but failed to show an eruption after a later enema made of castile soap. In view of this castile soap was generally used in making soap-suds for enemata and rashes then became much less frequent. Shepherd thinks that excess of resin present in the common soaps is probably responsible for the occurrence of these rashes. Of course, a certain percentage of the eruptions may be due to the anesthetic. Shepherd's observations can be so easily repeated in any large hospital, that there need be no difficulty in securing a corroboration or a disproval of his explanation.

News of the Week.

The New York Milk Committee reports that during the past year 1,773 infants have received milk from the seven depots under its care, of which 1,207 were regularly under the supervision of the committee's physicians and nurses.

Robbing Physicians.—Several physicians in New York City have been victimized lately. A well dressed young woman has been calling on physicians for advice and tendering checks for sums above the physician's fee in payment, thus receiving money in change, the checks later proving worthless. A well dressed young man, very slender, and of fair complexion has called at doctors' offices during their absence and collected sums of money on what purported to be instruments ordered by the doctors. The package has contained moth balls.

Licenses for Optometry.—Letters have been sent out in the past few days by the officers of the Optical Society of the State of New York to the branch societies in various cities, asking that action be taken to enforce the new optometry law and to prevent persons from practising optometry without a license. Accompanying the letters were copies of a legal opinion, prepared for the society by former Senator William W. Armstrong of Rochester, as to the most effective means of prosecuting violators of the law. The law becomes fully effective this month, and from now on no more certificates will be issued except to candidates who have had preparatory education equivalent to at least two years in high school and have taken a two years' course in one of the schools of optometry recognized by the Regents of this State.

Quarantine on Sheep.—The Department of Agriculture has announced a quarantine on sheep in Kentucky owing to an epidemic of scabies which prevails there.

The Fly Committee of the Georgia State Medical Association met recently at Atlanta and organized for the purpose of working in connection with the State Board of Health in making war on flies. A report, setting out the dangers of the spread of diseases by flies and giving a number of timely suggestions relative to the destruction of the pests, was adopted.

An Epidemic of Anterior Poliomyelitis is reported in Winona, Minn. Dr. H. W. Hill epidemiologist of the State Board of Health, has been investigating the epidemic.

The Medical Department of Carroll College, recently formed by a merger with the Wisconsin College of Physicians and Surgeons, has announced the appointment of Prof. Wilbur O. Carrier, *president,* and Dr. Thomas C. Phillips, *dean.*

The London Home of Recovery has received a donation of $500,000 from Mr. E. F. Schiff in memory of his brother, Mr. S. B. Schiff.

New Cancer Hospital for London.—The trustees of the fund left by Henry Barnato to found a hospital in memory of his brother, Barney Barnato, and his cousin, Woolf Joel, have decided to devote the sum, amounting to $1,250,000, to the building and endowing of an institution for cancer patients in London.

Hospital for the Criminal Insane.—The ceremony of the laying of the cornerstone of the new Pennsylvania State Asylum for the Criminal Insane was held at Fairview, Pa., on July 24, 1909. Dr. Charles G. Wagner, superintendent of the New York State Hospital at Binghamton, delivered the oration on the occasion.

New Hospital for Payson, Utah.—A new well equipped hospital to be known as the Payson Hospital was opened in Payson, Utah, recently. The physicians in charge are Dr. P. P. Musser of Salt Lake City and Dr. Tilson of Payson.

Application for Tuberculosis Hospital.—The Workmen's Circle, a national fraternal insurance organization, has applied to Health Commissioner Porter for permission to erect a sanatorium at Liberty, N. Y., for tuberculous patients among its members. The organization has 27,000 members, each one of whom will be assessed $1.10 a year toward the maintenance of the hospital. It is to accommodate forty patients.

Tuberculosis Camp Ordered Closed.—The new tuberculosis camp recently established in Orange, N. J., by the Antituberculosis League of the Oranges has been ordered discontinued by the Orange Common Council as a result of a series of complaints made by residents in the neighborhood of the camp, which is located in a prominent residence section of Orange. In the resolution adopted by the Council it is set forth that the Anti-Tuberculosis League had no legal right to open the camp without first obtaining the permission of the governing body, as provided for in the State health code.

New Sanatorium for the Tuberculous.—The Health Commissioner of Milwaukee, Dr. G. A. Bading, has received plans for a tuberculosis sanatorium, to be built in Wauwatosa. This building will be built on the top of a hill, will be two stories in height, and will have large porches on three sides to enable the patients to get the advantage of the sunshine and air.

The Metropolitan Insurance Sanatorium Refused.—The application of the Metropolitan Life Insurance Company to build a sanatorium for tuberculous policy holders has been refused by the State on the grounds that the insurance law enacted in 1849 forbids insurance companies owning real estate except such as is necessary for the transaction of their regular business.

The Provident Savings Life Assurance Society has created a Health Bureau, which aims to help policyholders by prevention of disease and discovering it in time to check or cure it. This will be done through the medium of health bulletins, correspondence, and free medical examination every two years of such policyholders as request it.

Hospitals for Hudson-Fulton Celebration.—Elaborate plans have been made for the medical care of the visitors who will attend the Hudson-Fulton celebration in New York in September. Rest stations, comfort stations, medical stations, registration bureaus, and information bureaus will be established in all parts of the city and particular attention will be paid to caring for the crowd who witness the land and naval parades. Already one-third of the churches have agreed to keep their edifices open as rest stations between the hours of 9 A.M. and 9 P.M., with nurses and other attendants on duty. For the entire time of the celebration a large number of emergency hospitals will be open and six army tents will be put up. Each tent and each emergency hospital will contain twelve cots and will have nurses, orderlies, and physicians on duty all hours of the day and night. Fifteen hundred trained nurses have already volunteered their services. In the three days of the land parades temporary emergency hospitals will be established every five blocks, with ambulances stationed every ten blocks, and special arrangements will be made with the public and private hospitals. At each of these temporary emergency stations physicians and nurses will be in attendance. For the two water events of the celebration similar arrangements will be made where the congestion will be greatest, and an innovation in the form of ambulance launches will be introduced with nurses and doctors in attendance.

Change in Address of the A. M. A.—Beginning September 1, the number of the American Medical Association Building will be 535 Dearborn avenue. This is in conformity with the new system of street numbers of Chicago.

Appointments.—Dr. James L. Greene, superintendent of the Kankakee Hospital for the Insane (Illinois) was recently appointed alienist member of the Board of Administration for the State Institutions. Dr. James A. Nowlen has succeeded Dr. Frank Fitzgerald as local surgeon of the Chicago and Northwestern Railroad Company at Morrison, Illinois, Dr. Fitzgerald having resigned. Dr. Harry C. Blankmeyer has been appointed pathologist, and Dr. Morris Altman obstetrician, on the staff of the Springfield (Illinois) Hospital. Dr. Shallenberger, Canton, Illinois, has been appointed local surgeon for the Chicago, Burlington, and Quincy and the Toledo, Peoria, and Western railroads. Dr. J. Rex Sholl has been appointed Health Commissioner of Peoria, vice Dr. Albert Weil, resigned. Dr. Stephen C. Glidden, Danville, chief surgeon of the Illinois Traction System Hospital Association, has resigned. Dr. R. T. Hinton has succeeded Dr. Elmer L. Crouch, resigned, on the staff of the Jacksonville Hospital for the Insane.

The International Dental Congress is to hold its session in Berlin, August 23-28. Special subjects for discussion will be school and military dental hygiene.

The Mississippi Valley Medical Association will hold its thirty-fifth annual meeting at the Southern Hotel in St. Louis, October 12 to 14, 1909. The president of the association is Dr. J. A. Witherspoon of Nashville, Tenn.; the secretary, Dr. Henry Enos Tuley of Louisville; the treasurer, Dr. S. C. Stanton of Chicago, and the chairman of the committee on arrangements, Dr. Louis H. Behrens of St. Louis. The oration on Medicine will be delivered by Dr. Sherman G. Bonney of Denver, and that on Surgery by Dr. John B. Deaver of Philadelphia. A joint session will be held to discuss the subject of exophthalmic goiter.

The Second International Food Congress will be held in Paris, October 17 to 24, 1909. The purpose of the congress is the repression of adulteration in food, chemical products, drugs, essential oils, aromatic substances, mineral waters; etc. Professor Bordas is the president, M. Ch. Franche, 16 Place Vendome, Paris, general secretary, and M. Maurice Riviere, 16 Place Vendome, Paris, treasurer. The work of the congress will be divided into three sections. The first section, on alimentary technology, is under the presidency of Professor Muntz. The second section is on hygiene, with Dr. Landouzy as president. The third section is on crude drugs, essential oils and crude aromatic substances, chemical products, and mineral waters, with M. Guignard as president. The congress is to be held under the auspices of the Society of the White Cross of Geneva. The first international food congress was held in Geneva in 1908, and considered definitions of food and alimentary substances. The third will be held in 1910 at The Hague and will take up chemistry and hygiene, and the fourth, in London in 1911, the subject of legislation in connection with food and alimentary substances. The membership is divided into three classes: donor members, fee $20, who will participate in the proceedings, receive the publications, and have their names at the head of the list of members; titulary members, fee $4, who also participate in the congress and receive publications; and associate members, fee $2, members of the families of the other members, who may attend the meetings but do not participate. Subscriptions should be sent to the treasurer.

The Oregon, Washington, and Idaho State Medical Association, meeting in joint session in Seattle, Washington, on July 23, elected the following officers: WASHINGTON—*President*, Dr. W. Kirkpatrick of Bellingham; *Vice-Presidents*, Dr. J. M. Semple of Medical Lake and Dr. W. M. Beach of Shelton; *Secretary*, Dr. C. H. Thompson of Seattle; *Treasurer*, Dr L. L. Lover of Tacoma. OREGON—*President*, Dr. E. A. Pierce of Portland; *Vice-Presidents*, Dr. R. G. McDaniel of Baker City and Dr. J. M. Ferris of Corvallis; *Secretary*, Dr. William House of Portland; *Treasurer*, Dr. Edna Timms of Portland. IDAHO—*President*, Dr. J. L. Stewart of Boise; *Vice-President*, Dr. G. H. Coulthard of Idaho Falls; *Secretary-Treasurer*, Dr. E. E. Maxey of Idaho Falls.

The Lamoille County (Vt.) Medical Association, at it annnal meeting held at Burlington on July 28, elected the following officers for the ensuing year: *President*, Dr. George L. Bates of Morrisville; *Vice-President*, Dr. H. W. Barrows of Stowe; *Secretary and Treasurer*, Dr. W. M. Johnstone of Morrisville: *Censors*, Dr. W. M. Johnstone, Dr. J. C. Morgan of Stowe and Dr. J. H Newton of Cambridge; *Auditor*, Dr. George L. Bates; *Delegate to State Convention*, Dr. A. J. Valleau of Morrisville.

Obituary Notes.—DR. WILLIAM C. DOANE of Elmira, N. Y., died August 2, aged 83 years. He was a graduate of the University of Vermont in 1846. Dr. Doane was one of the committee which wrote the first platform of the Republican party. He was inspector of prisons under General Grant.

DR. GEORGE HEYWOOD of New York died on

July 30, 1909, aged 47 years. Dr. Heywood was a graduate of Harvard College in 1883 and received his medical degree from the Harvard Medical School in 1887. He was a member of the New York County Medical Society, the Medical Association of Greater New York and the New York State Medical Association.

Dr. George D. Dowkontt of New York died in Brooklyn July 31, 1909, aged 66 years. He was a graduate of the Jefferson Medical College in 1881. Dr. Dowkontt was the founder of the International Medical Missionary Society.

Dr. James Stafford of Perth Amboy, N. J., died at his home August 3, 1909, aged 48 years. He was a graduate of the University of Vermont in 1885. He was an assistant surgeon in Cuba in 1898, with the rank of captain, and was afterward made a brevet major for his services in stamping out yellow fever in Cienfuegos and Santiago.

Dr. R. A. M. Collins of Gilbert, Iowa, was shot and killed on July 24, 1909, at his home. Dr. Collins was a graduate of the Drake University School of Medicine in 1904.

Dr. C. F. Warner of Mankato, Minn., died at his home on July 25, aged 77 years. He was a graduate of the Jefferson Medical School in 1854, and was local health officer for many years, alderman, and president of the council in his home town.

Dr. Augustus Lewis of Greenville, Ky., died on July 27, 1909, aged 70 years. He was a graduate of the University of Tennessee in 1879, and a member of the Muhlenberg County Medical Society and the Kentucky State Medical Society.

PROFESSOR LUDWIG BRIEGER.

The death of Ludwig Brieger removes from the faculty of the Berlin University its most versatile member. Although Brieger had reached his sixtieth year only, the record of his manifold achievements presents a monument of a laborious life and of tireless devotion to science. He was assistant in Quincke's Clinic at Bern from 1877 to 1878 and in Frerichs' Berlin Clinic for seven years. Here he received the titular professorship together with his friend and colaborer Ehrlich. He labored in Leyden's clinic two years, during which time he was director of a separate polyclinic of 2,000 cases. When the epoch-making labors of Robert Koch induced the faculty to establish a special clinic for infectious diseases Brieger was chosen his chief assistant. In 1901 he was appointed Professor of General Therapeutics with special directions to teach hydrotherapy. In order to obtain a practical insight into this branch of therapeutics Brieger (as he personally informed the writer) made a tour of observation to the fountain head—Professor Winternitz of Vienna—and to other institutions. To the great esteem in which he was held by Minister of Education Althof was due the construction of a splendid hydrotherapeutic institute under Brieger's direction. This special clinic became so popular with students and patients that in three years it became necessary to enlarge it greatly. The writer has met German, Austrian, Russian, Japanese, and Swiss students at this clinic, which is not only a large outdoor one but also has a division in the Charité. That so renowned a man was willing to nurture this neglected child of medicine does honor to him and demonstrates that suffering humanity had in Brieger a sympathetic investigator. He has contributed much scientific and practical work to hydrotherapy.

Brieger was a patient and courageous investigator of ptomain and arrow poisons and received the pseudonym Pfeilgift (Arrowpoison) Brieger. During a visit to the hydrotherapeutic clinic of Brieger last year the professor conducted the writer with much pride through its various branches—consisting of an animal house for subjects of immunity experiments, a laboratory for extracting essential oils, perfumes, gums, and various nutritious elements of African nuts for the colonial department of the German empire, also an ingenious apparatus for obtaining the poisons from living venomous snakes, which department Doctor Krause managed with an enthusiasm that was contagious. In another department the writer saw a large number of arrows used by the African savages, many of them with sad histories. Some remarkable results of cataphoric currents on goiter and other tumors were observed in the well-equipped electrical division, and in another the professor displayed his recent trypsin experiments on cancer, which are now familiar to the profession. Those who know Brieger only as the patient and successful bacteriologist who has given us a deeper insight into the principles of immunity, of ptomains, toxins, and other intricate laboratory subjects wonder that he had devoted his last and most useful years to hydrotherapy—a branch which until recent years has received but scant attention in the schools. Brieger's brilliant achievements and his earnest advocacy of hydrotherapy have doubtless added greatly to its prestige.

As an evidence of the high esteem in which Brieger was held it may be mentioned that when the splendid German Society for People's Baths, which contains in its directorate members of the aristocracy, of the army, navy, and others of renown, lost its brilliant originator and president, the lamented Lassar, Brieger was elected successor to the latter, and after Liebreich's death he was elected president of the German Balneological Society, also. So eminently a useful life cannot but serve as an example to the rising generation of physicians.

Simon Baruch, M.D.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

A WEEK OF CONGRESSES—KING'S COLLEGE HOSPITAL—ORTHOPEDIC HOSPITAL—INVESTITURE BY THE KING.

London, July 23, 1909.

A Health Congress, organized by the city and University of Leeds, with the cooperation of the Royal Sanitary Institute and the Royal Institute of Public Health, has been sitting all the week at Leeds. Above eleven hundred delegates of the many branches of medical and sanitary science attended. The president, Col. T. W. Harding, in an opening address, said that in science, as in industrial production, division of labor had become a necessity, but there was some danger that the specific worker in a limited field might lose sight of wider issues. There was much to be learned still of bacteriology, but we know now that of the myriads of microorganisms the vast majority are beneficent and life on the earth would not be possible without them. While appreciating the progress of sanitary science, he doubted whether we were on the whole healthier than our fathers, whose lives were more rational; e.g. in the old conditions 75 per cent of the population was rural, now 77 per cent. was urban.

Still phthisis was being controlled, though the deaths

were still terribly numerous. In 1907 they amounted to 42,000 in England and Wales. Still the mortality was not much over a third of what it was in 1851. For 100 deaths in 1869 there were now only 46. The birth rate had declined since 1880, the causes being obscure. He warmly commended physical exercises and games in schools and later military drill and discipline to improve the race.

On Monday the most popular section was devoted to the bringing up of children. Over this Sir J. Crichton Browne presided and reiterated views he had always held, especially urging that nutrition should come before education, and that millions of money were squandered by putting instruction into bodies unfit to receive it.

One speaker demanded artistic school surroundings. Several strongly advocated open-air schools. Dr. Marsden said one always heard sentimental rubbish when practical questions were under consideration. Artistic schools were very well for rich people, but economy lay in plainly constructed buildings and saving the ratepayers' pockets. It was lamentable to see children in a filthy and even verminous condition being taught Tennyson and Shakespeare instead of how to keep themselves clean. Dr. W. Hall admired the open-air system, but objected to children's heads and feet being exposed to cold. Sir C. Cameron said in Ireland, with about 200 rainy days a year, open-air schools seemed undesirable, and regretted that medical inspection was not yet extended to Irish schools.

The university conferred honorary degrees in the afternoon—LL.D. on Col. T. W. Harding, president; D.Sc. on Sir J. Crichton Browne and on Major Ronald Ross.

On Tuesday prevention of disease was the subject to the fore and attracted a large audience. Dr. Arthur Newsholme read a paper on "Some Conditions of Social Efficiency," in which he maintained that the whole range of physical, mental, and to a large extent moral life of mankind might be brought within the range of preventive medicine. The sanitary authority which spent money lavishly on an isolation hospital but neglected to search out by bacteriological and clinical investigations the "missed cases" which continued to spread infection was comparable to a specialist who busied himself with a nasal polyp in a patient who was dying of consumption. If sanitary authorities realized the loss of life from communicable diseases they would be less likely to build extravagant town halls while the essentials of public health were unattended to. The Poor Law Commission showed that much of the three to four millions a year spent on outdoor relief was a subsidy to unsanitary, disorderly, or even vicious habits of life. Repeated attacks of delirium tremens were treated without any effort to compel the sobriety of these patients after the first attack, even though it might be necessary to prevent them handling their own wages. So the children of the soaker were fed and clothed, with no diversion of wages other than an occasional fine for drunkenness. Extravagant parsimony characterized our dealing with tuberculosis, though combined effort to reduce its prevalence was the best investment a community could make.

A discussion on tuberculosis was opened by Dr. Robertson, Medical Officer of Health for Birmingham, who supported the views of Dr. Newsholme and argued for the encouragement by every means of the improvement of the conditions of living.

On Wednesday Dr. G. Newman addressed a large general meeting in the University Examination Hall on child mortality. He held that future measures of preventive medicine must start from the child and deal more with the home than the house. Not that the State should invade the home and discharge the individual's responsibility, but should teach him, particularly the parent, that his responsibility had increased. The true foundation of physical improvement must be laid deeply and broadly in childhood.

In the sections Dr. Herbert Williams, Medical Officer of the Port of London, dealt with the protection of food supply and desired the assistance of sanitary inspectors to look after imported foods. He was supported by Dr. Dearden, the Manchester Port Officer, who dealt specially with canned foods, who did not think there was much danger in them, but considered the Local Government Board should have power to prohibit those dosed with preservatives or with copper, as well as certain brands of condensed milk.

Yesterday the most popular papers dealt with the health of women wage earners. Miss E. H. Jones, Chief Sanitary Inspector at Bradford, said in that town 22,000 single and nearly 6,000 married women worked at wool-combing, an industry very injurious to health. If hygienic conditions were good, she doubted whether work in married women affected infant mortality, and forbidding it might lead to worse evils, for increased wages meant more home comforts. But the system fostered selfishness, men often choosing wives for their earning capacity. In no class were drunkenness and vice so common as among woolcombers.

Miss Carey, Chief Lady Sanitary Inspector, Westminster, said the only labor from which nature indicated that women should be debarred was such as demanded great physical energy. She was glad to see increasing interest and sympathy among employers toward their women workers.

Other questions occupying the congress this day were lead poisoning in earthenware factories, tuberculosis in cows, and the training of children.

Another congress has also been sitting all the week. That is the twelfth International Congress on Alcoholism, opened on Monday by the Duke of Connaught. About 1,000 delegates attended, 400 from foreign countries. In the afternoon the Dean of Hereford opened an exhibition illustrative of every phase of the temperance question, arranged in stalls at the Imperial Institute, where in the evening the First Commissioner of Works received the officials and members on behalf of the Government.

Tuesday was largely concerned with the education of school children and students and further to the education of the teachers themselves, on which last interesting papers were read by MM. Petersen of Kiel and Ambert of Paris. After this many members visited the Temperance Hospital, where Dr. Holitsher of Karlsbad presented a report on the treatment of pneumonia and typhoid with and without alcohol. From statistics he had collected from 47 hospitals, out of 238 cases of pneumonia treated with alcohol the death rate was 24.3; of 248 without any, 21.3 per cent. Of 48 cases complicated by delirium tremens alcohol was given in 21 and the deaths were 15, while of the 26 in which it was not given only 9 died. On account of the small number of cases reported, he did not pretend that the difference between 24.3 and 21.3 was a solution of the question about the effects of alcohol, but it certainly proved that alcohol did not cure pneumonia. It was clear, too, that in intricate cases alcohol should not be given. Of typhoid, 161 cases from eight hospitals were considered. Of these, 80 had alcohol and 15 of them died; 81 had none and 12 died. The statistics again did not quite settle the question. If 20,000 cases were reported on showing a lower mortality without alcohol it would be more conclusive.

In the evening the third Norman Kerr lecture was delivered by Prof. Taav Laitinen of Helsingfors, who gave in it the results of three years' experiments he had carried on with a view of ascertaining whether the resistance of the red blood corpuscles against normal or an immune serum is diminished by the use of alcohol. From investigation on 228 persons he found that it is so diminished. The normal hemolytic power of human serum is less in consumers of alcohol than in abstainers. So is the precipitating reaction between human blood serum and immune serum from animals obtained by immunizing them with human serum. Furthermore, the experiments showed that the bactericidal power of the blood against typhoid bacteria was less in drinkers than in abstainers. Altogether, then, it appears that the effect of moderate quantities of alcohol injures the protective mechanism of the body.

On Wednesday the discussion was again largely concerned with children and a number of papers were submitted. I can only mention the more strictly medical, preferring those of foreign visitors. Dr. Imri Doezi, representing the Hungarian Government, read one on the effects of alcohol on the child, in which he related how wide was its distribution as shown by statistics. In some parts cheap brandy was given them regularly at breakfast and in those communities the birth rate was steadily falling. Occasionally a child came to school intoxicated. The effect on children was to make them nervous, inattentive, melancholy, and sometimes immoral.

Dr. Hercod of Lausanne read a paper on the legal protection of children against alcohol, in which he suggested serious legislation against unworthy parents. In the discussion on this it was stated that in this

country 12,500 widows were made by alcohol every year.

Prof. Taav Laitinen discussed the influence of drink on the degeneration of human offspring, and the professor gave a report on the consumption of alcohol in hospitals and asylums, showing that in those institutions in Germany, Austria, and Switzerland there had been a great diminution during the last twelve years, and the decrease, he thought, would continue.

Dr. Legrain of Paris read a paper on inebriety and insanity, in which he declared that society was full of people soaked to the very marrow with alcohol, which ought to be prohibited as a poison, like phosphorus, etc.

The Lord Chief Justice presided in the evening at a demonstration of the national services—sailors, soldiers, postmen, and railway men. His Lordship said that after forty years at the bar and ten years' experience as a judge he knew as a fact that 90 per cent. of the crime of the country depended on intemperance.

Yesterday the economic effects of the production and consumption of alcohol and vital statistics connected therewith occupied the congress and after the debates a garden party at Henley.

To-day the effects on the brain and nervous system and also a special meeting for ladies only.

To-morrow crime and alcoholism in reference to legislation will be discussed and a farewell dejeuner given to the foreign guests.

Nurses have also held an International Congress this week, and to-morrow the delegates are to visit Windsor Castle. The question of State registration has occupied them a good deal and they seem to think it would do much to secure them a professional position and protection. If they knew how little the General Medical Council has done for doctors they would be less hopeful of such assistance.

At one session an address was given on the relations of nursing to medicine, in which the lady presiding said there was danger lest the nurse's admiration for medical skill and interest in science should lead her to feel some contempt for the humbler duties on which the comfort of the patient so much depended. Once the idea of making the patient comfortable was lost sight of, much of the charm of nursing would be lost.

Yesterday the morning meeting was occupied with the nursing of the insane. Dr. Robert Jones of the Claybury Asylum and lecturer at St. Bartholomew's Hospital on mental disesaes, read the principal paper, in which he pointed out the difference between our time and one hundred years ago. He thought the example of Florence Nightingale was the mainspring of the improved nursing of the insane. He held that all great public asylums ought also to be training schools for nurses. He feared the official view was otherwise, lest it should lead their trained nurses to leave for better situations. Even if so, the training asylum systematically maintained the best service and the nurses took a more enlightened interest in their work. Miss Parsons of the Shepperd and Enoch Pratt Hospital, Baltimore, followed and argued that some hospitals advertised no bars and no restraint, but that was going too far, like most reforms, and might lead to an opposite movement.

At the afternoon meeting the Secretary for War gave an address on the "Nurse as a Patriot." He was continually interrupted by suffragettes, although he is in favor of votes for women.

The members of the congress were received by the Lord Mayor and Lady Mayoress at the Mansion House.

The King, accompanied by the Queen and Princess Victoria, went in semi-state to Denmark Hill and laid the foundation stone of the new building to which King's College Hospital is to be transferred on its completion. In replying to an address, His Majesty spoke of an interest he always felt in the hospital and approved its removal to a more necessitous district. He alluded to the association of the hospital with the great work of Lord Lister, which had "rendered an inestimable benefit to England and to all mankind." He remembered, too, that the hospital had sent out some of the most distinguished of its staff to do their generous work in the South African War.

Yesterday His Majesty held an investiture, when numerous orders and decorations were conferred, among them Col. D. Wardrop, Commandant of the Royal Army College, and Surgeon-General Whitehead, P.M.O., the Victorian Order. Prof. William Simpson, for his plague services, received C.M.G. Lieutenant Colonel William Leishman was knighted for his researches in bacteriology.

This afternoon the King, accompanied by the Queen, went in semi-state and opened the new buildings of the Royal National Orthopedic Hospital.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 29, 1909.

The Histological Classification of Tumors.—F. B. Mallory describes a limited number of characteristic cells and some of the varieties of tumors composed of them he demonstrates photomicrographically. The ordinary connective tissue cell or fibroblast is an elongated, flattened cell with a flat, oval nucleus, and is characterized by the production of two kinds of fibrilis, fibroglia and collagen Cells of this type produce a series of tumors ranging from the dense fibroma to the soft, rapidly growing fibrosarcoma. The myxoma and myxosarcoma differ from the tumors of this group in having a certain amount of fluid between the collagen fibrils. They should not, therefore be classed as a separate type of tumor. The smooth muscle cell is a long spindle-shaped cell with a rod-shaped nucleus, and is characterized by a number of fine striations running longitudinally in the cuticle of the cytoplasm. Slowly and rapidly growing tumors composed of the type of cell occur most commonly in the uterus, but may arise in other parts of the body. The neuroglia cell varies in shape and size and is characterized by the production of fibrils of one kind only, the neuroglia fibrils, which run parallel with the spindle-shaped cell and in all directions around the spherical cells. From this type of cell a variety of glioma arise. The endothelial cell is characterized by no production of fibrils, and gives rise to two types of tumors, the hemangioendothelioma and the lymphangioendothelioma. The first type occurs in two varieties, the capillary and the cavernous. Epithelial cells occur in great variety; so also do the epithelial tumors of which the cells tend to differentiate like the normal cells. Only the names of a few are mentioned. The vague terms, "spindle and round-cell sarcoma" and "peripheral angiosarcoma," should be avoided so far as possible. A spindle-cell sarcoma may be composed of connective tissue, smooth muscle, endothelial, or neuroglia cells. A round cell sarcoma may in reality be a lymphoma, osteosarcoma, malignant leiomyoma or neuroma A true perithelial angiosarcoma does not occur.

Injections of Sea Water in Skin Diseases.—In order to determine the possible therapeutic power of sea water, Charles J. White undertook some experiments. The sea water was obtained from the ocean about 30 miles south of Woods Hole, Massachusetts, and from a depth of 30 feet, thus insuring a pure, uncontaminated supply This water was brought to Boston and purified by passing through a filter and rendered isotonic with blood serum. The injections were made three times a week deep into the buttocks of the patient, who lay on his side and allowed the fluid to run into the tissues by the force of gravity. From a study of 15 cases treated by the injections of isotonic sea water, certain conclusions may be drawn: (1) This unusual therapeutic measure produces a certain amelioration of symptoms in widely various dermatoses. (2) This improved condition is most conspicuous in tuberculous processes, especially in tuberculous ulcers. (3) As a whole, this therapeutic agent is a great disappointment. (4) Sea water can be injected in surprisingly large amounts, even into children, without causing much pain or other untoward symptoms. (5) Sea water injected into the buttocks causes immediate desire to micturate, a contained easy and sometimes increased number of daily movements of the bowels, as a rule a slight tendency toward increase of bodily weight, and at times a distinct improvements in the well-being of the recipient.

Isolation of the Bacillus of Typhoid Fever from the Breast Milk of a Woman Ill with the Disease.—Charles H. Lawrence reports such a case. The patient was 23 years old and three months before entrance to the hospital she had been confined and was nursing her baby when she was taken sick with typhoid fever. The patient's milk contained typhoid bacilli. The possibility of contamination is very slight, for special precautions were taken to prevent such an occurrence. The patient's baby has shown no signs of illness. The positive Widal reaction obtained with the serum of infants who have been nursed by mothers ill with typhoid fever may explain the failure of the child to contract the disease in the majority of cases It seems equally possible, however, that in a few

cases the protective reaction in the child may be strong enough to resist the infection.

New York Medical Journal, July 31, 1909.

Prognostic and Diagnostic Value of the Leucocytes and Differential Count in Acute Abdominal Infection.—J. J. Coons and H. O. Bratton offer the following conclusions: Polynuclears below 75 per cent.: If there is a leucocytosis, one may look for an old infection, well walled off; there may be an acute exacerbation. Usually there is a mild secondary anemia. Polynuclears from 75 to 80 per cent.: Indefinite; the history of the case and the patient should be considered. In their series of 184 cases, 32 had polynuclears from 75 to 80 per cent., 15 were abscesses, 11 acute suppurative appendicitis. Polynuclears, from 80 to 85 per cent.: The patient is in no immediate danger unless the total leucocyte count is low, suggesting a poor resistance. If the leucocytes are increasing, an immediate operation should be advised if the relation of the polynuclears to the total leucocyte count indicates a good resistance. If the leucocytes remain stationary or decline, the surgeon should rely on the physical signs in making up his mind when to operate. Polynuclears, from 85 to 90 per cent.: Look for a severe infection. If there is a proper leucocytosis, according to the chart, an immediate operation is indicated. Polynuclears above 90 per cent.: Virulent infection, grave prognosis. Twenty-five of their 31 cases above 90 per cent. had some form of peritonitis. Where there is no increase in the leucocytes, and the polynuclears high, little hope can be entertained for the patient from an operation.

Frequency of Cancer of the Cervix Uteri.—John A. McGlinn says that cancer is a disease of antiquity and is a disease which will eventually supersede all others in importance. If the present rates of increase in cancer and decrease in consumption are maintained, cancer will exact more deaths in the registration area of the United States by the year 1931 than consumption. He recently showed that out of a total of 140,088 deaths from cancer, the stomach and liver were the site of the disease in 36.4 per cent. and the female genitals in 14.7 per cent. The uterus is the most frequent organ to be attacked primarily in women. In the registration area of the United States one woman out of nine over thirty-five years of age dies of cancer. One woman out of ninety at all ages dies of cancer of the uterus. One person out of 162 of the whole population, male and female, will die of cancer of some part of the genital tract. Cancer has increased from 64.5 per 100,000 population in 1901 to 73.1 in 1907. That cancer is the most important lesion of the genital tract admits of no controversy. In 1907 cancer of the female genitals killed over three times as many women as abdominal tuberculosis; five times as many as venereal diseases; fourteen times as many as tumor; nearly twice as many as endocarditis; seven times as many as ulcer of the stomach; twice as many as cirrhosis of the liver; almost as many as typhoid fever; nearly twice as many as appendicitis; five times as many as were killed in all railroad, street car, horse and carriage, and automobile accidents. Cancer in general is apparently less common in negroes than in whites, although cancer of the uterus is more frequent. A table presented shows that the death rate was highest in those whose mothers were born in France and lowest in those having mothers born in Poland. It would seem that an admixture of the races lessen the frequency of the disease. He was not prepared to say that occupation bears any particular significance as to the etiology of cancer of the female genitalia. Another table shows that the age of greatest frequency is between forty-five and forty-nine (18 per cent.). Of 2,291 cases, 1,551, or 67 per cent., occurred between the ages of forty and sixty-four. It is generally stated that 90 per cent. of all cases of cancer of the uterus occur in the cervix. Cancer of the body of the uterus as a rule develops later in life than cancer of the cervix and has a longer duration. The length of life in cancer of the cervix is usually given as two years, while in cancer of the body it is thirty-two months.

Treatment of Epistaxis.—Beverley Robinson says that the essential thing to do in order to stop a too abundant epistaxis is to plug the nasal passages properly and effectively. This may be done by taking a strip of aseptic, absorbent cotton, such as comes in layers, and twisting it round and round, so that it becomes the size of the little finger; then with a good light fill the lower and middle meatus as far back as possible, on one or both sides of the nose, using a nasal speculum, and a director or stiff probe for the purpose. Postnasal plugging is rarely called for. When the epistaxis is slight, or moderate, it is as a rule unwise to attempt to stop it. Cold may be applied to the frontal region, or a little cold water may be snuffed up. Nature not infrequently allows bleeding from the nose as a relief from symptoms or as a protection from other troubles more important. Profuse nasal hemorrhage, arterial in character, comes from the artery of the septum, not far back from the anterior nares. A saturated solution of copper sulphate, applied one or more times by means of a cotton-covered probe, will probably cure it. This he considers the best local application to make and is superior to chromic acid, silver nitrate, or the electric cautery.

Journal of the American Medical Association, July 31, 1909.

The Ventilation of the Eustachian Tube.—A series of experiments on the ventilation of the Eustachian tube are reported by E. P. Fowler, in which experiments, he finds an increased intensity of sound from a tuning fork placed on the vertex during the act of swallowing. The following results were observed: "Opening the normal Eustachian tube by deglutition or by contraction of the tubal muscles causes increased perception for the sound of the lower tuning forks held before the nostrils as follows: With the ears open a marked increase was noted, with the ears closed by the finger (using care not to compress air in meatus) increase was noted; with one ear closed by the finger increase was greater in the other ear; with both ears closed by author's ear massage cups there was marked increase; with one ear closed by author's ear massage cups increase was more in cup ear; with both ears closed by author's ear massage cups (air in one rarefied or compressed), increase was noted in other ear; with both ears closed by ear massage cups, note is heard to increase more than with the ears uncovered, unless extreme quiet can be obtained. Opening the tubes immediately after autoinflation by Valsalva's method brings about a distinct increase in the sound perception. Opening the tubes after autodeflation by Toynbee's method or otherwise brings about a still greater increase. If one tube is blocked, the increase is noted during swallowing only on the patent side. If a long rubber tube is slipped over the shank of the fork, and its distal end placed in the nostril, results similar to those described may be elicited during tubal opening, but if the tubing is inserted into the external auditory meatus no change in intensity occurs. So much for the increase in sound during tubal opening as heard by air conduction through the Eustachian tube." The various cranial tympanic conditions of sound with the fork on the vertex are also given. The increase of sound during tubal opening here is accounted for by two main factors, one air conduction through the tube, and the other the increased bone conduction due to slight changes mainly in the drum membrane. Fowler presents some evidence for discussion that seems to indicate that during tubal opening there is a contraction of the tensor tympani muscle. In conclusion he describes an apparatus devised by him for ventilating the ears which he considers an improvement on the present method of home treatment for retraction of the drum. It consists of a rubber balloon attached to a nose piece. "If one nostril is closed and the nose-piece is fitted tightly into the other nostril, the patient may inflate the balloon by blowing into it through the nose. In the size I usually employ, a pressure of about 10 mm. of mercury is required to inflate the air-bag, and, no matter how much it is distended, the pressure within it will remain between 8 and 10 mm. of mercury. After inflating the balloon, the patient, without removing the nose-piece or releasing the opposite nostril, swallows, and repeats this act several times, or until the balloon has completely collapsed. At every deglutition both middle ears will be inflated. During deflation the air pressure in the balloon remains at about 6 or 8 mm. of mercury until the bag is deflated, when the pressure drops suddenly to zero."

Mongolian Idiocy.—Herbert E. Smead reports a case of this type of degeneracy and emphasizes certain diagnostic points, especially those between it and cretinism. He reviews the characteristics of this type and says that little is known of its causes, suggesting that the Mongolian features are possibly an example of atavism. They are evidently undeveloped children and their bodily development is retarded during infancy. As in all mental defectives, speech is late in developing—they may not talk until they are 5 years old. The degree of mental deficiency varies with the subject and in the border line cases they may acquire a fair degree of intelligence and education, but

they are always more or less mentally dwarfed. One might be misled into too favorable opinion by their generally amiable and cheerful disposition. They are imitative to a marked degree, and this he notes as another point of similarity to the Mongolian race. The vital prospects are bad. They are specially subject to many diseases, especially those of the lungs, and tuberculosis, from which many of them succumb before puberty. Pathologic anatomy gives little of importance and there is no specific treatment. Something may be accomplished by cultivating the imitative faculty and by good hygiene. Thyroid treatment is useless. At the approach of puberty special care must be taken with reference to the abuses of the animal instinct, as in all mental defectives. As Mongolians are often taken for cretins, according to his observation, and such mistakes may influence treatment, he gives in parallel columns the characteristics of the two forms substantially as follows: Characteristics seldom present before six months in cretins; in Mongolians present at birth. Cretins are dull and passive as opposed to the smiling, active, and imitative Mongolians. In cretins the hair is apt to be coarse and scanty, the skin is swollen and dry with fat pads above the clavicle. In Mongolians the skin is soft and fine, the hair straight and soft in early life. The skull is normal in shape in the cretins and brachycephalic in the other type. The eyes are horizontal with swollen lids and epicanthus absent in cretin, while in the Mongolian the eyes are oblique; there is no swelling of the lids and the epicanthus is present. In both the tongue protrudes, but in the cretin it is swollen. In these also the lips are thick and everted and fingers short and stumpy, while in the Mongolian the lips are natural and the fingers short and tapering, the little finger short and curving inward. Lastly, the thyroid is absent or atrophid in the cretin and thyroid treatment is beneficial if used early enough. In both of these respects the case is reversed with the Mongolian.

Pemphigus Neonatorum.—O. H. Foerster says that the possible identity of pemphigus neonatorum and impetigo contagiosa has not been given due prominence in English dermatologic literature. He goes over the recent literature and says that there "appears to be sufficient evidence at hand to warrant insistence on the proper recognition of pemphigus neonatorum as simply a bullous infantile variant of impetigo contagiosa and elimination of the confusing term 'pemphigus' when this affection is under consideration." Within the past six years he has had occasion to observe a number of instances in which midwives or others have communicated pemphigus neonatorum to infants or received impetigo from infants affected with pemphigus neonatorum. Although the disease is generally mild in character, it sometimes has an appalling mortality in infants. It is desirable, therefore, in his opinion, to have midwives report all cases occurring in their practice, as is now required in Prussia. At present no one bacterial organism can be credited as being the causative agent of the disease, though Almquist has named a special micrococcus as such and it has been isolated from cases in Manila by Clegg and Wherry. The *Staphylococcus pyogenes aureus* seems to be the one organism most generally found in pure culture. The same uncertainty seems to exist in regard to the bacteriology of impetigo contagiosa, and Potter ascribes the clinical differences between the two affections to the variations in the anatomy and physiology of the skin of the new-born and that of older children and adults. The treatment he has found most efficacious is the same in both; drainage of the vesicles or bullæ and exposure of the edges of the lesions, the entire base of which is freely anointed with 2 per cent. ammoniated mercury ointment, and individual isolation of the lesions with gauze and cotton dressings. For asepsis of the univolved surface the child is bathed in a warm permanganate solution and sponged with the same whenever the dressings are changed. External heat and full doses of brandy and strychnin are indicated as supporting measures if the disease is at all extensive.

Cerebellar Tumor Removal.—T. Diller and Otto C. Gaub have analyzed the statistics of removal of cerebellar tumors and find that the mortality of the operation has been notably reduced within the last few years. They also quote a letter from Dr. Harvey Cushing of Baltimore, giving his opinion based on experience of thirty cases, who thinks that with a certain method of operating the results may be as favorable as in the case of lesions of the cerebral hemisphere. He says: "It is my feeling that with a proper face-down position on a suitable operating table, with a skilled anesthetist and with a low operation with removal of the posterior half of the foramen magnum so as to get below the lips of the cerebellum and evacuate fluid before the dura is freely opened, these cases, contrary to the opinion that has been expressed by others, are as favorable, if not more favorable, for operation as lesions of the cerebral hemisphere.' The other side of the case has been shown by Knapp of Boston who, in his paper published in 1906, concludes from the study of 104 autopsies of brain tumor, that only four were anatomically accessible and presented enough clinical symptoms to be correctly located for the purpose of operation. A number of other authorities are quoted and the clinical and pathological record of their own cases is given with special detail. The operation seems to have been done according to Cushing's method for the most part, except that the patient was placed on his left side with a sand bag under the head. The operation was a success. The patient was relieved and has continued to do well. The features which seem to the authors specially noteworthy are given as follows: "1. The excellent recovery of the patient after the operation and his great improvement. 2. The position of the head, bent forward to the left on the chest and rotated to the right. This is against the common statement that in cerebellar tumors the head is drawn backward. 3. The very rapid subsidence of the optic neuritis following the operation. 4. The fact that the optic neuritis was greater on the right side—the side of the tumor—than the other side. 5. The great practical value of exposing the cerebellum over both sides; this, not only because it is frequently difficult to decide on which side a tumor is located, but because such an opening allows for far better manipulation and exploration of the cerebellum. Without this double opening the tumor in this case probably could not have enucleated. 6. The fact that considerable manipulation and even destruction of the cerebellar lobe is compatible with life. 7. The position of the patient on the operating table and the surgical technic are of the greatest importance. 8. The cardiac complication—the apparent development of an endocarditis which seems to have disappeared now." The tumor was situated in the right lobe, from one-third to one-half of which was cut away in removing it. Its size was about that of a hickory nut and the pathological diagnosis was myxosarcoma telangiectatum.

Pseudomembranous Anginas.—W. R. Murray gives case histories of three patients suffering from chronic pseudo-membranous faucial inflammation in which repeated microscopic examinations showed the presence of Vincent's spirillum and the *Bacillus fusiformis*. The bacillus has been described "as a spindle-shaped rod with tapering ends, slightly bulging in the center, usually straight, and from 6 to 12 microns in length. The spirilla, usually associated with the bacilli, are delicate spiral-shaped organisms, staining somewhat faintly, and varying considerably in length and in the number of twists or curves. Both organisms take the ordinary stains but are Gram negative. They are always found associated with other micro-organisms. Clinically, these acute lesions appear as a grayish pseudomembranous inflammation attended by necrosis; the necrotic area usually sloughs, leaving a penetrating ulcer, the floor of which is covered with pus which easily bleeds. The duration is from one to three weeks." In one of these cases the general health was good and the patient responded readily to treatment. In another, mild antiseptic spraying caused the disappearance of the exudate, but in the third the membranous deposits did not disappear until after the application of strong silver nitrate solutions locally, together with general tonic treatment. Clinically there was some resemblance to a mycosis in the local manifestations and some leptothrix were found in the smears. Whether or not the organisms as described by Vincent were the causative factor was not absolutely proved, but their continued presence would seem to justify the assumption that they had a causal relation.

The Lancet, July 24, 1909.

The Fate of Damaged Joints.—Richard Warren reports cases of injury, principally fractures, involving joints, treated in the massage department of the London Hospital. From a continuous series of nearly 400 cases taken for a period of about eighteen months, he concludes that, on the whole, the results are not bad, though certainly admitting of considerable improvement. If modern treatment be carried out, the outlook for fractures involving joints is less gloomy than some would have them believe. Unless cases are made to come and show themselves after treatment has ceased, one gets a false perspective of the results; one sees cases coming up week after week and month after month with very little signs of improvement. Cases doing well slip away, their treatment is shorter, and they leave less impression on the mind than do those stiff, squab, edematous, and utterly dreadful-looking ankles, as after Pott's fracture, which are constant visitors. With patience and perseverance,

however, these latter assume something of their normal proportions and are, at any rate in the majority of the cases, exceedingly useful and serviceable means of progression. He has found to his surprise the after-results much better than he expected. From the cases discussed the value of early movement and massage will be readily seen in improving and accelerating recovery of function. Massage and movement alone are not suitable from all fractures, though serviceable for a great many more than is commonly supposed. Certain fractures, *e.g.* Pott's fracture, must have some retentive apparatus to avoid displacement, not to produce immobility of the limb. In the treatment of fractures and allied injuries, as in a very large number of medical and surgical cases, two great and apparently opposing principles are used, viz., rest and exercise. In the past too much stress has been laid on the importance of rest in cases of injury, and it is largely to the French school that the credit is due of accentuating the importance of the other factors in treatment, movement, and exercise. For movement leads to power of function, and it is by proper appreciation of the importance of each of these principles and by correlating their application in practice that one could attain such perfection as is possible in this world of mortal men.

Painful Heels.—E. Reginald Morton reports the case of a woman, aged sixty years, who gave a history of pain and tenderness in the right foot and heel, which had got progressively worse during the past four months. At a later date the left foot and heel began to give trouble in the same way. Walking was attended with extreme discomfort. There was a distinct gouty tendency. A radiograph of each heel was shown. There was a development of a thorn-like process projecting forwards; one was more complete on the right than on the left side, thus conforming to the clinical history. There was also noted a thickening of the tubercle of the os calcis, an extra layer of bone being deposited thereon. He was informed by a New York surgeon that at least one of his colleagues looked upon these spiculas of bone growing from the os calcis as pathognomonic of gonorrheal infection. Steinhardt, however, admits the possibility at least of the condition being due to gout, rheumatism, and traumatism. The case reported was clearly not gonorrheal. Ionization was tried for a brief period, but the result was negative. The spicules were removed by operation, but the benefit obtained was slight and the patient was still unable to walk.

Purpura Hæmorrhagica, with Abdominal Crises Due to Intestinal Effusion.—G. Percival Mills reports such a case occurring in a boy, aged sixteen years, which was of particular interest in view of the causation of intussusception. Dr. Sutherland has quoted a number of cases in which this condition of intestinal effusion was found during a laparotomy for supposed intussusception, and shows that it has been not unnaturally regarded as the result of an intussusception spontaneously reduced. He brings evidence to show, however, that (a) all the symptoms of intussusception may be caused by intestinal effusion, and (b) that intestinal effusion itself is a cause of intussusception. The case reported presents a certain amount of evidence in favor of both these views. Before operation it was regarded as a chronic intussusception, and had only one patch of hyperemia been found a diagnosis of spontaneous reduction would probably have been made. He would be a bold man, however, who would assume the presence of twelve to fifteen intussusceptions, all of which had undergone spontaneous reduction, to account for the condition found. Consequently it must be admitted that intussusception may be closely simulated by multiple patches of intestinal effusion. Another point of extreme interest centers in an old scar which was found; its appearance strongly suggested an old intussusception, and the occurrence of intussusception and of intestinal effusions in the same patient is very suggestive.

Note on the Treatment by Radium of Lymphatic Obstruction (Cervical, Submaxillary, and Axillary) in a Patient Suffering from Filaria Nocturna.—The remarkable and rapid success that attended the use of radium in this case of filariasis prompts A. A. Warden to record it. Dr. H. Dominici outlined the treatment which he calls "Méthode du Rayonnement ultrapénétrant"; this consists of filtering the rays of radium through thick silver or lead plates. This treatment entailed no pain or discomfort and under its influence the several glandular masses rapidly diminished in size. Sir Havelock Charles first saw the patient and says that nothing could be done surgically, and medicine gave no hope. He calls attention to the beneficent influence of radium in these cases and says that if he were returning to the tropics he would equip himself with a working quantity of this element for use there.

Münchener medizinische Wochenschrift, July 13, 1909.

The Chantemesse Ophthalmoreaction for Typhoid Fever.—Becker reports his experience with the ophthalmic reaction for typhoid fever. He first standardized his extract on rabbits and also by testing it in varying doses on patients who did not have typhoid. He found that the dose which would produce no reaction on his controlls was 1-20 mg. At this dose the reaction was also negative in several patients who had had typhoid some years previously. An existing conjunctivitis was increased by the toxin. In eight cases of typhoid convalescence, of one to two weeks, the reaction was positive. The only cases in which the reaction was negative were two of supposed typhoid in which bacilli were found in the blood, but were not definitely identified—possibly paratyphoid bacilli. Of eight acute febrile typhoid cases the reaction was positive in seven, negative in one. One case gave a positive reaction to both typhoid and paratyphoid extracts. The author cites the results of other observers who had not been able to get constant results with this reaction and states that their error probably consisted in the failure to standardize their toxin on healthy patients before beginning the experiments.

Deutsche medizinische Wochenschrift, July 15, 1909.

Tubercle Bacilli Not Demonstrated by the Ziehl Stain.—Liebermeister has made a study of the form of tubercle bacilli and bacillary granules described by Much as not demonstrable by the Ziehl method of staining, but by a prolonged Gram stain. His conclusions are: (1) The tubercle bacilli contain granules, as a rule, which are so resistant that they may remain even after it is no longer possible to demonstrate the bacilli. (2) Not only tubercle bacilli but many other bacteria contain granules; it is, therefore, possible to confuse tubercle bacilli granules with other forms. (3) The bacteria granules are exceptionally resistant to chemical and physical influences. Their presence gives no information as to the virulence or power of growth of the bacteria which contain them. It is not justifiable to consider the granules as a special form of tubercle bacillus. The author does not consider that it is proven that the free granules and especially the "dust-like" granules are of diagnostic value, as they are so easy to confuse with other organisms. On the other hand, gram-positive bacilli and granulated bacilli are of value in diagnosis if the presence of other organisms can be ruled out.

Indications for Forced Labor in Diabetes.—Offengeld says that pregnancy and diabetes affect each other very badly, but that we are able to influence the results by proper therapy. The so-called mild and medium cases must be treated according to the common principles of diabetes, allowing an increased amount of food on account of the requirements of the fetus. In the severe cases, through the influence of the pregnancy, the disease taking on a malignant character, due to the requirements of the fetus, the transmission of its metabolic products to the mother, and the action of the placental ferments, interruption of pregnancy may be necessary. This is indicated by rapid decrease of carbohydrate tolerance, loss of weight, and increase of subjective symptoms. Acidosis alone does not indicate it, as this is often a constant feature and is associated with nephrosis (albuminuria with casts). In multipara the history of the course of former pregnancies and convalescence are of value. Though coma may come on very suddenly, it usually gives prodromal symptoms, as protracted acidosis and increase of ammonia excretion. When coma has appeared it indicates an event in which the child always dies and the interests of the mother demand the most rapid delivery possible. Diabetic women are no more predisposed to infection or hemorrhage than the healthy. If possible, the delivery must be performed without anesthetics.

Hyperemia of the Urethra by Hot Sounds.—Porosz advises the treatment of urethral strictures on the principle of the Bier hyperemia. He states that the old treatment of local heat by poultices was simply a method of producing hyperemia, and he applies this principle to the urethra. For this purpose he has devised a special sound, hollow, and divided into two compartments, connected at the tip so that hot water may be allowed to flow through it.

Book Reviews.

Military Hygiene. By Valery Havard, M.D., Colonel Medical Corps, U. S. Army; President Army Medical School. New York: Wm. Wood & Co., 1909.

This work is a manual of hygiene and sanitation primarily for army medical officers, but also for the line and staff, all of whom must of necessity know something of this subject. The author has taken up the subject with the selection of recruits and then treated every matter which would modify their health and efficiency. Special attention has been given to the newer things developed in the last few years, particularly the infections and how to avoid them. A work of this kind must, of course, hold to the old unless it is conclusively proved to be false, but when there is a difference of opinion on any minor subject it would have added to the interest of the book had the opposing view been stated. In recommending wool for underclothing, the author omits to mention the fact that hygienists are gradually coming to the opinion that wool should never be next the skin and that better health is obtained from the use of cotton or linen of thickness appropriate to the season. Similarly, in recommending wool for the tropics, the author ignores the contention of those who declare that under no circumstances should anything but cotton underclothing be worn. In adopting Chittenden's low nitrogen diet, the author will doubtless be attacked by those physiologists who hold that Chittenden is wrong in his premises and that his theory is dangerous.

The newly-discovered effects of light are admirably treated, though the author is mistaken in stating that no statistics as yet show that blonds in light countries suffer a greater morbidity or mortality than the brunets who are sufficiently protected by pigments. In praising cold bathing in the tropics, it should have been stated that East Indians frequently advise tepid baths as safer and more comforting. The several forms of heat stroke are not distinctly differentiated, and no mention is made of the cramp-like cases of fire-rooms now bothering the naval surgeons.

In these and other minor matters of controversy it would have been better had the author stated the other side and let the reader form his own judgment by weighing the evidence, or hold it in abeyance until the matter may be settled by some future observations. In the larger and most important matters, however, on which there are no serious differences of opinion, the work is excellent.

Uber die Behandlung der Geburten bei engen Becken. By Dr. E. Scipiades, Assisten zu Tauffer's Klinik in Buda-Pesth. Berlin: Verlag von S. Karger, 1909.

This publication represents the views entertained by the members of Tauffer's clinic in the treatment of labor in the presence of contracted pelves. Their observations are based on a series of 6,788 cases which were delivered during a period of ten years in this clinic, among which 14 per cent. showed an abnormal narrowing of the pelvis. Of this number 76 per cent. were delivered spontaneously and in the remaining 24 per cent. operative interference was necessary. Th writer is therefore inclined to await the spontaneous termination of the labor, particularly where the patient has not been under previous observation. In order to increase the number of spontaneous births it is strongly urged that in every case where the fact of a contracted pelvis is known before the advent of labor, the size of the child's head be kept as small as possible by careful dieting of the mother, as advised by Prochownik and by the "starvation method" advocated by Oertel and Ebstein. Where labor is present and the head engaged, Scipiades recommends a trial of the procedure of Hofmeier, by which it is sought to press the head through the pelvic canal by external manipulation. Where this fails forceps is indicated. Cesarean section does not seem to find so much favor with the writer as with others, and he is rather inclined to the performance of hebosteotomy, a contention which will scarcely meet with favor in many quarters. As the book is based on a large amount of clinical material which has been very carefully studied, the conclusions will certainly attract attention in obstetrical circles.

Handbook for Attendants on the Insane. Fifth Edition, Revised and Enlarged. Thirty-third thousand. Published by the authority of the Medico-Psychological Association Chicago: W. T. Keener & Co., 1909.

The Medico-Psychological Association of Great Britain and Ireland stands sponsor for this book. Its first edition appeared in 1885. It has been used considerably in the United States, in hospitals for the insane, and the present edition, the fifth, is published here. The original aim of the book was to give asylum nurses of the insane "such simple notions of the body and mind in health and disease, such instructions for the management of those maladies with which they are usually brought in contact, and such rules for their guidance in matters of everyday experience as will enable them to do their work with greater intelligence and watchfulness." The new edition shows that the scope of the book has been considerably enlarged. This was made necessary by the extension of systems of training and a demand for advanced teaching. It is used very extensively in Great Britain as a textbook, and comprises a syllabus of questions for examination for the British Certificate of Proficiency in Nursing the Insane. Only two pages are devoted exclusively to attendance on the insane in private houses.

The Dissociation of a Personality, a Biographical Study in Abnormal Psychology. By Morton Prince, M.D., Professor of Diseases of the Nervous System, Tufts College Medical School; Physician for Diseases of the Nervous System, Boston City Hospital. Second Edition. New York, London, Bombay, and Calcutta: Longmans, Green & Co., 1908.

The demand for books on the mental treatment of nervous disorders during the past two years has been as great as, if not greater than, the supply. Physicians have interested themselves in the subject more and more and have tried to keep pace with the clergy and other laity both in its study and by contributions to its stream of literature. It must be gratifying to Dr. Prince that his book has been sufficiently popular to justify a second edition, for while dramatically interesting it is hardly suited to the laity. Indeed, should it circulate among the neurotic it is calculated to do considerable harm. The rôle played by subconscious states in normal minds is a great problem of psychology. In certain individuals of unstable make-up the mind may be so disintegrated that several subconscious states may be formed in the same individual, each capable of more or less independent activity. "The Dissociation of a Personality" is an elaborate report of a single case of this nature. The subject had three personalities, and the writer has described them in great detail as to their condition and genesis and their psychological relationship to one another. There is also depicted a biographical account of each personality respecting its ability or failure to adapt itself to circumstances and environment. The second edition of this interesting book presents some further data on the phenomenon of sudden conversion and a less elaborate account of an additional case of non-religious type, the findings in which, the writer states, confirmed those obtained in the original case. The student of functional nervous disorders will find his knowledge of conscious and unconscious processes markedly increased by a careful perusal of this book, and thus obtain material aid in intelligent therapeutics. It is a distinct contribution to psychopathology.

Legal Medicine and Toxicology. By R. L. Emerson, A.B., M.D. (Harvard), Member of the Massachusetts Medico-Legal Society, Formerly Instructor in Physiological Chemistry, Harvard University Medical School, and Assistant in Clinical Pathology, Boston City Hospital. New York and London: D. Appleton & Co., 1909.

Although from its very nature the practice of medicine is intimately associated with the administration of the laws, and physicians very frequently are called upon to assist in deciding questions of justice or to maintain their own rights, it is unfortunately true that as a class they are not as well informed in this branch of knowledge as the general versatility of the profession would lead one to expect. Matters making even a modicum of medicolegal learning of the greatest use are constantly arising in everyday practice, and emergencies actually demanding it are likely to occur at any time. There is no lack of satisfactory treatises on the subject, but the present volume is one that is well qualified to serve as a guide on all ordinary occasions, and it may be warmly commended to practitioners both of medicine and law. It comprises three sections of about two hundred pages each, the first being devoted to forensic medicine proper, the second to toxicology, while the third is composed of extracts from the laws of the various States referring to the practice of medicine. The treatment of the several topics is excellent and the author's style most agreeable, so that the book may well be regarded as one for perusal and not merely as a work of reference. The only criticism that suggests itself is that, in some instances at least, the methods for carrying out the tests for the recognition of poisons are not given in sufficient detail to serve as a working guide, while, on the other hand, if not intended to serve this purpose the space devoted to them is needlessly great. In all important respects, however, the book is very satisfactory, and should prove a useful and trustworthy exposition of this most important subject.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

Seventy-seventh Annual Meeting, Held at Belfast, July 23—31, 1909.

(Special Report to the MEDICAL RECORD.)

GENERAL SESSIONS.

Friday, July 23—Monday, July 26.

THE annual meeting opened at Belfast Friday, July 23, and continued throughout the following week, the excursions closing the proceedings on Saturday, July 31. The first three days were occupied, as usual, with the annual general meeting, and the representative meeting. There was a service in the Cathedral on Sunday, and on Monday the annual conference of Secretaries of Divisions and Branches, as well as a continuation of the representative meeting. At this Dr. J. A. Macdonald presided, and the discussion on the medical inspection of school children was resumed, and much said as to the duties of school nurses. There seemed to be a general opinion against children found defective at the inspection being dealt with in institutions which come under the category of public charities, and it was urged that until the report of the Royal Commission on Poor Law is issued any attempt to draw up regulations for the treatment of school children would be inopportune, as there is little doubt that considerable alteration in the law will be recommended. A resolution was adopted that in a district with a scanty population provision for the treatment of those children in need of it should be made by the recognition of private practitioners' surgeries for the purpose, and that at the public expense. In towns of considerable population it was resolved that private practitioners should be permitted to discharge the duties of school clinics. A draft of model rules for district nurses was approved.

The report of the committee appointed to inquire into the treatment of ophthalmia neonatorum was considered. Several resolutions were adopted on the relations of the profession to public health authorities, after a pretty full discussion. It seemed to be generally agreed that the minimum salary of £250 should be paid for an assistant medical officer of health who devoted all his time to the duties of his office; that, owing to the multiplicity of duties placed upon a medical officer of health by recent legislation, in future appointments of the kind should be on condition that all the time of the officer should be devoted to his duties, he being debarred from private practice, except as a consultant; that he should be adequately paid, and, if necessary, small districts should be grouped. On the other hand, it was held that these officers should be protected in the discharge of their duties, should not be liable to capricious dismissal, and should be participants in any scheme of superannuation in their districts approved by the Local Government Board.

The work of medical inspection of school children was also discussed, and it was resolved that the minimum salary of such officials ought to be £250 per annum.

A further resolution was passed to the effect that the time had come when the association might take into consideration the drafting of a scheme for a public medical service, embracing the Poor Law Service, providing dispensaries, school clinics, friendly societies, and sick clubs.

Tuesday, July 27.

On Tuesday there was a large attendance at the general meeting, when the new President, Sir William Whitla, was formally inducted by the retiring President, Dr. Sinclair White, who had undertaken the work on the decease of the late Mr. Simeon Snell of Sheffield, whose death had occurred during the year. In introducing his successor, Dr. White said Sir. Wm. Whitla's eminence in therapeutical science was a guarantee that he would uphold the dignity of the office to which his colleagues had called him.

Dr. Macdonald was elected as Vice-President of the association in recognition of his services as chairman of the representative meetings since 1906.

In the evening the hall was crowded by a brilliant gathering to hear the new President's address. The foreign and Colonial delegates were in full force, and were greeted with much enthusiasm when they replied to the address of welcome given to them. The Lord Lieutenant, with the Countess of Aberdeen, attended, and when they entered were received with great cheering.

President's Address.—Sir WILLIAM WHITLA delivered this address, taking as his title: "A Survey of the State of Medical Education." He said the present state of medical education was most unsatisfactory. A medical curriculum planned forty years ago was now entirely out of date; for in 1869 bacteriology was scarcely dreamt of, medicine and surgery were in a rudimentary state, contrasted with their present condition; sanitary science was practically non-existent, and it was possible to obtain a degree or diploma in medicine in less than a three years' period of study, while at present the stringent regulations of the General Medical Council made it impossible for the student of medicine to obtain his qualifications to practise until after the lapse of a minimum period of five medical years. Under the existing regulations the brain of the student failing to expand in assimilative power with the growth of advancing science, they arrived at the crux of getting two pints into the one pint pot. The effect of this attempt to achieve the impossible was seen in the fact that the average time now spent by the medical student in obtaining his degree or diploma was not the minimum of 57 months but of almost 84 months. One of the evils arising out of the present system was that a considerable proportion of students, after failing to pass in the preliminary subjects, proceeded to attend the classes in the advanced subjects and so paralyzed their capacities for obtaining anything like an efficient training in the subjects whose practice was to become their ultimate life work. After more than a quarter of a century's experience as a hospital teacher and examiner, embracing a practical acquaintance with the working of three universities in the United Kingdom, he felt constrained to believe that in the sending out of men qualified immediately to enter upon the routine practice of their profession, they were, in some respects at least, behind the results obtainable in the old days of apprenticeship. The preliminary and intermediate periods, amounting to three out of the minimum of five years, must be shortened, and the clinical period of study increased, if they were to train most efficiently and turn men out of their teaching institutions properly equipped for their serious life work. An enormous aid to the readjustment of the curriculum would be a compulsory examination in experimental physics and chemistry at matriculation. There was a growing conviction that a prolongation of the period devoted to clinical studies could be achieved only by a radical change in the method of teaching the entire group of preliminary and scientific subjects. Professor Starling had said "that from the very commencement of his medical curriculum the work of the student should be directed, every scientific subject which he studies, whether it be chemistry, physics, or physiology, should be considered only in its bearings on his future work as a medical man." The President suggested that these words should be written in letters of gold and set up in the retiring room of each teacher of the preliminary and intermediate subjects in our universities and medical schools, when soon they would cease the lamentable fiasco of the attempt to make every medical student an accomplished physicist, an analytical chemist, an

experimental physiologist, a practical botanist, and an expert zoologist as these phantoms dangled before his mental vision while he was already far advanced in putting in a vacant perfunctory attendance at his final classes, or while he was absent-mindedly sauntering about the externe department or wandering aimlessly through thhe hospital corridors. Beyond the shadow of a doubt the time had fully come when a general and complete overhaul of the medical curriculum in all the universities and in every medical school in the United Kingdom was urgently necessary, and there could be little doubt that the reconstruction must be carried out upon the lines indicated by Professor Starling.

Wednesday, July 28.

On Wednesday after the council meeting the sections began their work. After their morning sitting came the **Address in Medicine,** which was delivered to an appreciative, large audience by Dr. R. W. PHILIP of Edinburgh, who is Physician to the Royal Infirmary and the Victoria Consumption Hospital in that city. This address was the chief feature of the day, and one of the chief of the week. The subject was "Tuberculosis." He took a cheerful view, as the cause had been discovered, and thought they might look forward confidently to the time when it would cease to be. Everything, he said, pointed to its final disappearance among the nations which regard public health as an integral part of civilization. Was not the disease, he asked, the expression of ill-formed civilization? It was introduced by ignorant, unthinking mankind, and it was for thinking and educated mankind to expel it. The realization of its frequency in childhood was the first step towards its timeous recognition. To remove the weed at the seeding stage was easier than when it had grown to a tree. The children must be carefully scanned by the family doctor before they were seen by the school inspector. In conclusion, Dr. Philip described a city built today *de novo* in accordance with hygienic and physiological law. He would have the structure and arrangements of its houses to be the first consideration. Sunless, airless dwellings should not be possible. Every apartment should have the maximum of sunlight and windows should fulfill their other function as well, viz., to let in air. Every child should be trained to regard the dual function of windows as vital to safety. The nursery, especially, should be bathed in air and sunshine. The schoolroom should be an object lesson in hygiene. None should be permitted in which ventilation was not largely associated with open windows. In fine weather much school work should be done out of doors. The streets of this city should be wide; open spaces should abound in it. Crowding in dwellings, offices, work-rooms, factories and all meeting places should be criminal. The housing of cattle should be regulated as strictly. In such a city the soil to suit tubercle would not exist, and, consequently, tubercle would be unknown. It need never appear.

Visits to the harbor, docks, factories, and other sights in Belfast filled up the time of many on this and other days. In the afternoon of this day the great attraction was the garden party given to the members and friends by the President and Lady Whitla. The Lord Lieutenant and Lady Aberdeen were present, and a great concourse of the members, as well as residents of the city, attended with their lady friends.

In the evening the annual dinner took place, and while it was in progress a ladies' reception was given by local members at one of the theaters, where a number of Irish plays were produced by members of the Ulster Library Theater. The exhibition of surgical instruments, drugs, etc., open each day, was visited by many.

Thursday, July 29.

On Thursday morning the breakfast given by the National Temperance League, as for several years past, was the first function. After this the sections again occupied the morning, though during their sitting, and later in the day, also, there were other attractions for those who shunned the scientific work. An inspection of flax-spinning works, another garden party, given by Sir T. and Lady Dixon, a drive into County Down, inspection of distilleries, and a reception at the Royal Victoria Hospital, and even a cricket match, afforded ample variety. Then in the evening the Lord Mayor gave a reception in the City Hall, academic dress or uniform being expected.

The Address in Surgery.—Professor BARKER of University College, London, delivered this address, in which he traced the progress of intestinal surgery from the time of Lister, during which period he had taken his part in it. He did not look on the improvements made as due solely to asepsis nor to any increase of manipulative skill. He rather attributed it to clearer views of the vital processes involved in all abdominal lesions; these resulted from closer observation of cases and the careful sifting of experience as well as the assimilation of the progress made in anatomy, physiology, pathology, and other branches.

Honorary Membership for the Countess of Aberdeen.—A special feature of this day's proceedings was conferring upon the Countess of Aberdeen the honorary life membership of the association, in recognition of her great work as President of the National Health Association of Ireland, and the splendid campaign her Ladyship has carried on against the spread of phthisis. Mr. Owen presided, and pointed out that Lady Aberdeen would be the only woman made an honorary member in the history of the association. At a reception in the evening, held by the Lord Mayor in the City Hall, the Earl and Countess were present, and nearly 2,000 guests. The Lord Lieutenant has also been present at many of the functions, and thereby contributed greatly to the success of the meeting. Everyone in the city is talking of the help he and Lady Aberdeen have given. At the dinner his Lordship made a most felicitous speech, in which he referred to the honor about to be conferred on Lady Aberdeen, and said in a sense he was ahead of her, as he was made an honorary member at the Montreal meeting, where he received the association in the capacity of Viceroy.

At the ladies' reception, the Countess, having been asked to tell something of the work she inaugurated 2½ years ago, said the Women's Health Association had not been established for the anti-tuberculous movement alone, but was founded to rouse the women of Ireland to a sense of their peculiar responsibilities in regard to the health of their nation, and of their homes, and show them how much they could do to bring up a strong and vigorous race, and to combat the special diseases that were injuring the Irish people at large. The work was divided into three sections: (1)Anti-tuberculous; (2) combating infant mortality; (3) school hygiene. Her Ladyship then described the Tuberculosis Exhibition, which had been pronounced a great success, 44,000 persons visiting it in its fortnight's stay at Belfast. It had visited fully 80 districts in Ireland, enormous crowds attended it, and the eagerness with which the people asked for guidance was most pathetic. When it went to any locality a branch was usually the result. Here in Belfast the work had been splendid, and four babies' clubs had been formed—the first of the kind in the United Kingdom. A tuberculosis class had also been formed under the care of Dr. M. Andrews, and the result of all these agencies was most encouraging. A number of views, illustrating the features of the anti-phthisis crusade, were then thrown on the screen and explained by her Excellency.

Compulsory Notification.—Another occasion on which the Viceroy and Lady Aberdeen displayed their interest in health matters was in attending some of the sections in which these questions were under discussion. One of

these was when the Lord Lieutenant proposed a vote of thanks to Dr. L. Parker for his address on hygiene, and afterwards took part in a discussion on notification, when Dr. Scurfield of Sheffield gave an account of the operation of notification of consumption in that town, where it has been compulsory since 1903. The Viceroy said he should like to congratulate Sheffield on being so enlightened. At this discussion there was, however, one note of opposition among the 6 or 7 speakers who supported compulsion.

Dr. Walter of Dublin denounced any such interference with the liberty of the subject, and compared the methods of notification to those of the Holy Inquisition, which, he added, were too late in the 20th century.

Sir C. C. Cameron replied, and asked what the opponents proposed, for something must be done, and nothing else practical had been proposed. For 2 or 3 years they had some voluntary notification in Dublin, and nobody objected. Sir J. Byers replied for Belfast, and hoped as the result of the discussion the Health Committee would make an advance. Some other speakers supported notification, one of them calling the talk about the Inquisition nonsense, a verdict repeated in all directions outside after the meeting.

SECTION OF MEDICINE.

Wednesday, July 28—First Day.

Professor James Alexander Lindsay, President, in the Chair.

Discussion on Angina Pectoris.—Sir Clifford Allbutt, K.C.B., proposed in opening the discussion to ascertain precisely what was to be discussed, and in what terms. He urged concerning this malady that precision both of terms and of substance was especially needed, for no disease had been more obscured by factitious notions or more confused by false analogies and erratic conjectures. Yet in all medicine there was no disease which presented a clearer image to the observant eye, nor one more conspicuously detached from the clinical jungle. If its characters were confused they had been confused by equivocations; if its type blurred it had been distorted by counterfeits. If angina pectoris were looked at simply, without prepossession and with discrimination, its features came into focus and the type took fairer definition. On the threshold the speaker found himself confronted by sophists who said bluntly that angina pectoris was not a disease, but a symptom or "symptom group"; it was here, indeed, that the sophistry began, for this argument was but a play of words. "A symptom" angina pectoris certainly was not, for it was manifold; a symptom group it was no doubt, or rather a symptom process, or procession. Now a symptom group, or procession of symptoms negative and positive, which recurred in mankind with fair uniformity, must be due to causes correspondingly uniform. That genuine angina pectoris might occur with the heart, lungs, and kidneys intact was at last reluctantly admitted by physicians who had studied the data; and if so the essential, as apart from contingent causes, must lie outside these organs. He will divide angina pectoris into angina minor and angina major, and the symptoms of the two degrees were compared. "Pseudo-angina" he dismissed as pseudol diagnosis, and relegated these cases to the Vaso-vaga class of Gowers. Vascomotor oscillations commonly occurred in angina pectoris it was true, and in two main but incidental relations: first, as determinants, when by changes of blood pressure attacks were provoked or mitigated; secondly, as consequences of acute impressions reaching the nerve centers by afferent paths. The speaker would proceed to appreciate the current hypotheses of angina pectoris, pointing out the diversity of these irreconcilable and often mutually destructive explanations. He again advocated his own interpretation, first published in 1894, which had been fully accepted by Josué, in a paper published last November. This interpretation was that the origin of angina pectoris was not in the heart but in the suprasigmoid portion of the aorta; that the oppression of angina minor was seated in this place; and that in angina major the referred pains still originated here, but, as in the degrees of their severity they forced successive centers, they radiated over more and more extensive areas. That, as concerns fatality, angina pectoris, neither in its minor nor in its major forms, was directly fatal; that indeed in many, perhaps in the majority, of major and minor cases taken together death, if it occurred, was due to cooperating causes; that in a large number of cases, whatever the issue of cooperating lesions, such as valvular or myocardial disease, the anginous lesion healed, or, at any rate, the symptoms ceased, and, furthermore, that not a few cases of angina pectoris, even of the major variety, ended in complete recovery; that when death was directly attributable to the angina it was due to vagus inhibition, such as was prone to happen, for example, in surgical operations about the root of the lungs or the brachial plexus, or to be induced by some other intense peripheral irritation, as in the genitalia. Finally, that, although a sound heart might be inhibited to the point of death, this very rarely happened, and that in nearly all cases in which the heart failed to disengage itself from the inhibitory interference the myocardium, whether by coronary disease, by toxic influence, or otherwise, was previously unsound.

Sir Lauder Brunton could not accept the view that the aorta was the only source of aortic pain. He could not think that the distinction of angina major and minor was a sound one in that they were not degrees of the same disease. Pseudo-angina, as usually termed, was, he thought, a real clinical entity. It occurred in young persons, and though the pain was often extremely severe, yet it did not cause death, and was not relieved by nitrites. He alluded to the difficulty of examining the sensibility of the heart. Experimentally he could not admit that the cardiac plexus was purely motor, as had been maintained. Mere distension of the serous covering of an organ was not a cause of pain as seen in the bladder and intestine; not until the muscular fiber began to contract was there pain. So he thought the distension of the serous covering of the aorta was an unlikely source of the pain. He still held to the view that cramp of some of the muscle-fibres of the heart was one cause of the anginal pain, and that it was largely due to the excessive work of the heart under excessive resistance. He thought angina a symptom of many diseases. Some indication of the site of the cause might be derived from the seat of the pain; thus, in many cases the pain was referred not to the sternum primarily, but to the apical region of the heart. Patients might have freedom from pain for many years, but this did not certainly mean abolition of the cause of the pain, and in these he thought the tendency to sudden death was greater than in other persons. In pseudo-angina the treatment was tonic, as in a neuralgia, but in true angina it was rather repressive, avoiding violent exercise, with moderation in diet, and the exhibition of nitrites.

Dr. W. Osler thought there was a group of cases that corresponded precisely with that described by Sir Clifford Allbutt, as in syphilitic aortitis, arteriosclerosis at the root of the aorta in old people, etc., but this was only one group. There was a group of cases in which there was disease of the coronary arteries alone, not a trace of any disease in the aorta. There was a third group of cases in which neither the coronary arteries were diseased, nor the root of the aorta—those cases were exceptional. He himself had more belief in the intermittent claudication theory than in any of the other prevalent hypotheses, although it did not fit every case.

Dr. W. K. Hunter referred to Francois Franck's experiments on the effect of irritating the inner surface of the aorta just above the valves in causing constriction of the pulmonary vessels. He described the clinical facts in a case that had been under his care in which, although there was aortic regurgitation the systolic blood pressure ran very high during the attacks, and the pain was greatly relieved by nitrites.

Dr. W. Gordon had found that in his cases the blood pressure was higher in the recumbent posture than in the erect, and he connected this with the occurrence of some attacks of angina during sleep. He pointed out that it was not easy always to recognize dilatation of the heart, especially of the right heart, when the patient was in the recumbent posture.

Dr. John Haddon referred to a case of angina associated with aortic aneurysm, and advocated reduction of body weight in cases of angina.

Sir Clifford Allbutt in reply said the higher in the aorta an aneurysm was the less likely it was to cause angina. He thought pseudo-angina could not be looked upon as a group of cases of angina. He welcomed the view expressed that aortitis was competent to produce angina pectoris, and he thought a definite procession of symptoms could not have two opposite causes. He thought that it was the pull on the tender parts of the root of the aorta that was the cause of the pain. There was, he believed, no sensory ganglionic appartus in the heart.

Papers were read by Dr. D. W. Samways (Mentone) on "Some Misconceptions Concerning the Riviera," and Dr. W. Gordon (Exeter) on the "Influence of Soil on Phthisis."

Thursday, July 29—Second Day.

Discussion on the Medical Aspects of Athleticism.—Dr. Tyrrell Brooks of Oxford, in opening this discussion said that athletics were as old as history, but physical training was modern. It was his experience that the most vigorous undergraduates came from the schools whose athletics were of the more strenuous type. From an enquiry of the medical officers of the principal public schools as to the influence of athletics on health extending over twenty years, only five deaths were on record. These were almost exclusively from surgical injuries sustained during games. One, however, was from asphyxia, due to regurgitation of food during bar exercises undertaken shortly after a meal. From Oxford during the same time there were two deaths during athletics on record, and one of these was in a case of aortic valvular disease. Among the same boys during the same time, on the other hand, four cases of sudden death occurred quite apart from athletics. Of the organs likely to be damaged from athletics in excess the heart was the chief. Valvular damage, due to exertion, was very rare, but it was to be remembered that slight dilatation of the heart was difficult to estimate. Excessive smoking, alcoholic indulgence, gluttony, or sexual excess might produce exactly similar effects in perversion of the heart's action. The toxins produced during febrile attacks had also a similar deleterious action. It was almost certain that with the natural resilience of the heart was so great in boyhood that mere muscular exercise could hardly seriously damage the heart. Precaution to minimize the dangers arising from athletics during school life included an entrance physical examination, careful observation of the younger boys in the ordinary games, and an ample interval between the previous meal and active exercise. Cases of sudden death in boys were indeed in large proportion due to taking violent exercise after a heavy meal.

Special care in permitting active exercise after convalescence from acute illness was also one of the more important precautions. Reference was made to the researches of Dr. John Morgan on the life history of men who had taken part in university boat races, showing that their longevity and physical activity were above the average. In discussing the matter of long school runs he would forbid them to asthmatics and those liable to undue dyspnea, but if only sound boys were allowed to take part, and if preliminary training were enforced, there was, he considered, little fear of any harm resulting. He asked if the profession was not inclined in these matters to sacrifice the interests of the race to the interests of the individual.

Dr. Clement Dukes said that terrible catastrophes did occur at times from undue athleticism, and that these were quite preventable. The harm of the old idea that young boys of nine or ten and the older of nineteen had to undertake the same exercise was emphasized. The Greeks aimed at, and attained, by their well-regulated physical training, the highest perfection of the human form, which also influenced the moulding and elevation of the mind. The strength and wisdom of the next generation depend upon the mental and physical development of the present, for the intellectual value of exercise is as great as its physical value. Athleticism is the "intemperance" of physical exercise, which is injurious to the not fully-grown body. Physical examination and medical direction are necessary to avoid this, so that the feeble may be strengthened by well-regulated exercise, and the strong not injured by unwise and prolonged exertion. He especially alluded to the effects of excessive football and running. The short, quick run was apt to cause rapid mischief to the heart, which as rapidly disappeared; on the other hand the long runs were apt to produce permanent damage to the heart by subacute or even chronic dilatation. But for full grown men the short, quick run was the more harmful. He considered an interval of at least an hour between a meal and active exercise was imperative. The effect on the ability to take violent exercise and coldness of the weather was pointed out. Details of the apparent serious consequences of excessive running were given. The former evil results of long runs at Rugby, owing to precaution now in force, were a thing of the past.

Sir Clifford Allbutt referred to the blood pressure observations recently made at Cambridge bearing on the effects of athletics in the young adult, an account of which was to be published in the autumn. The only serious results observed during those observations were in those who during the previous few months had been the subject of an acute infectious disease, especially a bad cold.

Sir Lauder Brunton thought the duty of medical men was to do the best for the race and for the individual, and he held that the rules lately drawn up by the medical officers of public schools would go far to attain this. He thought that regulated athleticism should begin in the preparatory schools. The ideal training for youths was probably a combination of the physical exercise methods and games—such a system as is at present carried out in the University of Pennsylvania or in the schools at Berne. He advocated the establishment in the schools of this country of the office of games-master, appointing men of social standing similar to that of the boys.

Dr. Anthony Traill, the Provost of Trinity College, Dublin, referred to the question of the introduction of Swedish drill into the schools of Ireland, and to the question whether it would not be necessary to institute medical examination of the children before such were commenced. The whole matter he considered turned in regard to the elementary schools on proper feeding, which did not at present exist in the Irish primary schools. Physical occupation, as carpentry, had, he believed, a strong influence on physical, as well as on intellectual development. Statistics from Trinity College, Dublin, showed that the majority of those taking fellowships and scholarships were athletes. The effect of physical exercise on moral states was discussed.

Sir James Barr said the more hazardous the game the better for the development of the character of the individual. The heart could only be strained by the stress that itself produced. The importance of vital capacity of the chest in severe physical exercise was emphasized.

Dr. Olive Riviere referred to heart strain as the result of holiday excursions for boys. Examining seventy-two boy scouts of the elementary school class he had found that some thirty-seven showed evidence of dilatation. Every boy scout should be medically examined, and the conditions of their existence supervised.

Dr. Gordon Gullan advocated the maintenance of the system of school games to the exclusion of any share of the system of compulsory physical exercises or gymnastics.

Dr. W. G. Tyson urged a continuous interest in athletics, the teaching of common laws of health in the public elementary schools, and the continuance of physical exercises in the individual throughout life.

Dr. W. R. Kennedy referred to the question of pulmonary hemorrhage in athletes due to obstruction to the blood flow in the right heart, and to toxemia, probably of gastrointestinal origin, the former depending largely on heart dilatation, for which rest and reduction of diet were imperative.

Dr. Tyrrell Brooks and Dr. Clement Dukes replied in general terms.

Dr. P. Dempsey showed a case of argyria following on treatment for gastric ulcer.

Professor Benjamin Moore demonstrated a new method of administering oxygen so as to give a known quantity of the gas.

Papers were read by Dr. Olive Riviere on the effect of cardiac strain incurred in a party of forty boys in a school excursion, and by Dr. Frank C. Eve on a case in which glycosuria was only to be inferred from the presence of gas and bacilli in the urine.

SECTION OF OBSTETRICS AND GYNECOLOGY.

Wednesday, July 28—First Day.

Treatment of the Gravest Forms of Puerperal Sepsis.—Dr. Thomas Wilson of Birmingham introduced this discussion. He said that since the days of Semmelweiss the theory of puerperal fever had been placed upon a sound basis, with the result that the disease had been practically abolished in properly conducted lying-in institutions. In spite of this the mortality, and therefore probably the morbidity, from this affection had remained undiminished. The cases were scattered, and only here and there provision was beginning to be made for collecting them in hospitals or other institutions suitable for research and effectual treatment. As a consequence, the best treatment remained in many directions undetermined. It was now universally agreed that puerperal fever was due to infection of wounds and raw surfaces arising in parturition, the most common points of entry of the germs being at the placental site and through lacerations of the cervix and vagina. Many different germs had been proved to be exciting causes of the disease. Grave cases of puerperal fever might be defined as those which endangered the life of the patient, and as in the worst cases the *Streptococcus pyogenes* was the organism most frequently found, the discussion would chiefly be limited to this infection, which varied in gravity from slight and passing local inflammations to the most severe and rapidly fatal blood poisoning; in individual cases rapid and unexpected changes, either for better or worse, frequently occurred. The indications for treatment were (1) to attempt to limit the entry and spread of the infecting organisms, and (2) to support the patient. The most important point was that immediate and effective treatment should be undertaken without the least delay on the appearance of the first indication of infection, which was usually a rise in temperature, most frequently occurring on the second or third day after delivery. When the temperature exceeded 102 deg. F. a careful examination of the patient should be made, and this would include an examination of the lochia, and, if possible, a digital exploration of the uterus. Opinions differed as to the relative value of digital evacuation as compared with curetting, and of copious intrauterine douching as opposed to swabbing with strong antiseptics. The advocates of douching and strong antiseptics also disagreed as to the best drug to employ. Observers were more in accord on the necessity for rest, for a suitable nourishing diet, and for attention to the excretory functions. The places of alcohol and quinine in the treatment were still unsettled. Injections of antistreptococcus serum had generally proved disappointing, and treatment by vaccines was still too recent, and had been employed in too few cases for the formation of a valid opinion. There was general agreement that pus should be let out at the earliest possible moment by the nearest route. In peritonitis incisions and drainage through the posterior vaginal vault and abdominal wall had been employed with no very satisfactory result. Abdominal or more frequently vaginal hysterectomy had been employed with a fair amount of success in certain conditions, such as infected fibroids or infected rupture of the uterus, but in ordinary cases of puerperal infection these operations had generally proved disappointing. Where the infection had spread along the veins, giving rise to phlebitis with no obvious secondary deposits, the veins had been ligatured or removed through the peritoneal cavity or by a subperitoneal operation. Diagnosis of these cases was difficult, and the indication for operation uncertain, and hitherto the number of recorded successful cases was small. Patients who were gravely septic bore anesthetics and operations very badly, and, on the other hand, recovery often took place without the aid of surgery in cases that appeared practically hopeless.

Professor Yehling of Strasbourg said that the chief thing wanted was better diagnosis: at present, we could only diagnose a bad case when it was too late; it was impossible to say if the streptococci were hemolytic or nonhemolytic, and it was possible that one form could change to the other. We had never clearly separated sapiemia from septicemia. Coli bacillus injection was sometimes bad. As regarded treatment, he considered serum useless and he had never seen a good result from that; vaccine therapy might prove the better, but our experience of it was too short. He advocated a vaccine prepared from the patient herself, and had tried prophylactic vaccine treatment before parturition. He did not agree with S. Wilson about local investigation, and would not examine the interior of the uterus in the first week. He had had good results from douching when injection was saprophytic, or by the *Bacillus coli;* but it was no use in septicemia, and in that condition besetting real dangerous. The prognosis in thrombotic septicemia was uncertain; he had known recovery follow when 50 rigors had occurred.

Professor Murdoch Cameron of Glasgow said he swabbed out the uterus with camphor and carbolic acid equal parts, and never used the curette.

Dr. Munro Kerr of Glasgow thought that the reason why the results in hospitals were better than in private practice was because in the former more care was given to disinfecting the bulva. He thought early exploration of the uterus was undesirable in the slighter forms, and would not do it unless there was reason to think that some placenta or membranes had been left. He was opposed to curetting. He agreed with Professor Fehling that the distinction between the graver and the lighter forms could not be made by bacteriological examination, and we must depend on clinical evidence. He thought that the appearance of early

symptoms of peritonitis always indicated a fatal issue. He disapproved of serum, but thought that vaccines might be useful in chronic cases.

Dr. Hastings Tweedy of Dublin, Master of Rotunda Hospital, did not agree with Dr. Wilson that sepsis had been abolished in lying-in hospitals, and thought that we must pay more attention to the morbidity than the mortality rate. He pleaded for more extensive use of the posterior vaginal incision with gauze drainage; it was a very simple operation, and could be done on the bed. General anesthesia was very badly borne in these cases. He did not agree with Tebling about waiting a week before exploring the uterus. He used gloves. He attached importance to anteflexion or retroflexion as a cause of sepsis by damming up secretions.

Dr. Henry Jellett of Dublin thought that a localized abscess in Douglass's pouch was generally associated with *Bacillus coli* infection from the rectum. He asked what were the indications for opening the posterior fornix. Prior, to whom the operation was due, performed it in every case of sepsis. He himself would confine it to cases in which there was a swelling; he made a large opening, and washed out with hydrogen peroxide, and plugged tightly with iodoform gauze. He used a blunt curette.

Dr. Fred Edge of Wolverhampton drew attention to the danger of introducing infection from vulva and vagina into the uterus in examining slight cases of sepsis unless care were taken to disinfect the vulva and vagina. He used the finger and the blunt curette, and washed out with saline solution.

Dr. Alfred Smith of Dublin said that he opened the abdomen, put a glass tube in each angle of the wound, and applied continuous irrigation in cases of peritonitis. He thought that the diagnosis of thrombotic septicemia was extremely difficult. He placed reliance on the leucocyte count and thought that when it was low it was a favorable case for operation.

Dr. Cuthbert Lockyer of London said that he treated severe cases by first making a thorough exploration with the gloved hand, at the same time taking a swab for bacteriological examination. He had given up curetting entirely, but swabbed the ulcers out with iodine, and left in a gauze drain. If the bacteriologist reported a streptococcus infection, he gave at once an injection of 30 c.c. polyvalent serum, whilst a vaccine was being prepared, the latter requiring about 48 hours. He had lately given more frequent doses of vaccine, repeating the injection during the positive phase.

Dr. Purslow of Birmingham alluded to the difficulty of finding hospital accommodation for these cases, and thought that the municipality should admit them to the contagious disease hospital, as was already done in some places.

Dr. Wilson in closing said that he had mentioned the temperature as a guide between slight and severe cases, as it was the most convenient means of deciding. He would explore the uterus in all cases in which benefit had not followed intrauterine irrigation after waiting twelve hours.

Midwifery in Private Practice: A Criticism of Method Based on Actual Results.—Dr. J. J. Austin of Belfast read this paper, which was based on 465 consecutive cases. Among these were: 29 abortions, 9 breech presentations, 1 accidental hemorrhage, 1 eclampsia, and 5 adherent placenta. There were no maternal deaths. Forceps were used in 1.3 per cent. of multiparæ, 26 per cent. of primaparæ, and 8.7 per cent. of all cases in the second half of the series he wore gloves. He thought that vaginal examination was indispensable in private practice. He used the douche in all cases at the conclusion of the labor.

The Treatment of Uterine Cancer in the Later Months of Pregnancy.—Dr. Lockyer of London read this paper, which was based on a study of two cases. In the first he performed conservative Cesarean section, the disease being too far advanced for radical treatment; the child survived, the mother recovered from the operation, but died five weeks later from exhaustion. The second case he performed Cesarean section followed by Wertheim's panhysterectomy, and this was the treatment he advised whenever it was possible.

(*To be continued.*)

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting Held April 26, 1909.

Dr. H. Seymour Houghton in the Chair.

The Dispensary Evil.—Dr. Arnold Sturmdorf said that the dispensary evil had assumed such proportions as to make it necessary to do something toward its abatement, and there were two phases of the question, one the effects upon a certain class of physicians, especially the younger members of the profession; two, the effects upon the patients. There was charity both to the one who received and to the one who gave. He asked that a committee be appointed by the president to take some active steps in this matter.

Dr. Wolff Freudenthal moved that the president appoint a committee of three, to be sent as delegates to the Eastern Medical Society, who had already taken up this matter, to take into consideration what could be done in abating the dispensary evil. This was seconded and carried.

The scientific session was devoted to a symposium on military medicine.

The Military Obligations of the Medical Profession.—Lieutenant-Colonel Jefferson R. Kean, U. S. A., of Washington, D. C., read this paper. (See page 253.)

Some Features of the Medical Department of the Navy in Peace and in War.—Surgeon Charles F. Stokes, U. S. N., of Washington, D. C., read this paper. (See page 256.)

The National Guard Surgeon.—Lieutenant-Colonel Wm. G. Le Boutillier, Div. N. G. N. Y., read this paper. (See page 259.)

Hygiene of the Regiment.—Captain Harlow Brooks, Seventh Regiment, Inf., N. G. N. Y., read this paper. (See page 261.)

Instruction of the Hospital Corps.—Sergeant First Class Edmund Prince Fowler, Seventh Regiment, Inf., N. G. N. Y., read this paper. (See page 262.)

Major William S. Terriberry, Field Hospital, N. G. N. Y., said that it was necessary in military medicine, as in civilian medicine, to specialize in order to obtain the best results. That for the past two or three years he had been paying some attention to one particular point in the machinery of the medical department, *i.e.* to create a field hospital in the State service, which was an organization for this one purpose—the relief of the sick and wounded at the front. The medical service in the field was divided into two portions: (1) The service of the front, which was performed by all parts of the medical department that marched with the troops; (2) the service of the rear, which was performed by all parts of the medical department which stayed behind the army at its base or on its lines of communication. On the march the relief of the sick and wounded was carried out as follows: Sick, wounded, or footsore men who could not keep up with the column fell out and were attended to by the regimental detachments of the medical department. After being attended to they were left by the roadside, if seriously sick or injured, accompanied

by a hospital corps man. At the rear of the division, which was about eleven miles long when in column, marched the field hospitals. When they came up to the sick or injured that had been left, they gathered them up, placed them in their ambulances, and treated and cared for them until they could be sent back to the rear. As the army advanced the line of communication lengthened, and along this line came supplies of ammunition, food, and forage carried in wagons, railroad trains, and boats. When these vehicles were emptied they returned with the sick that the field hospital had collected and transported them to the base. In actual battle the regiments were deployed into line and these lines were apt to be very long. In the rear of these deployed regiments the medical department established dressing stations under cover, but close to the line. The wounded were brought back to these dressing stations and treated. The field hospitals, of which there was one to three regiments, established themselves out of range of artillery fire, in a position centering upon the regimental dressing stations. The field hospitals then sent out a detachment advanced to a point as close to the regimental dressing stations as it was safe to bring ambulances. This station, known as the ambulance station, received wounded from the dressing stations and transported them by ambulance to the main position of the field hospital. There they were treated, emergency operations were performed, and the patients were turned over to the service of the rear and sent back to the base. The service in base hospitals was similar to the service in civilian hospitals. If the patient in the base hospital recovered quickly, he was sent to a convalescent camp to gain strength and from thence he was returned to his regiment at the front. If, on the other hand, he required long-continued treatment, he was sent to a general hospital established in the home territory, and if no longer of military use was discharged. When troops in battle were intrenched, regimental dressing stations in the trenches were of great importance. The wounded remained in the trenches as the safest place and were removed under cover of darkness to the field hospital. When the approaches from the rear to the trenches were safely under cover, men might be moved back at once. The medical service of the front was a very complicated matter, requiring special training in the use and care of transportation, and in the methods of the different arms of the line and of other staff departments. The general medical profession, untrained in military affairs, would be of little use at this point, but of great use in the service of the rear. As American citizens it is the duty of the medical profession to create public sentiment for a large medical department in the army, in order that a sufficient number of men might be trained to perform the complicated duties of the service of the front.

Major Theron W. Kilmer, Twenty-second Regiment, Corps of Engineers, N. G. N. Y., said that not only the numerical value, but the hygienic value of the men should be considered; not how many men had they, but how good are they. During the last few years there had been a great metamorphosis accomplished in the N. G. N. Y. Surgeons had been appointed who were attending to their duties at all times. To-day in sanitary matters the regimental surgeon's word was law; he had to be obeyed. The men belonging to the N. G. N. Y. to-day were fit for their jobs.

Captain Joseph Siler, U. S. A., Governor's Island, said that in 1900 the Secretary of War appointed a commission of officers of the army to investigate tropical diseases in Cuba, among them being Drs. Reed, Carroll, Agrimonte, and Lazear. They demonstrated that yellow fever was transmitted by the mosquito, and Dr. Carroll himself was the first to subject himself to the bite of this insect for experimental purposes. He, as the result of this, developed a severe attack of yellow fever, which left him with an invalidated heart. In 1907 Dr. Carroll died as the result of this heart condition. Only recently it had been learned that his family were not in good financial condition; he left a mother, a widow, and several children. Last year, through the efforts of the Medical Society of the County of New York and other societies, Congress gave the widow a monthly pension of $125. Just before his death Dr. Carroll bought a house in Washington costing about $7,000 and the medical officers themselves had raised $3,000, and he asked that any member present who wished to help pay off the indebtedness on that house would do so, even though the sum be a small one.

Lieutenant Reginald H. Sayre, Ordnance Officer, Squadron A, Cavalry, N. G. N. Y., said that the number of medical officers in the army was too small. In 1898 he had written the Surgeon-General in behalf of a friend of his who wished to go to the front, and was informed in reply that there was no room, that all the positions were filled, and that he had more applications than he knew what to do with. They all knew there was ample room for qualified medical men. During the past fifteen years there had been a wonderful change in the medical department organization of the N. G. N. Y., although most of the hospital corps needed more men to do effective work.

THE AMERICAN THERAPEUTIC SOCIETY.

Tenth Annual Meeting, Held at New Haven, Conn., May 6, 7, and 8, 1909.

F. H. Gerrish, M.D., of Portland, Me., President, in the Chair.

(*Concluded from page 252.*)

Saturday, May 8—Third Day.

The Dietetics of Chronic Diseases.—Dr. William H. Porter of New York read this paper. The conclusions at which he arrived from his study of the subject were as follows: That all foods were divisible, primarily, into two distinct classes, the purely vegetable and the purely animal; that both were divisible into five distinct groups of substances; that neither class was absolutely perfect in composition; that the animal approached the more nearly to perfection; that the animal was more easily digested and assimilated; that the animal was more economic; that to secure a perfect or ideal diet the two classes must be used together; that between the two extremes we had two other dietaries, one in which the two classes were blended perfectly, and one in which the two were less perfectly adjusted; that the latter was often spoken of as a purely vegetable diet, while in reality it was a poor form of mixed diet—hence there was much confusion in the minds of many who discussed the subject; that when an ideal diet was secured, one which just suited the individual case, marvelous results could be obtained, especially when it was used in conjunction with well directed therapeutics.

Hypodermatic Medication in Modern Therapy.—Dr. Spencer L. Dawes of Albany, N. Y., made an urgent plea for the more general adoption of this method, on account of its distinct advantages over others. He also advocated intramuscular injections, instead of subcutaneous, stating that for several years it had been his practice to employ these in every instance where the hypodermatic syringe was used, especially on account of the more rapid absorption thus secured. If in the use of the hypodermatic method, abscess, erythema, induration, or any other local disturbance occurred, he believed that almost without excep-

tion it was due either to want of care or knowledge in selection of site and mode of operation, or to unsterile instruments or unsterile or improperly prepared or preserved solutions.

Dr. J. Blake White of New York said he would take some little exception to Dr. Dawes' advice to employ only nonirritating remedies hypodermatically. Personally he had used some which were irritating with the most satisfactory results. Thus, he had found that sciatica was promptly relieved by the injection of tincture of iodine combined with atropine. He had also frequently injected the same combination directly into the lung, with no harmful effects. He was accustomed to use a double-barreled syringe, which he had himself devised; one barrel being for the solution employed and the other for air. With this, asepsis could be readily insured, and he had made as many as two hundred injections in a single case without the occurrence of abscess.

Dr. J. F. Fotheringham of Toronto referred to the enormous advantage of the hypodermatic method in acute diseases, like pneumonia. It might be that after the attack had lasted four or five days the patient's stomach would give out entirely. Here the use of the required remedies hypodermatically assured their action on the system; a result which could not be attained in any other way. As to technique, for a long time now he had given up injecting anything but sera into the subcutaneous tissue. The more slant there was to the needle, the greater the danger of striking a nerve; while if we put the needle in straight we entered an anesthetic area.

Dr. William H. Porter said that at a certain hospital in New York it was at one time found that in almost every case in which the nurses used the syringe an abscess resulted. They employed subcutaneous injections, and there were about thirty abscesses. On the other hand, not a single abscess followed the injections made by the house staff, who employed the intramuscular method.

Dr. Dawes, in reply to Dr. White, said he had purposely stated that as a rule drugs which were irritating, as well as those which were not readily soluble and those which were bulky, should be avoided. Of course, there might be exceptions.

The Effects of Modern Synthetics.—Dr. F. P. Morgan of Washington, D. C., having briefly reviewed the history of synthetic chemistry, stated that the most important step in this history, so far as its relation to medicine was concerned, was the recognition of the fact that an alteration in the chemical composition of organic compounds, no matter how slight in character, might effect a material change in their pharmacological properties. Several illustrations were cited showing that a definite relationship exists between chemical composition and pharmacological action. The recognition of this truth had been very largely instrumental in the production of a great mass of modern synthetics; exerting a beneficial influence upon the development of medical science, particularly along the line of experimental pharmacology. The paper included the data obtained as the result of a recent investigation conducted by the U. S. Department of Agriculture with regard to the harmful effects of acetanilide, antipyrine, and acetphenetidin. The object of the inquiry was not to depreciate in any way the value of these medicinal agents, but rather to furnish information to the public which would enable them to understand that the drugs should be employed with caution, in the absence of reliable medical advice. A table was given showing that 814 cases of poisoning, with 28 deaths and 138 instances of habitual use, were reported by 400 physicians to whom inquiries had been sent, and in conclusion the speaker asked how many such cases could be collected from the 125,000 physicians scattered throughout this country.

Alcohol Injections in Neuralgias, Especially in Tic Douloureux.—Dr. O. G. T. Kiliani of New York read this paper (see Vol. 75, p. 957).

Superficial Dermatitis of the External Auditory Canal.—Dr. Clarence J. Blake of Boston said that the peculiarity of its structure and its function, as well as its relationship to an important organ of special sense, made deviations from the normal in the skin lining the external auditory canal a matter of more importance than would otherwise be the case. The primary mechanism in the affection named was a dermal hyperemia, with serous transudation and elevation of the thin epidermal layer, which, under maceration, disintegrated, and, mixing with the serum, afforded an outflow microscopically simulative of pus. The treatment consisted of thorough cleansing and drying, repeated until the exfoliated epidermis had been completely removed, and when this had been effected the denuded surface should be painted with a strong solution of silver nitrate. The frequently accompanying epidermal exfoliation of the outer portion of the canal should be cleansed with a weak peroxide and sodium bicarbonate solution, followed by the application of alboline, while the intense itching often accompanying this condition might be relieved by the application of a vaseline ointment containing tincture of benzoin and sodium salicylate. In the chronic forms of epidermal disturbance the epidermal layer seemed to have lost its normal progression, or to have had it so much impaired as to result in the accumulation of superimposed epidermal layers *in situ*. In some instances there was formed a mass of epidermis, in more or less well defined strata, nearly or wholly filling the inner half of the auditory canal, the keratosis obturans of Wreden.

Subphrenic Abscess.—This paper, by Dr. Carl Beck of New York, was read in abstract by Dr. H. E. Gallant. Since the beginning of the year 1892 Dr. Beck had met with fifty-five cases, of which thirty-eight recovered; giving a mortality of a little less than thirty-one per cent. Fourteen were of appendicular origin, and the remainder from a considerable variety of sources. There was only one treatment of the condition, namely, free opening, as a rule, after resection of one or more of the ribs.

Medical and Surgical Treatment of Senile Enlarged Prostate.—Dr. Oliver C. Smith of Hartford, Conn., said that in the treatment of the hypertrophical prostate cases must be individualized, and each one managed according to its peculiarities. We might, however, in a broad way classify our cases and determine which should be treated medically and hygienically, which should be placed upon habitual use of the catheter, which were the proper cases for operation, and, if operation was required, whether it should be a palliative one for drainage and rest of the bladder, or whether, if prostatectomy was decided upon, the suprapubic or perineal route should be selected. The treatment in the various conditions was detailed and the advantages of the different operations discussed. Since June, 1902, Dr. Smith had operated on sixty-eight cases, of which fifty-one were benign and thirteen malignant. Perineal prostatectomy was performed upon fifty-one cases of benign disease, and the total mortality in benign cases, patients dying within two weeks, was twenty per cent. Of these, six died of conditions not chargeable to the condition of the bladder or effects of the operation, one died of pulmonary embolism, after operation, and three died as the result of bladder conditions which operation could not relieve; leaving an immediate mortality of eight per cent. Fifty-nine per cent. are living to-day, without prostatic or serious urinary symptoms, at periods varying from a few months to seven years after the operation. Thirteen per cent. more lived for some time, and died of causes unconnected with the genito-

urinary system. The first fifty operations were performed with the aid of a retractor. The last fifteen have been done without the tractor, in some instances pressure having been made from above, over the bladder, to bring the prostate within reach.

The Therapeutics of Some Obstetric Conditions.—Dr. B. A. CHENEY read this paper. For the prevention of eclampsia, he said, more attention to the expectant mother than is usual in general practice was demanded. To prevent further convulsions when these had already begun chloroform was unexcelled by any drug, and hydrated chloral, which could be given per rectum, was a valuable adjuvant. Next veratrum should be given hypodermatically, and repeated every hour till the pulse was soft and less than seventy. For the elimination of absorbed toxins hot enemata of salines or even croton oil might be employed, as well as colon infusion of salt solution and the application of hot packs to the whole body. In a few cases characterized by a pulse of high tension and fullness, venesection had been effective. The most important indication was to empty the uterus.

Therapeutic Drainage in Cases of Uterine Obstruction.—Dr. A. ERNEST GALLANT of New York advocated the following plan: (1) Whenever the uterosacral ligaments showed evidences of previous inflammation, the bands, or thickening, were gradually stretched by massage, and every third day the vagina was tamponed, after the vault had been painted with pure ichthyol. (2) When the internal os was found tender to the passage of the sound or the flexion was 90° or more, under anesthesia the adhesions were forcibly stretched, the cervix dilated, preferably by graduated sounds, and the mucous membrane curetted; after which irrigation with hot 1 to 2,000 potassium permanganate solution was practised. (3) The bivalve drain was then introduced and in some instances sutured in place with silk worm gut, to remain for some months; a very necessary feature if permanent drainage and restoration of the cervix to its normal shape and caliber were desired. (4) A roll of gauze was inserted in the vagina, its upper end being placed directly under the cervix, in order to serve the double purpose of a wick drain and uterine support. (5) After tenderness and the discharge had subsided, a pessary of suitable size and shape was inserted and worn until the fourth month of pregnancy or permanently, as the case might require. (6) Trachelorrhaphy was practised in a few instances of deep laceration into the fornices, and where the cervix was greatly hypertrophied and cystic.

Recent Investigations as Related to the Therapeutics of Cardiac Arrhythmias.—Dr. THOMAS E. SATTERTHWAITE of New York read this paper (see page 833).

Treatment of Stokes-Adams Syndrome.—Dr. REYNOLD WEBB WILCOX of New York read this paper. The syndrome was characterized by bradycardia, cerebral attacks, and pulsation of cervical veins in excess of pulse rate. The treatment was prophylactic, mechanical, and medicinal. As regards the last named, a combination of atropine and strychnine had usually been advocated. Atropine, however, was useless in affections of the myocardium, of which the syndrome was the expression. Alcohol had at times apparently shortened the attacks. In those instances in which the speaker had employed cactus, recovery from the attacks had taken place. If the symptoms were very urgent it should be preceded by ammonia, hypodermatically. After the acute attack it was well to give arsenic iodide for a considerable period. If a syphilitic history was obtainable the prognosis was much more favorable, and vigorous antisyphilitic treatment should be instituted.

Acapnia as a Factor in Disturbances of Function, and the Prevention of Acapnia.—Dr. YANDELL HENDERSON, said that Haldane's investigations had demonstrated a new constant of health, namely, the pressure of carbon dioxide in the arterial blood; so that for the regular performance of the various functions it was essential that this should be maintained uniformly. This was the object of the respiration. The name acapnia had been given to diminution in carbon dioxide, and this could be produced by excessive respiration. Acapnia he believed to be the cause of surgical shock, though this hypothesis had not as yet been proven. In support of it we had the well-known fact that pain of any sort causes excessive respiration. When extreme pain ceased the respiration also stopped. In animals or men under operation it sometimes happened that the respiration became excessive. It was therefore important that the initial stage of anesthesia should be as brief as possible, and the preliminary use of nitrous oxide gas was thus of service in preventing acapnia. Ether itself, it was to be remembered, was a respiratory stimulant. It was just as important to bring the patient out of anesthesia without excessive respiration as to get him into it without this. Another phase of the matter: The congestion which developed when in a laparotomy the abdominal viscera were wholly exposed to the air had hitherto been unexplained. The speaker said he had data to show that the rate at which carbon dioxide exhaled from such exposed organs was forty times as great as that of the exhalation from the skin. Therefore, this was one of the causes of acapnia, and it could easily be avoided by protecting the viscera by means of some impervious covering.

Pain; Its Diagnostic and Therapeutic Value.—Dr. EDWARD D. FISHER of New York said that the distribution, localization, and character of pain were diagnostic points of the greatest value. If it were extremely intense, however, it became itself the main factor to be considered, and had little significance either as a diagnostic or a protective factor. The pain in neuralgia was shooting and severe, while that of neuritis was less severe and burning in character. Pain in an organ itself was generally dull, while that of the capsule was sharp and severe. This was illustrated in the case of the brain and its meninges. If the pain was stretching in type and widely distributed, as in tabes, it pointed to an affection of the peripheral sensory nerves; but if it was permanently seated, like the girdle pain of tabes, it was probably due to the meningitis. Having given a number of other illustrations, he said that localization of pain in tumors of the brain was rarely an aid in the localization of the tumor except when the meninges were involved. Pain was protective in so far as it enabled the individual to avoid danger. It was also valuable by causing the individual to rest. Often this was all that was necessary to prevent serious disease of the part or organ affected. This was strikingly seen in pleurisy as well as in appendicitis and intestinal affections in general. In fact, inflammatory conditions everywhere called for cessation of movement. Nature compelled rest by the excessive pain, and thus allowed an opportunity for the leucocytes to carry off the infectious materials, or for the sera or antitoxins to resist the destructive process.

Officers Elected.—The following officers were elected: *President*, Dr. James C. Wilson of Philadelphia; *First Vice-President*, Dr. A. D. Blackader of Montreal; *Second Vice-President*, Dr. Howard Van Rensselaer of Albany, N. Y.; *Third Vice-President*, Dr. Robert T. Morris of New York; *Secretary*, Dr. N. P. Barnes of Washington, D. C.; *Treasurer*, Dr. A. Ernest Gallant of New York; *Members of the Council*, Drs. T. E. Satterthwaite of New York, F. H. Gerrish of Portland, Me., J. Blake White of New York, and C. J. Blake of Boston; *Members of the Standing Committee on Therapeutic Research*, Drs. S. L. Dawes of Albany, N. Y., and H. W. Wiley, of Washington, D. C. The next annual meeting of the Society will be held in Washington in May, 1910.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

California State Board of Medical Examiners.

San Francisco, April 6, 7, and 8, 1909.

ANATOMY.

1. Give topography of the bronchi on the ventral and dorsal surfaces of the body. (Diagram.)
2. Give course of the adult duodenum and position of the pancreas with reference to the ventral aspect of the vertebral column. (Diagram.)
3. What articulations have an interarticular fibrocartilage?
4. What is the arrangement of the lumbar fascia?
5. Give brief outline of the arrangement and plan of distribution of the sympathetic nervous system.
6. Name the various bony prominences or landmarks which can be easily felt and recognized in the head and face, which afford the means of mapping out the important structures comprised in this region.
7. What are the veins of the neck which return the blood from the head and face?
8. What nerves innervate the tongue?
9. Give location of the thoracic duct and indicate what portions of the body are drained by it.
10. What arteries supply the rectum, and of what arteries are they branches?

HISTOLOGY.

1. Explain the difference in the histological structure of veins and arteries.
2. Describe the histological structure of the tonsils.
3. Give the histological structure of red and yellow bone marrow.
4. Describe the development of bone.
5. Draw a diagram of a cross section of an ovary showing one ripe Graafian follicle.
6. Describe the histological structure of the skin.
7. Describe the histological structure of the pancreas.
8. Identify two specimens.
9. Identify two specimens.
10. Identify two specimens.

PHYSIOLOGY.

1. Define and give illustrations of: (*a*) Autolysis. (*b*) Plasmolysis.
2. Give the probable location of the chief motor areas of the cerebral cortex.
3. Describe the distribution and function of the spinal-accessory nerve.
4. (*a*) Where are the trophic centers of the skeletal muscles? (*b*) Where is the parturition center?
5. Describe the blindness ensuing from a destructive lesion of the right optic tract.
6. Describe the innervation of the respiratory movements.
7. Explain the movements of the large intestine.
8. (*a*) What is the function of the portal system of veins? (*b*) Mention the principal branches. (*c*) How do they differ from other veins?
9. Why are the arteries in a state of emptiness after death?
10. Define: (*a*) Atelectasis. (*b*) Alexins. (*c*) Protozoa. (*d*) Ptyalin. (*e*) Caul (*f*) Chemotropism. (*g*) Colostrum. (*h*) Catamenia. (*i*) Eupnea. (*j*) Strabismus.

CHEMISTRY AND TOXICOLOGY.

1. (*a*) What is the definite ratio of increase or difference in the methane or marsh gas series? (*b*) What is an alcohol? (*c*) How are organic acids produced?
2. Select the five most important reagents for an urine analysis outfit and state why you selected each.
3. (*a*) What body waste does excess of urea signify? (*b*) What is the normal amount excreted in twenty-four hours? (*c*) What will increase its quantity? (*d*) What should be taken into account in establishing its amount in relation to the individual?
4. (*a*) Describe Ehrlich's Diazo-reaction. (*b*) Of what diagnostic importance is it?
5. (*a*) What acids produced from carbohydrates by bacterial action in the intestine? (*b*) Do these acids stop the action of the pancreatic juice? (*c*) What putrefactive products in the intestine from bacterial action?
6. (*a*) In what form may indol be found in urine? (*b*) Outline analysis. (*c*) What is its clinical significance?
7. Give action, where formed, products and classes of foods digested by: (*a*) Trypsin. (*b*) Amylopsin. (*c*) Steapsin.
8. (*a*) Why would you not give the alkaline carbonate as antidote in oxalic acid poisoning? (*b*) Describe symptoms and outline treatment for a case of carbolic acid poisoning.
9. (*a*) Give the symptoms of poisoning from mushrooms. (*b*) What difference would you note in the stains on the skin between nitric acid and sulphuric acid poisoning?
10. Symptoms: Dryness of the throat, metallic taste, great thirst, colic (relieved by pressure), abdominal muscles rigid, constipation, cramps in legs, paralysis of the extremities, convulsions, blue line at margin of gums. Name the poison.

GENERAL DIAGNOSIS.

1. Describe the anemias.
2. Describe duodenal ulcer.
3. Describe acute poliomyelitis anterior.
4. Differentiate conjunctivitis and iritis.
5. Describe abdominal pains in the male and give significance of each.
6. Differentiate renal and hepatic colic.
7. Differentiate aortic and mitral valvular diseases.
8. Describe Raynaud's disease.
9. What are the causes of endocarditis?
10. Give early symptoms of gastric ulcer.

PATHOLOGY.

1. Discuss the etiology of thrombosis.
2. What is the microscopic appearance of the liver in hypertrophic cirrhosis?
3. In normal feces, what is the percentage of bacteria (dry, by weight)? How does it vary in constipation, diarrhea?
4. Name the diseases, the diagnosis of which may be made entirely by blood smears, blood culture, blood count, and serum reaction.
5. What is the microscopic character of the blood in Banti's disease? What are the gross post-mortem findings?
6. Describe the mechanism of jaundice due to obstruction of the extrahepatic bile ducts.
7. Secondary to tonsillar infections, what diseases or pathologic lesions may result?
8. In what different ways may arteriosclerosis cause death?
9 and 10. The diagnosis of pathologic specimens under the microscope.

BACTERIOLOGY.

1. (*a*) Differentiate endogenous and exogenous infections. (*b*) Name one organism associated with each condition.
2. (*a*) Name the organism of chancre. (*b*) Give morphology and staining peculiarities. (*c*) Name the organism of chancroid.
3. (*a*) Name two methods of animal inoculation. (*b*) State the precautions necessary to satisfactory results.
4. (*a*) State how to prepare potato for cultural purposes. (*b*) Name two organisms to whose growth it is suitable.
5. (*a*) Name three pyogenic organisms. (*b*) Three toxine producers. (*c*) Five pathogenic organisms positive to Gram's method.
6. Name the most frequent causal organism in: (*a*) Appendicitis. (*b*) Acute cystitis.
7. (*a*) Name three anaërobic bacteria. (*b*) Describe a method of cultivating anaërobins.
8. Define: (*a*) Leucomain. (*b*) Pleomorphous. (*c*) Agglutin. (*d*) Alexin. (*e*) Phlogistic.
9. Examination of two slides.
10. Examination of two slides.

OBSTETRICS.

1. Describe a four months' fetus sufficiently exact to be of value as evidence in a medicolegal investigation.
2. State fully the reasons or conditions that make a fourteen to eighteen week abortion so very dangerous and describe the management of such a case.
3. What clinical symptoms occurring during labor would cause you to fear postpartum hemorrhage, and state in full what measures you would use to prevent its occurrence.
4. In a case of delayed second stage of labor, how long a time would you allow to elapse before interfering; and if interference were necessary what would you consider the indications for each different measure or method of terminating labor?
5. During pregnancy what clinical symptoms would be most likely to cause the patient to consult you for threatening toxemia of pregnancy? How would you verify the diagnosis and how would you manage such a case?
6. What do you consider the probability of frights, acci-

dents, etc., in a pregnant woman as a cause of birthmarks, monsters, etc.? What do you consider the most common cause of these abnormal cases and at what stage of fetal life are these abnormal conditions most likely to begin to develop, and what is the best means to prevent their occurrence?

7. In cases of breech or foot presentations, state fully why the dangers are greater to the mother and to the child, and how would you conduct such cases in order to minimize the dangers to both as much as possible?

8. Describe the symptoms occurring during the first stage of labor that would cause you to fear impending laceration of the cervix and what means would you use to prevent it?

9. Describe some of the conditions in a puerperal case that would lead you to use extraordinary precautions to prevent infection. In such a case state what directions or orders you would give to ignorant, unskilled help, and what you would do yourself to prevent its occurrence, and should it appear how would you manage the case under these conditions?

10. If you were to conduct an ordinary case of labor in the country among poor people, state fully what directions you would give to an ignorant, unskilled woman, acting as nurse, for the care of your patient for the first forty-eight hours after labor.

GYNECOLOGY.

1. Give location, shape, position and size of a normal uterus.

2. Name and give the attachments of the ligaments that hold the uterus in position.

3. Give the course of the ureters through the true pelvis, particularly their relation to the uterus.

4. Differentiate between Anteversion and Anteflexion of the uterus.

5. Describe briefly the following conditions: (*a*) Vicarious menstruation and places it may appear. (*b*) Supplementary menstruation. (*c*) Suppressed menstruation. (*d*) Emansio mensium (a form of Amenorrhea) with two causes.

6. Give tissues lacerated in incomplete laceration of the perineum. Same in complete laceration.

7. Give differential diagnosis between prolapsus of the urethra and urethrocele.

8. Differentiate between pelvic hematocele and hematometra.

9. Name the various kinds of cysts found in the pelvis, both from their origin and character of their contents.

10. Name the five different places at which a pelvic abscess may "point."

HYGIENE.

1. Define certified milk; inspected milk; Pasteurized milk.

2. How is a sand filter for water constructed, and what attention must be given to such a filter?

3. Describe the three large groups into which the different forms of food poison may be divided.

4. Discuss the economic loss to the public through insects that carry disease.

5. Name six (6) efficient disinfectants and indicate their application to different purposes.

6. What evidence is there that tuberculosis is a septicemia.

7. Enumerate an efficient and complete plan for the control of tuberculosis.

8. Why is an early diagnosis of syphilis important and what are the methods by which a positive diagnosis can be made?

9. What are the causes of the ordinary "colds" and what can be done to prevent them?

10. What progress has been made with the serum treatment of disease?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

CALIFORNIA STATE BOARD OF MEDICAL EXAMINERS.

San Francisco, April 6, 7, and 8, 1909.

ANATOMY.

3. The *articulations which have an interarticular fibrocartilage* are: The temporomandibular, sternoclavicular, acromioclavicular, wrist, and knee joints.

4. The *lumbar fascia* is arranged in three layers, with two enclosed spaces. The posterior layer is continued above as the vertebral aponeurosis, and below it is attached to the crest of the ilium; the middle layer is attached above to the last rib, and below to the crest of the ilium; the anterior layer forms the external arcuate ligament of the diaphragm above, and extends from the tip of the last rib to the first or second lumbar vertebra, while below it is attached to the crest of the ilium and to the iliolumbar ligament. The erector spinæ muscle is between the posterior and middle layers, and the quadratus lumborum between the middle and anterior layers. On the inner side each layer is attached to the vertebral column (lumbar or sacral vertebræ).

5. "The sympathetic nervous system consists of (1) a series of ganglia connected together by a great ganglionic cord, the gangliated cord, extending from the base of the skull to the coccyx, one gangliated cord on each side of the middle line of the body, partly in front and partly on each side of the vertebral column; (2) of three great gangliated plexuses or aggregations of nerves and ganglia, situated in front of the spine in the thoracic, abdominal, and pelvic cavities respectively; (3) of smaller or terminal ganglia, situated in relation with the abdominal viscera; and (4) of numerous fibers." (Gray's *Anatomy.*)

6. The *bony landmarks in head and face* are: Nasion, glabella, inion, bregma, external angular process, zygomatic arch, temporal ridge, external auditory meatus, parietal eminence, mastoid process.

7. The external jugular, posterior external jugular, anterior jugular, internal jugular, and vertebral veins.

8. The *nerves which inervate the tongue* are: (1) The lingual branch of the inferior maxillary division of the trigeminus (sensation); (2) chorda tympani (taste); (3) lingual branch of the glossopharyngeal (taste and sensation); (4) hypoglossal (motor).

9. The *thoracic duct* extends from the second lumbar vertebra, where it commences by a dilatation, the *receptaculum chyli,* to junction of left internal jugular with left subclavian vein. The abdominal part is placed on the front of the body of the second lumbar vertebra, behind and to the right side of the aorta and on the inner side of the right crus; it then enters the thorax through aortic opening, on the right side of aorta, lying between it and the vena azygos major, and passes upward to right of aorta on right intercostal vessels. Opposite the fourth dorsal vertebra it passes to the left behind arch, and runs along the left side of the esophagus, behind the left common carotid artery. At the level of the seventh cervical vertebra it turns outward, and, passing behind left internal jugular and crossing first part of left subclavian artery, arches over the apex of the left pleura to open at the angle of union of the left internal jugular and left subclavian veins. (From *Aids to Anatomy.*)

The *portions of the body drained by it* are: Both lower limbs; abdomen, except upper surface of the liver; left half of thorax; left side of head and neck, and left upper extremity.

10. *Arteries which supply the rectum:* (1) Superior hemorrhoidal (from inferior mesenteric); (2) middle hemorrhoidal (from internal iliac), and (3) inferior hemorrhoidal (from internal pudic).

PHYSIOLOGY.

2. The *motor areas* are located and arranged on the cerebral cortex, immediately in front of the fissure of Rolando. At the upper part of the convolutions in front of this fissure are areas connected with the movements of the lower extremities; then from above downward are located the centers for movements of the shoulders, arms, wrists, fingers, face, lips, tongue, and larynx and pharynx.

3. The SPINAL ACCESSORY NERVE is *distributed* to the Sternomastoid and Trapezius muscles; some fibers are also supposed to pass to the larynx, pharynx, and heart. Its *function* is motor to the muscles just named; indirectly, phonation, and deglutition may be aided, and the heart may also be slightly inhibited by fibers from this nerve.

4. (*a*) The trophic centers of the skeletal muscles are situated along the whole extent of the spinal cord.

(*b*) The parturition center is in the first and second lumbar segment of the spinal cord.

5. In a destructive lesion of the right optic tract there will be blindness of the right halves of both retinæ; hence the left halves of the field of vision of both eyes will be lost, and only objects placed to the right of the median line will be seen.

8. (*a*) The *function of the portal system of veins* is to collect the venous blood from the viscera of digestion (stomach, intestine, and pancreas), and from the spleen, and to carry it to the liver, where the portal vein ramifies throughout the liver in the manner of an artery, and ends in capillaries, from which the blood is collected with the hepatic veins.

(*b*) Superior mesenteric, inferior mesenteric, gastric, and splenic.

(*c*) *The veins of the portal system differ from other veins,* in: (1) Beginning and also ending in capillaries; (2) having no valves; (3) being single.

10. (*a*) *Atelectasis* is the condition in which the air vesicles of the lungs are collapsed.

(*b*) *Alexins* are substances found in the blood which have antibacterial properties, and give immunity against certain toxins.

(*c*) *Protozoa* are the lowest form of animals, consisting of unicellular animal organisms.

(*d*) *Ptyalin* is a ferment found in the saliva, capable of converting starch into maltose and dextrose in an alkaline medium.

(*e*) *Caul* is a name given to the fetal membranes; also to the great omentum.

(*f*) *Chemotropism* is the destruction of bacteria by leucocytes, or *vice versa.*

(*g*) *Colostrum* is the first milk from the mammary glands after the birth of a child.

(*h*) *Catamenia.* The menstrual discharge.

(*i*) *Eupnea* is normal, easy breathing.

(*j*) *Strabismus* is a deviation of one of the eyes, so that both eyes do not look at a given object at the same time.

CHEMISTRY AND TOXICOLOGY.

1. (*a*) The definite ratio of increase or difference in the methane series in CH_2.

(*b*) An *alcohol* is the hydroxide of a hydrocarbon radicle, which is capable of reacting with an acid to produce an ester and water.

(*c*) The volatile, fatty, organic acids are produced from corresponding alcohols by the substitution of an atom of oxygen for H_2 in the CH_2OH group of the primary alcohol.

Thus:

CH_2OH	$COOH$
|	|
CH_3	CH_3
Ethyl alcohol.	Acetic acid.

2. *Five most important reagents for a urine analysis outfit:* (1) Acetic acid (to acidify the urine when necessary); (2) nitric acid (to test for albumin, also for bile); (3) Fehling's solution (to test for sugar); (4) sodium hypobromite solution (for quantitative test for urea), and (5) solutions for the diazo reaction for typhoid fever; these are sulphanilic acid in HCl, and sodium nitrite.

3. (*a*) Proteid material.

(*b*) About one ounce to an ounce and a half.

(*c*) The ingestion of large quantities of watery drinks.

(*d*) Age, sex, weight, diet, and disease.

4. For the diazo reaction of Ehrlich, two solutions are required: (1) A saturated solution of sulphanilic acid in a mixture of 50 c.c. of hydrochloric acid and 950 c.c. of water; and (2) a 0.5 per cent. solution of sodium nitrite.

To make the test, 1 c.c. of (2) is added to 40 c.c. of (1) and the mixture thoroughly shaken. Equal quantities of this mixture and the urine to be tested are shaken together in a test tube, and 1 c.c. of ammonia is then floated upon the surface, when, in an affirmative result, a red band is formed at the junction of the fluids.

Its diagnostic value is uncertain. Von Jaksch "disclaims for this test any clinical importance whatever." Others have claimed that the reaction is pathognomonic of typhoid; but it has been found in other diseases besides typhoid—namely, phthisis, pneumonia, measles, scarlet fever, smallpox, and malaria.

5. (*a*) *Acids formed* are: Acetic, lactic, butyric, succinic, paralactic, and biliary acids.

(*b*) No.

(*c*) Indol, skatol, ammonia, sulphuretted hydrogen.

6. (*a*) As indican (indoxyl potassium sulphate).

(*b*) *Test for indican in the urine:* The urine is mixed with one-fifth its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chlorid, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless, or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess.

(*c*) *Indicanuria* is found in hypochlorhydria; in hyperchlorhydria of gastric ulcer; in conditions in which there is diminished peristalsis of the small intestines, as in ileus and peritonitis, not in simple constipation; also in conditions in which putrefactive changes occur in the body elsewhere than in the intestine, as in empyema, putrid bronchitis, gangrene of the lungs, etc. (From Witthaus' *Essentials of Chemistry.*)

7. (*a*) *Trypsin* is formed in the pancreatic juice; it acts on proteids, turning them into proteoses and peptones, in an alkaline or neutral medium.

(*b*) *Amylopsin* is formed in the pancreatic juice; it acts on carbohydrates, turning them into dextrin and sugar.

(*c*) *Steapsin* is formed in the pancreatic juice; it acts on fats, emulsifying and saponifying them.

8. (*a*) The alkaline carbonates are not used in oxalic acid poisoning, because the oxalates which they would form are soluble, and are nearly as poisonous as oxalic acid.

(*b*) *Symptoms in carbolic acid poisoning:* Buccal mucous membrane is whitened and hardened; vomiting; burning pain in mouth, esophagus, and stomach; pulse and body temperatures are lowered; the pupils are contracted; collapse, and finally death. The urine may become dark.

Treatment: Emetics, white of egg, stimulants; sodium sulphate, or alcohol may be given as antidotes.

9. (*a*) *Symptoms in poisoning from mushrooms:* Sudden onset, great prostration, cold perspiration, headache, fever, rapid and feeble pulse, pain in abdomen, diarrhea, cyanosis, urine scanty or suppressed and albuminous or bloody; stupor and delirium.

(*b*) Stains on the skin, from *sulphuric acid,* are first whitish and then become brown or black; those from *nitric acid* are first yellow and then become a dirty brown.

10. The poison taken was lead.

4. GENERAL DIAGNOSIS.

CONJUNCTIVITIS.	IRITIS.
1. No change in iris.	1. Discolored and altered iris.
2. Pupil normal.	2. Pupil small, gray, sluggish, irregular after use of atropine.
3. Anterior chamber normal.	3. Exudation in anterior chamber.
4. Conjunctival injection, coarse meshes, most pronounced in fornix and fading toward the cornea.	4. Ciliary (circumcorneal) injection; pink zone of fine vessels surrounding cornea and fading toward fornix.
5. Mucous or muco-purulent secretion.	5. Lacrymation, but no secretion.
6. Discomfort, but no real pain.	6. Pain, worse at night.
7. Conjunctiva reddened and opaque.	7. Conjunctiva usually transparent.
8. No interference with vision.	8. Vision diminished in acuteness.

(May's *Diseases of the Eye.*)

5. ABDOMINAL PAINS IN THE MALE. (1) *Over the diaphragm,* may be due to pleurisy. (2) *More or less general, and sharp or colicky,* may be due to gastralgia, cancer or ulcer of stomach, enteralgia, enteritis, lead colic, arsenical or mercurial poisoning, floating kidney, mucous colic, flatulence, intestinal obstruction, intestinal perforation, onset of appendicitis, peritonitis, hernia, pancreatitis, locomotor ataxia, diabetes, Raynaud's disease. (3) *In right hypochondriac region,* cancer cirrhosis or inflammation of liver, aneurysm of abdominal aorta, subphrenic abscess. (4) *In left hypochondriac or lumbar regions,* renal colic, pyelitis, movable kidney, enlarged spleen, impacted colon, gastric dyspepsia, gastroptosis, gastrectesia. (From Butler's *Diagnostics of Internal Medicine.*)

6. In *renal colic:* The pain is in the region of the affected kidney; it radiates down the thigh; there are intense rigors; retraction of the testicle may be present; also history of previous attacks or of calculi; the urine may be scanty, suppressed, or bloody.

In *hepatic colic:* The pain is in the region of the liver; it radiates to the right scapula and toward the umbilicus; chills and sweats are common; also vomiting, and sometimes symptoms of collapse and jaundice; calculi are found, if at all, in the feces.

7.

AORTIC DISEASE.	MITRAL DISEASE.
Symptoms are mainly due to anemia, viz.:	Symptoms are mainly due to venous congestion, viz.:
1. Pallor.	1. Cyanosis.
2. Throbbing of the carotids.	2. May get pulsation in the veins of the neck.
3. Attacks of an "angina pectoris" type of pain.	3. Sudden attacks of severe dyspnea—actual acute pain is rare.
4. Breathlessness on slight exertion.	4. Breathlessness, but often present without exertion.

AORTIC DISEASE.	MITRAL DISEASE.
5. Nervous symptoms are prominent, owing to cerebral anemia. Syncopal attacks are also common.	5. Pulmonary symptoms are most prominent, *i. e.,* cough in the morning, chronic bronchitis, hemoptysis, dilated right side of heart, and later symptoms due to tricuspid leakage.
7. The *left ventricle* is usually much hypertrophied.	7. The *left auricle* is somewhat hypertrophied, but the main hypertrophy is that of the *right ventricle.*

(From Wheeler and Jack's *Handbook.*)

9. The *causes of endocarditis* are: Rheumatism, chorea, the acute infectious diseases (chiefly scarlet fever, diphtheria, and pneumonia), septicemia, tuberculosis, gonorrhea, nephritis, alcoholism, syphilis, gout.

PATHOLOGY.

1. *Etiology of thrombosis:* Changes in the blood current; changes in the blood; changes in the vessel wall; anything within the circulation not covered by endothelium. Generally two or more of these conditions are present.

3. "It is estimated that about one-third of the fecal matter of adults, if dried, would be found to consist of bacteria." (Williams' *Manual of Bacteriology.*) Hence, 33 per cent. On the other hand, "Kleyn estimates that 1.13 per cent. of the dry feces is made up of microorganisms." (Fischer's *Physiology of Alimentation.*) It is safe to infer, therefore, that it is unknown.

4. By *blood smears,* diagnosis can be made of: Malaria, relapsing fever, filariasis. By *blood culture,* of: Typhoid fever. By *blood count,* of: Pernicious anemia, secondary anemias, leukemias. By *serum reaction,* of: Typhoid fever, Asiatic cholera, Malta fever, glanders, plague.

5. In BANTI'S DISEASE. The *blood* shows a profound anemia; the red cells are greatly diminished; they are a little smaller in size, but their shape is preserved; there is a great reduction in hemoglobin; the white cells are increased in number.

The *gross post-mortem findings* are: Enormously enlarged spleen, with thickened capsule and darkened color; the pulp seems to have disappeared, cirrhosis and atrophy of the Malpighian bodies are noticeable, and there is fibrosis of the spleen. The liver is pigmented and cirrhosed; the heart is dilated and may be flabby.

7. *Tonsillar infection may be followed* by: Rheumatism, endocarditis, chorea, pericarditis, albuminuria, middle ear disease, scarlet fever, diphtheria.

8. *Arteriosclerosis may cause death* by: Bursting of the blood-vessel; the development of thrombosis in the coronary or cerebral arteries; gangrene of the extremities; angina pectoris; chronic interstitial nephritis.

BACTERIOLOGY.

1. (*a*) *Endogenous infections* are those due to the activity of microorganisms which are habitual to the body and are usually harmless.

Exogenous infections are those due to the admission to the tissues of microorganisms from without.

(*b*) The Colon bacillus is an organism associated with endogenous infection; the gonococcus, with exogenous infection.

2. (*a*) The organism of chancre is the *Spirocheta pallida,* also called the *Treponema pallidum.*

(*b*) It is a slender spirillum, with regular turns, about 4 to 20 mikrons long, with a fine flagellum at each pole; it is flexible, hard to stain, and has not been cultivated on artificial media. How it divides is not known. It stains best with Giemsa's eosin solution and azur.

(*c*) The organism of chancroid is the bacillus of Ducrey.

3. (*a*) *Two methods of animal inoculation:* Subcutaneous and intravenous.

(*b*) *Precautions necessary to satisfactory results:* The hair should be removed from the site of the inoculation; asepsis must be practised at every stage of the process; the animal must be treated with the utmost gentleness, and shock must be prevented or treated; the animal should be isolated, and medication of all kinds must be avoided.

4. *Bolton's method of preparing potato for cultural purposes,* is as follows: The potatoes are washed, a slice is removed from each end, and with an apple-corer or cork-borer a cylinder is cut out. This cylinder is divided diagonally into two pieces. The pieces are washed in running water for several hours. They are placed in test tubes containing a little water to keep the potato moist, and are supported from the bottom on a piece of glass tubing about 1 to 2 cm. in length (or on cotton, or in a specially devised form of tube with a constriction at the bottom). The tubes are plugged and sterilized as with other media. Sterilization, however, must be thorough on account of the danger of contamination with the extremely resistant spores of the potato bacillus. Potato is best when freshly prepared; it is likely to become dry and discolored with keeping. It is a very useful medium; certain growths on it, like those of the bacillus of typhoid fever or of glanders, and those of chromogenic bacteria, are very characteristic.

5. (*a*) *Three pyogenic organisms: Streptococcus pyogenes, Staphylococcus pyogenes aureus,* and *Staphylococcus pyogenes albus.*

(*b*) *Three toxine producers:* Bacillus of tetanus, Klebs-Loeffler bacillus, and Eberth's typhoid bacillus.

(*c*) *Five pathogenic microorganisms positive to Gram's method:* Bacillus of diphtheria, bacillus of tuberculosis, bacillus of anthrax, *Streptococcus pyogenes,* and bacillus of tetanus.

6. The most frequent causal organism in: (*a*) Appendicitis, is *Bacillus coli communis,* or the staphylococci; (*b*) acute cystitis, is *Bacillus coli communis,* or gonococcus.

7. (*a*) *Three anaërobic bacteria:* Bacillus of tetanus, bacillus of symptomatic anthrax, and bacillus of malignant edema.

(*b*) For the cultivation of anaërobic bacteria, Archinard gives the following method: A culture tube three-fourths full of the medium is heated to the boiling point and allowed to cool to a temperature in the neighborhood of 40° C.; then a platinum needle charged with the material for inoculation is dipped down to the bottom of the tube. With fluid media, immediately thereafter a layer of paraffin oil is poured on the surface of the liquid before introduction of the cotton plug. With solid media the fluid is allowed to solidify after inoculation, and after solidification the paraffin oil is poured on the surface of the medium. This effectually shuts out the oxygen, and as a rule allows a luxuriant growth of anaërobic bacteria.

8. (*a*) *Leucomains* are basic nitrogenous substances produced in living tissues.

(*b*) *Pleomorphous* bacteria are such as assume more than one form.

(*c*) *Agglutin* is something in the blood serum of an animal affected with a bacterial disease which is capable of causing the clumping of the bacteria which cause the disease.

(*d*) *Alexins* are defensive bodies which exist normally in the blood serum.

(*e*) *Phlogistic* means inflammatory.

OBSTETRICS.

1. A *four months' fetus* is about four to seven inches long, weighs on an average two ounces; the length of the head is one-fourth that of the body; the cranial bones are partly ossified, but show very wide sutures and fontanelles; the face is distinct; mouth, nose, eyes, and ears have their proper shape; the sex can be distinguished; the skin is moderately firm, and hair begins to develop. (From Witthaus and Becker's *Medical Jurisprudence.*)

6. Many authorities do not consider that frights, accidents, etc., in a pregnant woman have anything at all to do with birthmarks or monsters. The cause of these abnormal cases is not known; arrested development, errors of development, and partial destruction of embryo, together with pathological conditions in membranes, amniotic fluid, or fetus *may* be etiological factors. All that a physician can do is to try to put the patient in good hygienic condition and remove all disturbing influences.

GYNECOLOGY.

5. (*a*) *"Vicarious menstruation* is a flow of blood from some organ (other than the uterus), recurring at the monthly periods and taking the place of menstruation. It may occur from the hemorrhoidal vessels, the lungs, the skin, the nails, the mammary glands, ulcerated surfaces, and many other parts." (King's *Manual of Obstetrics.*)

(*b*) *Supplementary menstruation* means a menstrual flow from the uterus and also from some site (as given under vicarious menstruation).

(*c*) *Suppressed menstruation* is a form of amenorrhea in which the patient has formerly menstruated, but menstruation now fails to appear.

(*d*) *Emansio mensium* is a form of amenorrhea in which menstruation has *never appeared. Two causes:* Imperfect development or absence of the uterus, and atresia of the vagina.

6. In *incomplete laceration of the perineum* any of the following tissues may be lacerated: Skin, mucous membrane of fourchette, Constrictor vaginæ, Transversus perinei, and Levator ani.

In *complete laceration* the sphincter ani and the anterior surface of the rectum are involved, in addition to the structures named above.

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Original Articles.

LIFE INSURANCE IN ITS RELATION TO THE PREVENTION OF TUBERCULOSIS.*

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NEW YORK.

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To judge from the cordial invitation extended to me by the Secretary of the American Association of Medical Examiners to appear before you again and talk to you on the Prevention of Tuberculosis and the Relation of Life Insurance Thereto, it seems that the time has come for active cooperation between life insurance companies and existing antituberculosis agencies. The only question concerning which there seems to be some doubt is as to how this cooperation can be effected and be of mutual advantage to the companies, of which you are the medical representatives, and to the policy holders.

Those of you who have read the recent admirable article by Mr. Frederick L. Hoffman, on "The Relation of Life Insurance to the Problem of Tuberculosis Prevention,"† will acknowledge that there is as yet by no means a unanimity of opinion regarding this vital point. What distinguishes Germany from America in its antituberculosis crusade is the existence of a system of compulsory insurance. According to Mr. Hoffman and others, compulsory insurance against disease in this country is a political impossibility, and voluntary insurance against tuberculosis would result in business failure.

Mr. Lee K. Frankel, the manager of the industrial department of the Metropolitan Life Insurance Company, one who has given this subject careful study, does not seem quite to agree with Mr. Hoffman. In a letter received from him on May 24, he reiterates to me the opinion which he had expressed in a paper on "Health Insurance for Consumptives," read at the New York State Charity Conference of 1901. I quote the exact words from his letter: "I am of the opinion, as I was at the time (May, 1901), that a sickness society or an association which insured against sickness, with particular reference to tuberculosis, could become an accomplished fact. Such a company might probably not be able to do more than to insure its members against sickness. The only important question which really arises is the amount of premium which they would have to charge."

To this, as well as to Dr. Arnold C. Klebs' proposition, made in 1906 in his paper, "Insurance of Industrial Working Men as an Instrument of Tuberculosis Prevention," and also to my similar proposition made in 1902 before the National Conference of Charities in Detroit, as well as in 1907 before your association, Mr. Hoffman replies categorically by saying: "I am fully convinced, after a very careful investigation, that as a financial proposition the treatment of tuberculous policy-holders by American life insurance companies in special institutions for their cure, is absolutely impossible. This applies also to the organization of special societies or companies for the exclusive insurance of tuberculous policy-holders. . . . . I repeat that, in my opinion, the true problem is one of *prevention* and not of cure, and one of the most useful additions to our knowledge would be a comprehensive and strictly scientific investigation into the diseases of occupation with special reference to consumption and the pathology of dust in its relation thereto."

Before taking up the side of the subject on which Mr. Hoffman disagrees with Mr. Frankel, Dr. Klebs, and myself, I desire for a moment to talk on a subject concerning which we all three do so emphatically agree, namely, the problem of prevention. How much can be done in this direction by the life insurance companies who are in earnest concerning this work, is something of which even the most sanguine of those of us interested in the combat of tuberculosis as a disease of the masses can hardly conceive.

Here is what a single company purposes to do in the direction of the eradication of tuberculosis among its policy-holders. Not to make any unwarranted statements, I asked Mr. Frankel to reply to me precisely what his company was going to do. The letter received from him as an answer to my inquiries reads as follows:

NEW YORK, May 24, 1909.

"MY DEAR DR. KNOPF:—

"I have your favor of May 22nd, in which you ask for an authoritative statement of what the Metropolitan Life Insurance Company purposes doing in the direction of the eradication of tuberculosis among its policy-holders.

"In reply, I am saying that we have at present in preparation a condensed treatise on the nature, extent, cure, and prevention of tuberculosis, which we intend distributing among our industrial policyholders. While this in itself would be a distinct educational campaign, we think that the mere distribution of this pamphlet will not suffice. For this reason we are asking the policy-holders in the pamphlet to notify us in case they should either at present or in the future be victims of tuberculosis. We purpose as soon as we receive replies from them to put them in touch with the agencies in their respective communities, if there are any, so that they may obtain the necessary treatment. Our agents in the field are receiving similar instructions, so that

*Address delivered by invitation before the American Association of Medical Examiners, at the Meeting in Atlantic City, June, 1909.

†*Medical Examiner and General Practitioner*, March, 1909.

when they find policy-holders on their weekly visits who are tuberculous, that they may in conjunction with the Home Office endeavor to bring the policy-holder in touch with the particular society, hospital, dispensary, sanatorium, or day-camp where he may receive treatment.

"As you know, we have advertised somewhat extensively the offer on our part to place at the disposal of all antituberculosis associations, health officers, sanatoria, etc., the machinery of our agency staff for the distribution and dissemination of any literature or information of any of these organizations."

In justice to Mr. Hoffman I wish to say here that I believe it was he who originated the thought of using life insurance institutions for the purpose of antituberculosis propaganda. It was my privilege in 1901 to vote on a resolution which he presented before the British Congress on Tuberculosis in London, which was to the effect that "life insurance companies and societies by means of publications, or otherwise, should give the largest possible amount of publicity to the most essential and most easily comprehended facts of preventive treatment and cure of tuberculous diseases."

I have not yet seen the antituberculosis pamphlet prepared by Mr. Frankel, but I am sure from what I know of Mr. Frankel's painstaking work that it will be a model in every respect. It will describe all the four sources of infection—inhalation, ingestion, inoculation, and droplet infection—and the methods to prevent them. It will describe the early symptoms of tuberculosis which can be detected by laymen, and urge upon them the need of seeking medical advice when suspicious symptoms manifest themselves. It will teach the value of fresh air day and night, the dangers of intemperance in all things, and that a normal, healthful life in normal, healthful surroundings is the best guarantee not to become tuberculous. It will teach how to overcome an hereditary as well as an acquired predisposition. It will teach that tuberculosis can be best treated by hygienic and dietetic means, in pure air, under constant medical supervision; and that patent medicines, advertised "sure consumption cures," and whiskey as a preventative or as a curative means, are not to be relied upon. In short, it will teach the preventability as well as the curability of the disease and, last but not least, will teach that the trained, honest, and conscientious consumptive can be associated with as safely as anyone else, and that to shun him is cruel and unkind. In this pamphlet the phthisiophobiac will be taught not to fear the consumptive, but to love and have compassion for him.

So much for what the policy-holders can learn from such a pamphlet. But the agents of the life insurance companies should know a little more if their work is to be truly effective. They must do a little more than merely to distribute the leaflets to their clients. The agent visiting the family of a policy-holder can, indeed, be a great power of good if he supplements the printed pamphlet by verbal instructions. To this end he must not only know by heart all that is contained in the pamphlet, but he must know a little more of hygiene and ventilation at home, and in factory, and workshops, than the average layman. He must have studied the social aspect of tuberculosis and all its predisposing causes. It is in this way that the humble agent of a life insurance company can become a veritable savior of man. The greater the love and earnestness which he puts into his calling and the more he is able to practically demonstrate his teachings by personal conduct and appearance, the greater will be his results. He can indeed be a tremendous power for good, not only in the solution of the tuberculosis problem, but in the social problem at large.

Such an agent must constitute himself not merely a friendly visitor, but a friend of the family, and while in the event of sickness he will naturally refrain from attempting to give medical advice, in the event of tuberculosis he has a perfect right, nay, even a duty, to urge the greatest precautionary measures so that new centers of infection may not be created. If it is advisable he may, by cooperating with the family physician, refer the tuberculous invalid to the proper local antituberculosis agencies, as mentioned by Mr. Frankel.

The investigation of the causes of tuberculosis which must be traced to occupations, concern the individual agent only when the workshop and domicile of the patient are one. The work which lies before him here is obvious and need not be detailed. The large problem of studying and preventing disease, and particularly tuberculosis contracted in factories and various industries, would seem primarily a matter for the government to undertake; but we all know how very welcome and helpful private investigations are and what benefit to the masses is thereby often produced.

To my mind, there seems to be no earthly reason why the study of factory hygiene and the prevention of occupation diseases, inaugurated by the Prudential Life Insurance Company under Mr. Hoffman's brilliant direction, should not be imitated and enlarged upon by all companies willing to do it. That to the companies considerable financial, and to the policy-holders considerable physical and moral benefit must accrue through such work, is evident. Professor Irving Fisher's recent eloquent plea for concerted action on the part of life insurance companies to lend their financial aid to the cause of preventive medicine, is certainly a wise and timely one.

I return now once more to the subject of treatment, and I confess that I am somewhat amazed at Mr. Hoffman's statement, already quoted above, wherein he says that in his opinion the true problem is one of prevention and not of cure. Does Mr. Hoffman forget that the two go hand in hand, and that when Mr. Frankel, Dr. Klebs, and I appealed to the insurance companies to help in the cure of the patients, what we had in mind was also very largely preventive work? Are not sanatoria for the cure of tuberculous patients the greatest existing factors in the prevention of the disease? By taking an individual who is tuberculous into an institution, a center of infection is suppressed. When discharged as cured or improved, the patient trained in all the prophylactic measures becomes a hygienic factor and a teacher in the community to which he returns.

Last, but not least, the sanatoria themselves are preventive factors in communities where they are established. Examples of this we have in the villages of Goerbersdorf and Falkenstein in Germany, Rutland and Saranac Lake in the United States, and of Gravenhurst in Canada, where the mortality from tuberculosis among the villagers has been reduced by one-fourth or one-third since the establishment of the sanatoria. The villagers have consciously or unconsciously learned from the sanatorium inmates cleanly, healthy, and preventive

habits. Surely every consumptive cured in the sanatorium, or under treatment combined with careful training outside of an institution, means more than one human being saved from contracting the disease.

In a communication received from the Metropolitan Life Insurance Company it would seem that at least this institution agrees with me on this point and is willing to try the experiment. Here is the communication from Lee K. Frankel, Ph.D., manager of its industrial department:

"If the law permits it, it is the purpose of the company in the near future to erect a tuberculosis sanatorium which primarily shall be for the treatment of the employees of the company, and if experience warrants it and justifies it, for the treatment of policy-holders. I need hardly say that no one sanatorium would be sufficient for the treatment of all tuberculous policy-holders of the company, and we shall always find it necessary to cooperate with the existing institutions, sanatoria, etc., to secure necessary treatment."

If the Metropolitan Life Insurance Company is able to carry out its project, I am so convinced of its success and so sure that other companies will follow its example that I believe there will be no more need for me to plead for insurance of predisposed or incipient tuberculous adults or insurance against tuberculosis in healthy adults. However, in spite of Mr. Hoffman's criticism, in the March number of the *Medical Examiner*, that the suggestion I made in 1902 to insure the children against tuberculosis was impracticable, I will renew to-day my plea for the children and somewhat enlarge upon this topic.

Tuberculosis is so prevalent that all students of the subject now freely admit that hardly any one of us passes through life without having had at one time or another a little tuberculosis in our system. The majority of children, whether they contract tuberculosis from bovine or human sources, contract it in early life—the first two years. It very often then becomes latent or cured. When it manifests itself, it does so between the ages of 6 and 14—the school age. It is during these years that the morbidity and mortality of tuberculosis is greatest among children. Of course, we know that the badly ventilated or dusty school room, the overtaxing of brain and nervous system to the detriment of the physical welfare of the child, is largely responsible for this fearful condition. We would, of course, not exclude as a strong predisposing cause, the underfeeding and bad housing of some of the children at home. But because we know the reasons of the fearfully great morbidity and mortality from tuberculosis among children, is it not all the more our duty to work for the prevention and cure for the child of to-day which will be the man of to-morrow?

Mr. Hoffman, in his gentlemanly criticism of my proposition to insure children against tuberculosis at 50 cents a month from the birth of each child, which would give to the insurance companies at the end of fifteen years, with accrued interest, a capital of $150, says that I had "overlooked the fact that it would be practically impossible to induce the mass of people to contribute to institutions for the treatment of disease from one particular cause, however common that cause might be." Mr. Hoffman was probably right in making this statement as applied to conditions some years ago; but if he had the chances which I have and all those of us have who constantly work in tuberculosis, he would be amazed what an awakening there is to-day among the people as to the dangers of tuberculosis to themselves and their children. Many would gladly pay 12½ or even 25 cents a week to feel that if their child should ever contract tuberculosis, it would be given at once the best possible chance of recovery. This desire to protect the child from falling a victim to the Great White Plague will be tenfold increased in those parents who are themselves afflicted. But I can assure Mr. Hoffman that the very masses who avail themselves of industrial insurance facilities are now keenly alive to what it means and what it costs to have a tuberculous child or to become a tuberculous invalid, and that whatever sacrifice is made in the line of insurance will amply be repaid when the White Plague knocks at the door.

In 1902, at the time I ventured the suggestion of insurance of children against tuberculosis and pleaded for timely sanatorium treatment in case they contracted the disease, I collected, for an article entitled "The Antituberculosis Movement in the United States in 1902"* the following statistics: Five states and five cities had societies for the prevention of tuberculosis. There was no national association. To-day, there exist in the United States 290 antituberculosis associtaions, and our National Association for the Study and Prevention of Tuberculosis, only five years in existence, has a membership of 2,100. In 1902, throughout the states we had about 60 tuberculosis institutions; to-day, our association's efficient secretary, Dr. Livingston Farrand, reports the existence of 298 institutions, hospitals, or sanatoria where patients are housed, boarded, and kept under constant medical supervision.

At the time I made the above mentioned report, New York was the only city which had a special tuberculosis dispensary. To-day, there are no less than 222 tuberculosis dispensaries throughout the United States. Compulsory notification of tuberculosis was tried in New York in 1904 as an experiment and was met by considerable opposition by some of the most prominent New York physicians.

What is the status of this all-important question to-day?

Twelve States, including the District of Columbia, have special laws regarding the reporting of tuberculosis. Nine States require the reporting of tuberculosis by including the disease with other infectious or contagious diseases. Total: 21 States.

Thirty cities have passed special ordinances requiring the reporting of tuberculosis. Fifty cities have ordinances or regulations requiring the reporting of tuberculosis, including it in the category of contagious and infectious or dangerous diseases. Total: 80 cities.

Five cities request the reporting of tuberculosis.

Of the State laws now on statute books requiring the reporting of tuberculosis, nine have been passed since January 1, 1908; all of them special Acts, dealing with tuberculosis only. Ten cities have made the notification of tuberculosis compulsory since January 1, 1908.

In 1904 there was held in Baltimore the first tuberculosis exhibition in the United States; in 1906, New York created a second tuberculosis exhibit. Since then a traveling tuberculosis exhibition has been created by the National Association

*"Tuberculosis," official organ of the International Tuberculosis Association, Vol. I, Heft 8, August, 1902.

for the Study and Prevention of Tuberculosis, and it has visited nearly every State of the Union. Smaller permanent exhibits are seen in the various large cities. The International Tuberculosis Congress Exhibition, which was shown in New York, Washington, and Philadelphia, and which has been visited by millions of people, must still be fresh in your memory as well as the impulse it gave to the antituberculosis movement in this country.

Surely, after this awakening of the public mind to the situation, I may venture to say that an insurance company which will start the insurance of children against tuberculosis is bound to meet with success. Of course, the special education of the masses concerning the prevention of tuberculosis in childhood must also become a part of the duties of the insurance agent, and the propaganda for more rational curricula less detrimental to the physical development of our children, more playgrounds, more seaside and more inland sanatoria for the treatment of tuberculous children, more open air schools and more outdoor instructions in general, must form part of the public prophylaxis and care to which life insurance companies in general should give their moral and financial support.

I do not believe it is wise to prophesy the eradication of tuberculosis within so short a period as some enthusiasts have recently proclaimed. But, on the other hand, I am convinced that with the life insurance companies to help in the prevention and cure of tuberculosis not only in the adult, but particularly in the child, the time for the eradication of the disease may be brought much nearer. I do not believe in the hue and cry against soulless corporations. Insurance companies are corporations. They are in the business for whatever money they can make; but by helping to educate and awaken the masses to the danger of tuberculosis, by using their agencies to prevent the spread of the disease, and eventually also by creating sanatoria and aiding existing ones, curing thus a goodly number, they are doing the greatest humanitarian work. If in addition they will use their surplus earnings for the building of model tenements in cities, or individual model homes in suburbs or country for laboring men, they will be one of the greatest factors in the reduction of other diseases as well as tuberculosis, and in improving the social conditions of thousands of honest workers, thus doing away with much of the social misery and social discontent of our times.

It has been my privilege during the past year to come in contact with the officers of various insurance companies, and it has been my equally great privilege to address, on one occasion, several thousand insurance agents on what I conceive to be their sacred duties in this holy war against the Great White Plague. The eagerness and earnestness with which they listened, the enthusiasm they manifested when they were invited to cooperate, has ever since been an inspiration to me. I know now that there are insurance corporations and insurance employees who have souls, and I also know that you who are associated with them as physicians and advisors, will know how to inspire them to great deeds and will lead them on to victory over the Great White Plague.

16 West Ninety-fifth Street.

Simulated Tenderness.—To differentiate a tender spot from a simulated pain, it will often be observed that pressure on the former causes a decided increase of pulse rate, while in simulation it does not.—*American Journal of Surgery.*

PELLAGRA, WITH REPORT OF NINE CASES.*

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Pellagra is a toxemic disease of endemic occurrence, very common in Italy and other countries adjacent to the Mediterranean Sea. It is thought to be caused by eating fermenting or otherwise damaged corn meal. Its development is favored by insufficient and unsuitable food, unhygienic surroundings, and a warm and moist climate.

The disease is clinically characterized by gastrointestinal disorders, salivation, general malnutrition with emaciation, a rough, erythematous inflammatory thickening of those parts of the cutaneous surface exposed to sunlight, and by serious disturbance of the functions of the peripheral nerves, spinal cord and brain. The disease in its more acute form runs its course in a few weeks to a few months. The mortality, especially in the acute form, is high. Recovery occurs but relapses are frequent. Many of those who develop pellagra are committed to hospitals for the insane, on account of the associated mental disorder.

Pellagra had until recently been unknown in the United States. The circumstances of its first recognized appearance were these: The Alabama State Insane Hospital for negroes, located at Mt. Vernon, Mobile County, was opened in 1901, several hundred patients being transferred to the institution from the Insane Hospital at Tuscaloosa. During the succeeding four years there occurred during the summer months occasional cases of gastrointestinal disorder presenting some peculiar features, which were thought to be scurvy-like in character, and resulted in efforts toward the improvement of the dietary. During the summer of 1906 the cases of gastrointestinal trouble and malnutrition became so numerous and so fatal, and presented such unusual and in themselves characteristic features, as to convince the medical staff that they had a new clinical problem to deal with. After long-continued study and observation of the cases in the institution, the assistant physicians of the Mount Vernon Hospital, Drs. Geo. H. Searcy, E. L. McCafferty, and J. H. Somerville, made the diagnosis of pellagra. In view of the facts that at that time the disease had never been known to develop in this country, and that our text-books and reference books either made no note of the disease or dismissed the subject, after brief consideration, with the statement that pellagra was not met with in the United States, this was a good piece of diagnostic work and, as such, is entitled to recognition.

A preliminary report upon this epidemic of pellagra was made by Dr. Geo. H. Searcy to the Medical Association of Alabama at Mobile in April, 1907, and immediately attracted the attention of the medical world. A few months later the report of Babcock and the resident staff of the South Carolina State Insane Hospital at Columbia fully confirmed the work of Searcy and his associates. Since then the additional reports of Searcy, McCafferty, and Rudolph, and the corrobative work and observations of Wood, Campbell, Randolph and others have demonstrated beyond peradventure that pellagra not only occurs in the Southern United States, but that

*Read by title at the meeting of the American Neurological Association, New York City, May 27-29, 1909.

it is by no means uncommon, that it is widely distributed, and that the problem of its etiology, pathology, prevention, and treatment is of sufficient practical and present importance to merit the attention of all of those interested in the eradication and cure of preventable disease.

Pellagra was, in this country, first recognized in insane hospitals. The nervous symptoms are prominent and characteristic and it is reasonably certain that many of the cases will fall into the hands of the neurologist and alienist for treatment—facts which have led me to believe that the subject might prove interesting to the members of the American Neurological Association.

My own experience with the disease has been as follows: My duties as trustee take me to the Mount Vernon Hospital from time to time. On one or two of these occasions during 1906 I was shown cases of the puzzling disease. I did not recognize its nature, but expressed the view that it was a scurvy-like condition, probably due to faults in diet and sanitation. I contributed nothing material toward the making of the correct diagnosis, but I did become interested in the disease, obtained pathological material from fatal cases for microscopic study, and in October, 1907, after the disease had been recognized as pellagra, went to Mount Vernon and made a postmortem examination in a fatal case, taking portions of the central nervous organs, the skin, stomach, intestines, liver, spleen, heart, kidneys, and muscular tisse for pathological study.

I also began a careful study of the cases of nervous disease coming into my hands for treatment to determine the question of the occurrence of pellagra outside of the insane hospitals. Nearly a year passed, however, before anything resembling it appeared in my private work. Then, in the late summer of 1907, a patient (Case I) was sent to me by one of my up-country friends for treatment for "some spinal trouble," and the case was at once recognized as presenting the same clinical picture as did those at Mount Vernon. In January, 1908, the second case was seen and then from August, 1908, to March, 1909, seven more cases of pellagra occurred in my practice. These nine cases are briefly reported below:

Case I.—Female, aged 19. Had poliomyelitis anterior five years ago which left the left leg in a condition of partial paralysis. Has lived on a farm and suffered some from malaria. In the summer of 1906 she became nervous and neurasthenic, but improved during the winter. With the oncoming of hot weather in 1907 she grew worse again. Had for several months been despondent, easily irritated, restless. Has shown "nervous twitchings" in muscles of face and upper extremities. During the same period has had indigestion and has slowly lost in weight. Has not menstruated in three months.

August, 1907.—She is pale and sallow, but not greatly emaciated. Urine contains casts and a trace of albumin. Blood shows no malarial parasites; hemoglobin, 85 per cent. Tongue is red, moist, coated in center, breath offensive. Patient expectorates continually, has gaseous eructations, complains of tenderness in the pit of the stomach, has no appetite, is now constipated, but has had attacks of diarrhea.

The skin of the backs of the hands, knuckles, elbows, and dorsal surface of feet is rough and was "red early in the summer," her mother says. The left lower extremity is smaller, shorter, and colder than the right, muscles atropied, marked contracture; tendon reflex is absent (this condition due to an earlier poliomyelitis). In the right lower extremity and in both upper extremities the tendon reflexes are exaggerated and fibrillar twitching is marked. Muscular strength slight, sensation unimpaired, special senses normal. Speech somewhat slurring and indistinct, conspicuous twitching of muscle fibers in tongue and lips. The mental state is one of mild depression, with emotional instability and a general lowering in intelligence.

The patient grew slowly worse, vomited her food, had irregular rises of temperature. Mental state became one of dementia and extreme despondency. Emaciation was extreme. Toward the close the backs of the hands and wrists as well as the feet and ankles showed a rough, red sunburn-like erythema. The patient died four months after she came into my hands. She had probably had the disease for eighteen months at least.

Case II.—Man, 47 years old. Gives a history of dyspepsia, excessive salivation, diarrheal attacks, general ill health, and nervousness extending over several years—better in winter, worse in summer.

Jan., 1908.—Is emaciated and weak; tongue red, much secretion of saliva, complains of indigestion, and has diarrhea; nothing agrees with him. Skin of hands, wrists, and especially knuckles red, rough, and cracked; has occasionally been that way for several years, he says. Patient is despondent, apprehensive, self-centered, restless, a little demented. Is tremulous, weak, and keeps to his room, although not continually in bed. Fibrillar twitching of the muscles of lips and tongue is well shown; all tendon reflexes are lively; sensory disorders are not demonstrable. Patient remained unchanged for a month or two, then grew worse and died. This was a chronic case of indefinite duration—probably a number of years.

Case III.—White woman, age 40, married, and has ten children. Had severe indigestion about twelve years ago, lasting two years. Three years ago began suffering from indigestion again, and has not been free from it since. Has lost forty pounds in weight, has had repeated attacks of diarrhea, has grown very melancholy and apathetic. August, 1908. The skin of the knuckles and wrists is rough and red. Muscles are weak and the least exertion is very prostrating. Fibrillar tremor is shown in lips, tongue, and extremities, tendon jerks are exaggerated, voice is tremulous, and articulation is impaired. Mental state, a mild melancholia with distinct dulling of intelligence.

This patient has improved a little since she first came under observation sixteen months ago, and is at last report "holding her own" at least.

Case IV.—White woman, age 36. Brought to the Inge-Bondurant Sanatorium for treatment in August, 1908, in a condition of extreme physical and mental weakness, and died five days later.

She had had an attack of "nervousness" two years ago—a neurasthenia, from which she apparently recovered. Last summer she was again nervous and ailing, had "bowel trouble," but grew better in the fall. This summer she again got sick, had "stomach and bowel trouble," lost in weight, became unusually nervous, despondent, and then feeble minded and delirious. Became too feeble to walk several weeks ago. At the time she came into the sanatorium she was confused, delirious, disoriented, incoherent. Lips and tongue tremulous, twitching in muscles of extremities, tendon jerks

lively; no satisfactory test of sensation possible. The skin of the hands, wrists, knuckles, and elbows was rough, dark red, dry, and harsh.

This patient probably suffered from pellagra one and possibly two years, if the attack of "nervousness" in the summer of 1906 can be regarded as an early manifestation of the disease,

Case V.—Woman, aged 39. Brought to me in December, 1908, for treatment for mental disorder. Has been growing nervous, eccentric, and abnormally religious during several years, and shows distinct religious, self-condemnatory, and persecutory delusions for the three months past. Has been in bad health, lost in weight, suffered from dyspepsia and diarrhea.

There is a typical rough red, pellagrous erythema on backs of hands, wrists, knuckles, elbows, and malar eminences. Tongue and oral mucous membrane are red; salivation is abundant; slight rise of temperature. Blood: hemoglobin 70, no corpuscular abnormalities. Urine contains a trace of albumin and some finely and coarsely granular casts, sp. gr. 1.020, daily quantity small. Patient is emaciated and cachectic. Mental state is one of religious exaltation with delusions and auditory as well as visual hallucinations. Muscular strength is greatly diminished. There is a coarse tremor in upper extremities; fibrillar tremor of lips and tongue; twitching in isolated muscle groups in the lower extremities. Sensory disorders not elicited; special senses normal. All tendon reflexes are exaggerated.

The patient was sent to the sanatorium and was put to bed. She ran an irregular and not characteristic rise of temperature; had no appetite and suffered from gastric inefficiency. Salivation was marked. The mental disorders soon assumed the character of a babbling delirium. Weakness, muscular twitchings, and incoordination, as well as reflex exaggeration, increased. Toward the end the patient became stuporous. She died four weeks after admission to sanatorium.

Case VI.—Woman, aged 37, married: has several healthy children, and showed no nervous disorder until the summer of 1908, when she had "malarial fever," bowel disorder, and indigestion. Has never been well since. Was emaciated and has had "stomach trouble." In November, 1908, had "slow fever." With these evidences of physical disease, there were marked nervousness, emotional instability, fits of despondency, irritability, and, following the attack in November, a development of religious fervor and enthusiasm which soon eventuated in religious delusions. The patient also became confused, talked a great deal, and showed some incoherence. At times she had persecutory delusions. In this condition she was brought to the Inge-Bondurant Sanatorium in January, 1909, the following symptoms being shown at the time of admission: Emaciation and weakness marked. Temperature, 99.5° F. Blood: Hb, 85; no parasites nor corpuscular abnormalities. Urine contains numerous casts of all varieties and a small amount of albumin. Is scanty in amount and high colored. Tongue red; salivary secretion abundant; appetite and digestion deficient; evident gastritis; bowels loose. Skin of hands and elbows rough and dark, but no active erytherma. Mental state one of delirium with incoherence, religious ideas dominating. There were conspicuous tremor of lips and tongue, a slurring articulation, fibrillar twitching, and coarse tremor and incoordination in upper extremities, muscular weakness, exaggeration of the tendon reflexes, decided ankle clonus. Sensory and special sense abnormalities not demonstrable.

The patient showed an improvement in the mental state, the talkative delirium subsiding, but there remained some religious delusions and easy excitability. After a few days the delirium returned and continued until it passed into a muttering stupor a few days before death occurred, five weeks after admission. The fibrillar tremor, slurring speech, and reflex exaggeration became more marked as the case progressed. There was a gradual increase in temperature (104° being recorded). There were no parasites in the blood and the fever was unaffected by quinine.

Case VII.—(Seen in consultation with Dr. H. T. Inge). Woman, age 30, married; has healthy children, no previous history of nervous disease. Taken sick during the summer of 1908 with malaria and gastrointestinal disorder. Improved, but in November grew very nervous and weak and began showing mental disorder. At the time of examination she had a typical pellagrous erythema on the hands and face. Tongue and lips were red and raw looking. History of salivation and attacks of diarrhea, together with much indigestion. Mental state: a mild, confusional condition, with apathy, occasional irritability, and excitement—no distinct delusions. There was no sensory disorder. The gait was uncertain, but not characteristic. Muscular weakness noticeable; also fibrillar twitchings and tremor in muscles of extremities, as well as in lips and tongue. Deep reflexes exaggerated; imperfect ankle clonus.

The patient passed into a state of muttering delirium, became more tremulous and weak, and died two weeks after first examination was made.

Case VIII.—Woman, unmarried; good family and personal history. During the summer of 1908 had a severe and persistent chronic diarrhea, with indigestion, salivation, red tongue, nervousness, emaciation, and a rough, red eruption on hands and face. She got better, then had a relapse in the early fall; again improved, to relapse again, and was then brought to me on account of the development of conspicuous mental defect and aberration. When seen, eight months after the onset of the attack, she was emaciated, not anemic, had no malarial infection, no albumin nor casts in the urine. The integument of the hands, forearms, elbows, and knuckles was a little rough and thick, but showed no typical redness. Lips and tongue were red, salivary secretion was abundant, no desire for food, gaseous eructations, vomiting of food, and general gastric discomfort. The patient was oriented as to time and space, but intensely despondent, and showed a continual stream of persecutory and self-condemnatory delusions; she was restless, moaned, exclaimed, and bewailed her condition, her sins, her misfortunes, etc. She was weak, gait unsteady, not spastic, slight tremor of tongue and lips, none in muscles of trunk or extremities, all tendon jerks exaggerated, no ankle clonus nor Babinski sign. The patient remained six weeks in the sanatorium, making no improvement, and was then transferred to the State Hospital for the Insane.

In this case there was a typical history of pellagra, with partial subsidence of the symptoms before the patient came under my care.

A sister of this patient had an attack of pellagra —eruption, gastrointestinal disorder, salivation, nervous and mental disorder, all typical—in the

summer of 1907. She made a complete recovery and showed no evidence of pellagrous disease or nervous disorder at the time she brought her sister (the patient above spoken of) to me for treatment.

Case IX.—Woman, aged 33, married; has three healthy children; family history neurotic. Patient was in good health and free from nervous disorder prior to this attack. In April, 1908, she developed an erythema on the backs of the hands and on the fingers. At the same time her mouth "got sore," as if she was salivated. After several weeks the eruption and the salivation subsided. During the summer she had two relapses—*i.e.* the red eruption on hands and the "sore mouth" returned, to subside again in each instance after a few weeks. During the hot months she had dyspepsia and lost in weight, had repeated attacks of diarrhea; also grew nervous and irritable, had fits of despondency, and in October showed mental impairment with delusions. Since then, with occasional periods of partial subsidence, she has grown slowly worse and for a month past has been delirious.

January, 1909, she shows a typical pellagrous eruption on the hands, wrists, and elbows, and a slight redness and roughness of integument of the malar eminences. Tongue and lips are red, saliva is abundant, there is tenderness in the stomach with gaseous eructations, no appetite; is emaciated. Lips and tongue twitch, articulation is slurring, tremor of hands, and some incoordination. All deep reflexes are exaggerated, no spastic rigidity noted, no Babinski sign, no sensory nor special sense abnormalities. The patient is semidelirious, restless, frets and cries, complains of ill treatment, thinks she is to be killed, accuses herself of misconduct, at times becomes wildly excited and noisy, at other times lies quiet and in a half stupor.

The patient improved rapidly, her mental state became nearly normal, the eruption faded, her gastrointestinal symptoms almost disappeared. She was taken home after a month in the sanatorium. A few weeks after her return home all of the gastrointestinal nervous, mental, and cutaneous abnormalities returned, she lost rapidly in strength, and died two months after discharge from the sanatorium.

The diagnosis in all the above cases was based upon the coexistence of oral, gastric, and intestinal irritation with salivation, indigestion, and diarrhea; erythematous eruption (or history of the same) on hands, face, or elsewhere; mental and nervous disorders indicative of a toxemic irritation of and subsequent degenerative change in the cells of the central nervous organs, notably the cortex cerebri.

In all of these cases the nervous symptoms were most in evidence. My work being limited to nervous and mental disease, it is to be expected that only cases showing nervous disorder would fall under my observation. It is also to be noted that all of these cases were in the last stages of the malady before they came into my hands. Most of them terminated fatally within a week to a few months after I first saw them.

The cases reported are too few in number to warrant the drawing of any general conclusions as to the clinical characters of the associated nervous disorders or of "pellagrous insanity," if it is desirable to employ this term. I feel, however, tempted to make these tentative generalizations: The nervous disorder develops with or shortly after the initial stage of the disease and is in the beginning not characteristic. A neurasthemic symptom complex is frequent. At a later period emotional instability with despondency, often interspersed with periods of excitement, occurs. The delirium-like nature of the mental disorder seems a feature, the psychic symptoms not being readily grouped under any of the usual heads of a classification of insanity. In still later stages some cases suggest an atypical general paresis, the mental defects, slurring speech, and tremulous lips and tongue being a somewhat constant feature. In general, emotional depression predominates, but acceleration of thought processes and exaltation with frequent religious delusions are noted, suggesting in some instances an insanity of double form. A history of remissions and relapses is notably frequent.

Neurotic heredity was not a factor in the above cases. Most of them had previously shown no nervous or mental instability prior to the beginning of the pellagrous disorder.

My belief is that the mental symptoms are those of a toxemic delirium, due to action of poisons upon the nerve cells with eventual progressive degeneration in the cells of the cortex.

The associated nervous disorders, due to disease in the projection neuron mechanism, are chiefly fibrillar tremor and twitching in the muscles of lips, tongue, and extremities, increased muscular irritability, muscular weakness, and probable atrophy, with exaggeration of the deep reflexes. Sensory abnormalities are not conspicuous.

Reference has been made by several recent American writers to certain differences in our cases from those reported abroad, especially to the acute course and high mortality of the American pellagra. I venture to suggest that the seemingly rapid course and early fatal termination in American cases is due to the fact that the incipient and early stages are as yet not often recognized, the diagnosis being made only in those severe and typical cases which have already progressed to a threatened fatal termination before their nature is discovered.

The morbid anatomical changes shown in the three cases from the Mount Vernon Hospital studied by me may be briefly summarized as follows: Inflammatory reaction in the skin, gastritis, enteritis, fatty infiltration and degeneration of the liver, parenchymatous degeneration of the heart muscle, renal epithelium, and the cortical nerve cells. There are also general emaciation, diminution in size of most of the organs, evidences of malnutrition, some fibroid thickening, and arteriosclerosis.

In all of my cases there is the history of the liberal use of corn meal as food, and most often it is claimed that a "good Western meal" is used, or "meal ground from Western corn." At the Mount Vernon Hospital, where the largest number of cases has occurred, Western corn is used exclusively. This corn is shipped in bulk, sometimes becomes "heated" and the meal is in some instances quickly mould-infected and sours readily. I have no evidence to offer as to whether or not the eating of damaged meal is the cause, or the only cause, of pellagra.

As to the frequency of pellagra at this time in Alabama, I will say that the nine cases here reported represent all instances of the disease seen by me from August 1, 1907, to May 1, 1909. During this period—twenty months—I received for treatment or saw in consultation 590 cases of nervous disease. All of my cases occurred among white persons, but since I have practically no negro patients this fact does not indicate any special sus-

ceptibility among the whites. In fact, the statistics of our two State insane hospitals would seem to show a much larger amount of pellagra among the negroes. At Mount Vernon, where the insane negroes are cared for, there have been some 150 cases of recognized pellagra—usual population less than 600. At Tuscaloosa, where the white insane are treated, usual population 1,400, there have thus far been found only about 25 cases of the disease. Randolph, from the Florida State Asylum at Chattahooche, where both white and colored patients are under care, reports a greater amount of pellagra among the whites.

How long has the disease prevailed in the South? My belief is a few years only. The clinical picture of the disease is definite and characteristic and once seen is easily recognized. Nothing resembling it was known at Tuscaloosa during the decade preceding the opening of the Mount Vernon Hospital, when the negro insane as well as the whites were provided for in the Tuscaloosa Hospital. Shortly after the negroes were moved in a body to Mount Vernon the disease appeared and, while its true nature was not recognized, its unusual character at once attracted attention. If the disease had existed it would have been sooner diagnosed.

I have practised in Mobile for eleven years, seeing several hundred new patients each year. Looking over my clinical records and passing my cases in mental review, I can see none in which the diagnosis of pellagra would be justified prior to August, 1907.

I recognize, fully, gentlemen, the superficial character of these studies in pellagra. I record these cases as a small contribution toward the elucidation of a new and seemingly important pathological condition. I bespeak your attention to the disease, for it is those especially concerned in the treatment of nervous and mental diseases who are likely to see most of the cases.

166 Conti Street.

THE VALUE OF MICROSCOPICAL EXAMINATION OF THE PROSTATOVESICULAR SECRETION IN THE DIAGNOSIS AND PROGNOSIS OF GONOCOCCUS INFECTION.*

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It is exactly two years since I had the privilege of reading before this Association a paper, entitled, "A Brief Study of the Prostate, With Reference to the Curability of Gonorrhea."† The conclusions arrived at, in that study of fifty-five cases of chronic gonorrhea, were briefly as follows: That the recurrent and apparently incurable cases of gonorrhea in the male, are those in which the gonococci remain latent in the prostate and its annexa; that the urine passed by the patient may be clear as crystal, and yet gonococci may sometimes be found in it; that even though the urine be clear and gonococci are not found in it, examination of the massaged prostatic secretion will often reveal the presence of gonococci and inflammatory detritus; and lastly, that the examinations must be made repeatedly before we can decide with a reasonable degree of certainty whether or not gonococci are present in the organ. This paper was followed by another‡ in which the same subject was discussed at greater length.

In the last two years, I have had the opportunity of studying fully three hundred cases of male gonorrhea, with particular reference to the tenacity and persistence of gonococci in the prostate. The great majority of these cases have presented no unusual features, and have not been of any special interest in the present connection. Only those cases in which three or more examinations were made, have been included in this paper. I have selected thirty-five cases, for the basis of the present paper, because these cases have emphasized certain features of this subject that are of more than passing interest. From three to nineteen examinations of massaged secretion were made in each of these cases (see Table 1), a total of two hundred and forty examinations. These cases have been divided into two classes: (1) those that showed clinical symptoms and came to be treated for them—twenty-one in number, and (2) those that did not show clinical symptoms, but who came for examination for some other complaint, or for advice preparatory to marriage—fourteen in number.

TABLE 1

Number of Examinations	Number of Patients
3 each	6
4 "	10
6 "	1
7 "	5
8 "	3
9 "	4
10 "	3
13 "	1
19 "	2
Total, 240.	35

I feel fortunate in having been able to see so many of the latter class, for apart from the interest inherent in the purpose of their visits, was the fact that they brought home in a most startling fashion, the well-known but apt-to-be-forgotten fact, that once a man has had a gonorrhea involving the deep seated structures, he need not be surprised to find gonococci in his prostatic secretion months and even years after all traces of the disease have disappeared; also that such a man might have gonococci in his prostate for many years without being troubled by them in the least. It is usually stated that gonococci do not survive in the prostate for more than one to three years.§ A survey of Table 2 will show that in the fourteen patients of this division, who did not complain of any symptoms referable to their past gonorrhea, gonococci were found in six (43 per cent); in a total of 95 examinations in these patients, gonococci were found 9 times (9 per cent), and the period that elapsed between the last gonorrhea and the examination varied from six months to eighteen years, an average of about four years. If these figures mean anything, they mean that gonococci may persist in the prostate for much more than three years, and that a fair proportion of the men who have had gonorrhea and who have apparently entirely recovered, still harbor gonococci in the prostate, which might be revealed if a sufficient number of examinations of their massaged prostatic secretions were made.

*Read at the eighth annual meeting of the American Urological Association, at Atlantic City, N. J., June 7, 1909.

†*New York Medical Journal*, March 17, 1908.

‡*New York Medical Journal*, March 20, 1909.

§Archiv. für Dermatologie und Syphilis, 1904.

TABLE 2

Case	Last Gonorrhea	No. of Examinations	Results of Examinations	+	−
No. 1	2 yrs. ago	13	1st: +; all the rest: −	1	12
" 2	1 " "	7	All negative	..	7
" 3	18 " "	19	First 12: −; 13th: doubtful; 14th and 15th: + (after Ag.); 16, 17, 18, 19th: + (after Ag.)	3*	15
" 4	4 " "	3	All negative	..	3
" 5	3 " "	8	1st, 2d, 3d: −; 4th: +; 5, 6, 7, 8th: −	1	7
" 6	4 " "	7	All negative	..	7
" 7	3 " "	9	1st, 2d, 3d, 4th: −; 5th: +; 6, 7, 8, 9th: −	1	8
" 8	2 " "	4	All negative	..	4
" 9	½ yr. "	8	" "	..	8
" 10	4 " "	3	" "	..	3
" 11	6 " "	3	" "	..	3
" 12	3 " "	4	" "	..	4
" 13	2 " "	4	1st, 2d: +; 3d, 4th: −	2	2
" 14	3 " "	3	1st, 2d: −; 3d: +	1	2
Total	.....	..	.....	9	85

Note. + represents a positive finding; − a negative.
*Doubtful, 1.

In the twenty-one cases of chronic gonorrhea, with symptoms, the figures are equally interesting (see Table 3). It will be observed that a total of

TABLE 3

Case	Duration of Attack	No. of Examinations	Results of Examinations	+	−
No. 1	2 years...	10	All negative	..	10
" 2	4 months.	4	" "	..	4
" 3	1 year....	7	1st: +; all the rest: −	1	6
" 4	5 months.	4	All negative	..	4
" 5	3 "	19	" "	..	19
" 6	1 year....	3	" "	..	3
" 7	20 years...	4	" "	..	4
" 8	3 months.	4	1st, 2d, 3d: −; 4th: +	1	3
" 9	3 "	7	All negative	..	7
" 10	2 "	4	1st, 2d, 3d: −; 4th: +	1	3
" 11	1 year....	8	All negative	..	8
" 12	1½ years..	4	1st, 2d: −; 3d: +; 4th: −	1	3
" 13	3 months.	3	1st: −; 2d: +; 3d: +	2	1
" 14	1 year...	10	1st, 2d, 3d: −; 4th, 5th: +; 6th: −; 7th: +; 8, 9, 10th: −	3	7
" 15	8 months.	6	All negative	..	6
" 16	10 years...	7	1st, 2d, 3d, 4th: −; 5th, 6th: +; 7th: −	2	5
" 17	5 " ...	9	1st, 2d, 3d, 4, 5, 6, 7th: −; 8, 9th: +	2	7
" 18	3 months.	9	1st, 2d: −; 3d, 4th: +; 5, 6, 7, 8, 9th: −	2	7
" 19	1 year....	10	All negative	..	10
" 20	½ "	4	" "	..	4
" 21	1 "	9	" "	..	9
Total	.....	145	.....	16	129

Note. + represents a positive finding; − a negative.

145 examinations were made in these twenty-one cases, an average of seven for each patient—three examinations being the lowest in any case, and nineteen the highest (case 5). In these 145 examinations, gonococci were found sixteen times (11 per cent), and they were found in ten patients of the twenty-one examined (50 per cent). The duration of the existing gonorrhea varied from two months to twenty years. Most of these patients gave a history of repeated recurrences at more or less frequent intervals, and all gave the typical subjective and objective symptoms of chronic gonorrhea. Some were complicated by stricture, and all of them showed ample evidence of the presence of a chronic prostatitis. It is interesting to note that case 3 in table 2, and case 5, in table 3, had an equal number of examinations made, *i. e.*—19. In the former there were no symptoms of chronic gonorrhea; in fact, though the man was of unusual intelligence and ability, he was persistent in his denial of any gonorrheal history. He was being treated for suspected prostatic hypertrophy with cystitis, and gonorrhea was not even suspected. In this case gonococci were found on the fourteenth and nineteenth examinations after deep instillations of one percent silver nitrate. In the other patient, there was a clear-cut history of gonorrhea with symptoms, lasting three months, first attack. Here where one would expect to find gonococci, none was found after nineteen tests. Specimens of the morning urethal discharge were likewise negative.

Method of Examination: The object of the examinations being to determine the persistence and tenacity of the gonococci in prostatic secretion, and nothing else, the urethral discharges, if any were present, were examined, but have not been considered in this study. Nor was any attempt made to differentiate between the secretion from the prostate and from the seminal vesicles. These examinations were made at intervals varying from three days to two weeks, and most of them were made in the course of the treatment for chronic gonorrhea. If the urine passed by the patient was clear, this was considered sufficient cleansing of the urethra for the elimination of urethral matter; if the urine was not clear, the urethra and bladder were irrigated without a catheter before massage of the prostate. Of course, this method does not guarantee to the point of scientific accuracy, that there was no urethral contamination, but this risk was shown to be not as great as might be expected. This was made evident in a number of cases with a well-marked urethral discharge which contained gonococci; the massaged secretion from the prostate did not show the presence of gonococci. If contamination were to occur these would have been the cases in which gonococci should have been found in the prostatic specimen. And *vice versa*, in several cases with a morning discharge, which was examined and gonococci not found, the prostatic secretion did show the presence of gonococci.

The examination is facilitated by having the patient stand with his body bent forward, his hands resting on the seat of a chair in front of him. The operator holds a clean slide close to the urinary meatus, with one hand, while the other performs the massage. In this manner, we catch the prostatic fluid as it drops from the urethra. If there is a foreskin, it should, of course, be retracted out of the way. The amount of pressure necessary to bring forth the prostatic fluid varies with the condition of the prostate. If the organ is soft and highly congested, the slightest contact with the finger will often bring forth a gush of fluid that will quickly cover the entire surface of the slide. If the organ is small and hard, quite a good deal of muscular energy is required to get a drop or two on the slide. If the specimen is copious and thick, the excess should be permitted to drain off, and a drop or two of water added for dilution, otherwise the examination will be found unsatisfactory. The fluid is allowed to dry in the air, fixed in alcohol and ether, stained, and examined. If there is no flow from the prostate, the urine passed after massage may be centrifuged and then examined, but this method is not at all satisfactory.

This brings us to the perplexing question, "Does the microscope tell us to a certainty that the germ we see is the real Neisser gonococcus?" In other words, are we justified in regarding the Gram stain as absolutely certain? In this series of cases, the Gram stain was employed, and we have accepted the results obtained by the use of this stain as final and conclusive. There is no doubt that positive culture growths would have been more convincing, but in view of the difficulty inherent in the culture of the gonococcus, and considering the fact that these examinations are the duty of the practising physician or specialist rather than the bacteriologist,

I believe the Gram stain, conscientiously performed, should be accepted as sufficient for our purpose. All the examinations referred to in this paper were made at the Saxe Laboratory and examined and reported personally by Dr. De Santos Saxe, of this city. Dr. Saxe has also presented a paper at this meeting of the Association in which these examinations have been utilized and considered from a somewhat different point of view.

Early in the course of these studies, I found that the instillation of twenty or thirty minims of a one per cent. silver nitrate solution, into the deep urethra a day or two before the prostatic massage, would help to bring forth gonococci that might be hidden in the organ. This was beautifully illustrated in Case 3, Table 2, already referred to and reported at length. In this case after thirteen examinations of the prostatic secretion had been made with negative results, a deep instillation of silver nitrate was given, with the result that gonococci were discovered a few days later. After the effects of the silver had passed away and the reports from the Laboratory were again negative, a second instillation brought the gonococci to the surface for the second time. Since that time I have been alternating the instillations with the prostatic massage. I should also add that after the massage a bladder irrigation of a mild antiseptic was given in every case.

The results of these observations may best be summarized by answering certain questions that suggest themselves:—

(1) Does the presence of clear urine and the absence of clinical symptoms necessarily indicate that there are no gonococci in the prostate? No. Gonococci may not only be found in the prostatic secretion of such a patient, but they may also be found in the clear urine itself Example: Case 13, Table 2. First attack of gonorrhea two years ago, lasted about eighteen months. Four months ago was discharged as cured by the attending physician. Urine clear and sparkling. No discharge or other clinical symptoms. About to marry in two weeks. Came for examination. The morning urine passed by the patient had been examined in the laboratory of Dr. N. Kruskal, a careful observer, and gonococci were found. The prostate was found slightly congested. The secretion was examined and reported by Dr. Saxe to contain "few gonococci, occasional staphylococci, and a moderate number of pus cells." Of four specimens examined two were positive and two negative. Several other cases in this series had clear urine when the gonococci were found in the secretions.

(2) If the first examination is negative as to gonococci, is that to be considered as evidence that they are absent? No. In this series the positive findings were as follows: At the first examination, in three cases; at the second examination, in one case; at the third examination, in three cases; at the fourth examination, in four cases; at the fifth examination, in two cases; at the seventh examination, in one case; at the eighth examination, in one case; at the fourteenth examination, in one case. It will thus be seen that in all the cases except three the gonococci were discovered after the first examination, most of them after the third, fourth and fifth examinations.

Case 16, Table 3, will illustrate this point very nicely: Physician, 38, about to be married. Had his first and only gonorrhea ten years ago. Feels well, except for an occasional morning drop. Urine clear, with a few fine shreds, prostate and vesicles apparently normal. No stricture.

Record of seven examinations:

TABLE 4.

No. of Examination	Gonococci	Staphylococci	Streptococci	Pus Cells
1st	Absent	Absent	Absent	Few.
2d	"	Few.	"	"
3d	"	Moderate number.	"	"
4th	"	Numerous.	"	Numerous.
5th	Small number	"	"	"
6th	Moderate number	Moderate number.	"	"
7th	Absent.	" "	"	Mod. no.

It will be noted that coincident with the appearance of gonococci in the prostatic secretion, there is an increase in the other organisms present, particularly staphylococci; the pus cells are also increased in number. I do not recall a single case in this series in which there was not a secondary infection. I have learned to anticipate the early appearance of gonococci in a patient, whose examinations show a steady increase in the number of other bacterial elements and pus cells. This increase seems to be due to the inflammatory reaction that follows the prostatic massage and the silver nitrate instillations. In one case of this series (case 7, table 2), the appearance of gonococci in the prostatic secretion after the fifth examination was followed a few days later by the development of a rather violent posterior urethritis, which also involved the anterior urethra. Gonococci were very numerous in the urethral discharge. I regarded this case as being simply a reawakening of the old gonorrhea, brought about by artificial stimulation of the latent organisms—this being analogous with the recurrence which follows alcoholic or other excesses in these cases.

This leads us to the next question:

(3) Given a patient without clinical symptoms for a long time and apparently well, is it justifiable to stir up the genital tract in this way, in order to determine the presence or absence of gonococci? Shall we hunt for and dig up any hidden gonococci, or shall we let well enough (or bad enough) alone?

Opinions will differ as to what is best to be done. Some will say, get rid of the gonococci by all means if any are present, for you can never tell when they might awaken and cause trouble. Others, on the other hand, will advise leaving them alone, on the ground that they are not doing any harm, and they might remain quiet for all time. I confess to a feeling that there is virtue in both views. We must recognize the fact that a very large number of men who have had gonorrhea marry in course of time, and do not infect their wives; neither do they suffer from recurrences. If the gonococci persisted in the prostate for years in every case, and remained infectious all that time, after the gonorrhea had passed off, very few married women would escape gonorrheal infection. It is true, and it is a great pity and a crying shame, that a large number of innocent wives are infected by these latent gonococci, but fortunately these are in the minority. A good proportion do escape infection. It is quite possible that the gonococcus loses its virulence after the lapse of a long period of inactivity, and thus becomes innocuous—but how are we to know in any given case that such a happy state of affairs exists? It would seem that the safety of an innocent woman ought to outweigh any fears we might have of stirring up a new infection in an old gonorrheic. The risk of infection is too great to permit any man

to marry in the hope that his gonococci will prove innocuous, and since we are not in a position to say that certain gonococci are infectious and others are not, it is incumbent upon us to point out to those who come to us for advice, that all gonococci are dangerous, and that every possible effort should be made to remove them from any organ in which they might be found. To accomplish this, we should hunt the gonococcus and dig, and dig, and dig until we have found out to our complete satisfaction, whether or not the patient harbors any in his prostate; and if we find any, we should resort to all possible means to get rid of them—irrespective of whatever immediate results may follow. In this way, and in this way only, can we do justice to our patients and maintain a frank and clear conscience as to having done our moral duty to the best of our ability. If, under such circumstances, our patient should marry and his wife should become infected, we shall at least be able to say with truth, that we warned him of the possibility of such infection and took such measures as were within our power to prevent it. More than that we cannot be asked to do.

(4) But how are we to tell that there are no more gonococci in the prostate? These studies are convincing on one point at least, namely, that we cannot tell whether or not any given prostate harbors latent gonococci. Not to find them does not mean that they are not there. The only way in which we can be enlightened is by making repeated examinations with the microscope, or with the culture tube—and if we have made so many with negative results that we feel morally certain that further investigation would be of no avail, we may then, and then only inform our patient that we have gone to the limit of our searching powers and that we feel that further examinations would be useless. We may then declare the patient free to marry, with this reservation, that it is still possible for him to harbor gonococci which might at some future time awaken and resume their activity, and that he should be constantly on guard for the slightest sign of trouble. We should always bear in mind the difference between the patient not having gonococci, and our not finding any, and we should likewise at all times impress this difference on the minds of our patients.

Conclusions: As a result of these investigations, I feel safe in adding the following conclusions to those previously published: (1) A man may be "cured" of his gonorrhea, as far as symptoms are concerned, and his prostate and annexa may contain gonococci; (2) Gonococci may be found in clear urine; (3) gonococci may persist in the prostate for many years, and show no symptoms of any kind; they may not be infectious necessarily; (4) we cannot tell whether or not any given prostate contains gonococci, except by making a large number of examinations of the massaged secretion after stimulation and irritation by silver nitrate, etc.; (5) though it is conceded that cultures are more certain, when successful, than microscopic examinations, the army of practising physicians must rely upon the microscope for their results. Besides, a negative finding in a culture tube is no more enlightening as to the absence of gonococci in the prostate than is a negative finding on a microscopic slide. In either case the thing sought for has merely not been found, which is a different thing from saying that it is not there: (6) the gonococcus should be sought for until every means is exhausted. We cannot be too careful in making our examinations before permitting men to marry. The risk is too great to the innocent wife to consider this matter in any other than the most serious way. If the gonococci are to be stirred up and a possible inflammation aroused by the examinations, it is far better than leaving them alone to be stirred up at some future time after the man has married, and thus have his wife infected.

105 East Nineteenth Street.

A CASE OF MULTIPLE SCLEROSIS.

By CHARLES D. FOX, M.D.,

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In view of the recently recognized frequency with which multiple sclerosis develops after the occurrence of "idiopathic" retrobulbar optic neuritis the following case, in which this sequence happened, seems worthy of being reported.

When first examined by me the absence of nystagmus, intention tremor, or of any impairment of speech was so misleading that not any doubt was entertained relative to the accuracy of the diagnosis which was made at this time; namely, incomplete transverse myelitis. However, the rapid development of manifestations foreign to transverse myelitis and indicative of multiple sclerosis soon led to the recognition of the true nature of the disease.

Hysteria, which so frequently complicates as well as mimics disseminated sclerosis, made its appearance late. The diagnosis of this complication was based upon the occurrence of transitory, but almost total, paralysis—double hemiplegia: the induction of hypnoidal states by lateral fixation of the eyes; and upon the appearance of an apparently causeless series of syncopal attacks.

Unless the contraction of the visual fields be considered as a stigma there were no other evidences of hysteria, and the patient did not present the usual phenomena dependent upon the hysteric psychic state or temperament.

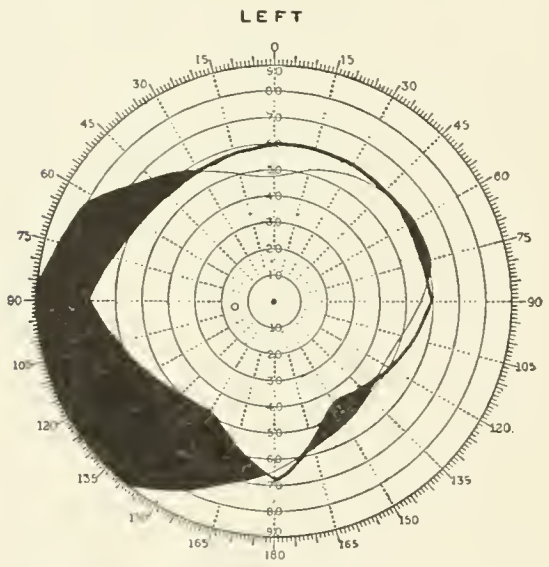
Case.—Mrs. E. S., æt. 29, stated that she was unable to remember ever having ben ill until, in March, 1904, she had "hydrops articuli" of the right knee. An incision was made and she soon recovered from the local condition, but, immediately following, there appeared progressive weakness of the right lower extremity. This weakness rapidly became so severe, during the three weeks which preceded my first examination—June 30, 1906—that she had great difficulty in walking. Furthermore, for several weeks she had been unable to hold her urine for any length of time after becoming aware of the desire to void it, and she was compelled to urinate two or three times each night. The functions of the bowels, however, remained normal; daily movements being habitual.

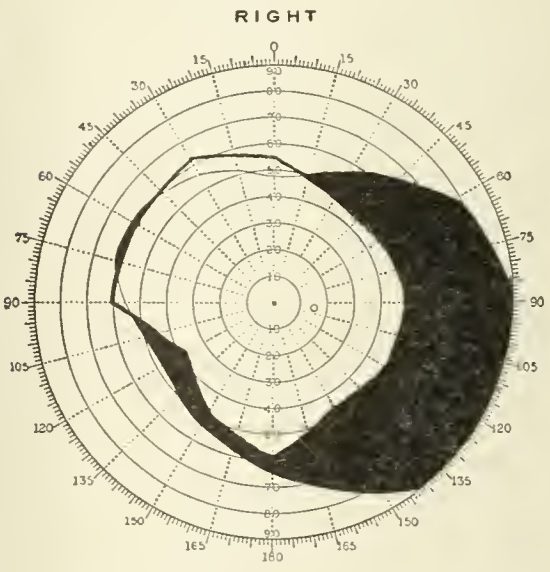
No other symptoms had been remarked by the patient, and, excepting the conditions already mentioned, she considered herself in good health. Headache, tinnitus, vertigo, and diplopia had never been noticed. The menses were regular.

After the true nature of her disease became apparent further questioning elicited the fact that while traveling, in 1905, complete amaurosis developed in the left eye in the course of two or three days; the condition gradually improving so that at the end of several months vision became as acute as it had been formerly.

The following is a translation of a statement, dated May 5, 1905, given to her by Dr. Dufour: "Miss E. G. has been treated for two weeks in the Hôpital Ophtalmique de l'Asile des Aveugles de Lausanne. She presented, in the left eye, a very mild state of optic neuritis. The papilla was a little red and a little diffuse. There was also involvement of the region of the macula. Visual acuity, in the beginning, was about 1/35; there being a relative central scotoma of about 40° in width by 20° in height. The etiology of this affection could not be determined. Her condition when she left the hospital was as follows: Visual acuity, 1/2; there remaining a small central scotoma of about 15° in width by 8° in height. She was treated in a dark room with two applications of leeches; foot baths; sweatings; and potassium iodide internally.'' Her original prescription showed the daily dose of this drug to have been 2/5 of a grain.

Physical examination at the time of her first visit determined the pupils to be equal, normal in size, and reacting well to light, both directly and consensually, and to accommodation. The ocular





muscles functionated well and without any nystagmus of lateral fixation. The visual fields, as examined by the rough finger test, appeared to be normal. There was not any tremor or deviation of the protruded tongue. Both hands were affected with a moderately coarse tremor which did not seem to be of the volitional type and which was not apparent in her writing. The patellar reflexes were greatly exaggerated, the right one being the more so. Typical Babinski's sign was elicited bilaterally with about equal distinctness. The right leg was slightly spastic, but no ankle clonus could be obtained on either side. Muscular force seemed to be unimpaired in both upper extremities, and in the left lower one. There was evident, however, in the whole of the right lower extremity considerable relative reduction of strength. This was most evident in the muscles supplied by the great sciatic nerve and its branches. The circumference of the right calf was ¾ inch less than that of the left leg and the circumference of the right thigh, as compared with that of the left one, was reduced 1½ inches. The tactile, pain, temperature, and muscle senses appeared to be normal. Her gait very closely resembled that of hemiplegia. Coordination was good. The patient, a tall, well built and healthy looking English woman, did not show any evidence of possessing a "nervous temperament."

Her condition gradually improved so that walking no longer necessitated the use of a cane and the hemiplegic gait was barely apparent. During this period of improvement she was delivered of her first child—March 3, 1907—without any difficulty. Severe labor pains were noticed by her for about twenty minutes only, prior to the birth of her child. These severe pains had been preceded, for about twelve hours, by occasional pains which were not severe enough to annoy her. After the termination of pregnancy improvement steadily continued until May 31, 1907, when there occurred sudden and progressive weakness of the right lower extremity, followed by similar involvment of the left one. Examination at this time showed the patellar reflexes to be greatly exaggerated, the right one being noticeably the more increased. Spasticity, besides having developed in the left lower extremity, was more apparent in the right contralateral member than formerly. Typical Babinski's sign was present bilaterally. The tactile, temperature, pain, and muscle senses remained uninvolved. Ankle clonus could not be elicited. The right thigh was one-half inch less in circumference than the left one, the reduction in the former amount of difference being due to the development of slight atrophy of the left lower extremity. Muscular force of both lower extremities was less than formerly; but, with the exception of the muscles moving the foot, the left one was not affected to any extent. The bowels continued to be moved daily in a normal manner and the condition of the bladder functions remained about the same.

Following this aggravation in her condition she progressively improved again until about October 1, 1907, when, upon waking in the morning, she found that she was totally unable to move any part of her body except the cranial muscles. This persisted the entire day and then disappeared. There were not any of the so-called hysteric stigmata present.

About the end of November marked static ataxia

appeared and her other symptoms gradually became intensified. Indubitable intention tremor began to develop in January, 1908, and in the course of a few months became so marked that her writing was almost illegible. The tremor was more severe in the right hand. At about the same time slight hesitation in speech became apparent. Nystagmus was absent. A paretic condition of both external recti and the right internal rectus was noticed only during one examination. The right disc was reported, by Dr. Eaches, to be normal, but the left one seemed pale. The visual acuity was: O.D. 10/15 and O.S. 10/15. Decided amnesia for recent events was made the subject of complaint at this time.

Notes made March 5, 1908, are as follows: Slight cutaneous hyperalgesia with moderate reduction of tactile acuity over both legs and thighs; temperature sense apparently unimpaired; static ataxia sufficient to cause the patient to fall even when the eyes remained open; slight spasticity of the lower extremities with the presence of ankle clonus, both of which signs were more pronounced on the right side; no nystagmus of lateral fixation; visual acuity O.D. 10/15 and O. S. 10/15; visual fields and stereognostic ability normal.

For several weeks following this, she was occasionally unable to speak the word she had in mind and wished to use. This rudimentary aphemia was noticed only in the attempted use of polysyllabic or uncommon words. No other aphasic difficulties were apparent. Staccato speech disappeared about July, 1908.

From April until July spastic paraplegia became severe enough to incapacitate her, but this again became sufficiently ameliorated to enable her, with the assistance of a cane, to walk several squares.

When examined on July 21, 1908, the pupils were equal, normal in size, and reacted well to light and to accommodation. There was bitemporal limitation of the visual fields as determined by the perimeter (see figure). The ocular muscles functionated well but decided nystagmus of lateral fixation was noticed for the first time. The acuity of audition, as tested by a watch, was R. 12/24 and L. 1/24. Galton's whistle showed her upper limit of audibility to be about R. 21,000 and L. 28,000 vibrations per second. Air conduction was better than bone conduction on the right side but bone conduction was superior on the left side. The tongue was protruded in the median line. Decided exaggeration of the patellar reflexes, ankle clonus, Babinski's sign, and spasticity were still present. All of these signs were more marked on the right side. Static ataxia, present to a slight degree when her eyes were open, became severe enough to cause her to fall when she closed her eyes. The gait was typically that found in spastic paraplagia; this abnormality being more apparent on the right side.

During the examination lateral fixation of the eyes caused the production of a state resembling that of hypnosis, or that which accompanies an attack of petit mal. This phenomenon was considered to be the second indication of the coexistence of hysteria. Further confirmation of this belief was afforded on August 11, 1908, when she reported having had twelve attacks of unconsciousness, each of which lasted about two or three minutes and was preceded by an aura of vertigo. Realizing that her organic disease was a grave one and therefore wishing to be at home, she sailed for England several days later.

Before arriving at the diagnosis of multiple sclerosis her medical treatment comprised a course of potassium iodide and mercury; afterwards, phosphide of zinc, silver nitrate, and picrate of zinc were administered at various times. The remissions and aggravations characteristic of disseminated sclerosis would render invalid any conclusions which might be drawn relative to the efficacy of any of these remedies.

In her most recent letter—dated February 16, 1909—the patient stated that, having been constantly under treatment since she had returned to England and her condition remaining unimproved, she had applied for admission to a hospital. The character of her writing was about the same as it had been before she left for home.

2126 Pine Street.

MALFORMATIONS OF THE NASAL SEPTUM.*

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The important part which the nose plays in the comfort and health of mankind is but little appreciated by the laity and not always given enough consideration by those of us whose work lies in other fields. In order that this rôle may be more fully understood it is well to consider the nasal functions from the physiological standpoint for a few moments before passing on to the subject of this paper.

The respiratory function of the nose is of the most importance. The inspiratory air is changed to body temperature, saturated with moisture, and filtered of foreign particles on its way to the air vesicles of the lungs where the exchange of oxygen and carbon dioxide takes place. The turbinated bodies are largely instrumental in producing these changes, their erectile tissue supplying the moisture, while their large surface, by coming in contact with the air, serves to warm it and to catch the finer particles which have escaped the vibrissæ at the nasal orifices. The importance of the normal continuance of these functions can scarcely be overestimated. As the air is warmed it expands and is thereby enabled to take up more water, so that on reaching the lower mucous membrane of the respiratory tract no more can be held, thereby preserving the moisture of these regions. An interference with such processes affects the normal exchange of oxygen and carbon dioxide, diminishing the oxygen and increasing the carbon dioxide, thereby retarding the normal metabolic processes and lowering the resistance by decreasing the activity of the leucocytes. The result is anemia, debility, indigestion, aprosexia, and nervous symptoms of various kinds. Not alone in this manner is the body affected. A blocking of the nose is oftentimes responsible for various conditions giving rise to a retention or hyperaccumulation of secretions in the nasal and pharyngeal regions, which, when swallowed, is the precursor of digestive disorders commonly classed as chronic dyspepsia.

It is to the production of overtones that the spoken and singing voice owes its rich and musical character. These overtones are largely produced in the nasal cavities and sinuses or bone spaces con-

*Read at the monthly meeting of the Waltham Medical Club, November 5, 1908.

necting therewith; it is perfectly evident that anything tending to obstruct these channels will at once affect the quality of the voice.

The olfactory function of the nose is to be regarded as next in importance. The olfactory nerve is distributed over the superior turbinate and corresponding portion of the septum; the air, therefore, must pass over this area to produce an action on the nerve endings, and here again it is evident that an obstruction to this current would render the patient anosmic.

The nose again has a gustatory function which is also presided over by the olfactory nerve, the impairment of which renders our enjoyment of eating less keen, to say the least.

It follows then, that, when we see how important a clear nasal breathway is and of how much value the turbinated bodies are in that breathway, measures to aid the establishment of normal conditions are second to none in importance.

The septum is composed of three parts, an anterior quadrilateral portion composed of cartilage, articulating behind and above with the vertical plate of the ethmoid and behind and below with the vomer. The cartilage is carried backward at the junction of the two bony portions of the septum in a narrow strip, forming what is known as the caudal prolongation, and it is along this portion that spurs are commonly found.

Various theories have been advanced to account for deformities of the septum, of which two have been accepted in the most part. The great majority are probably due to irregular development of the facial bones. Whether the result is brought about by an overdevelopment of the vomer, whereby it requires more room than is present, or whether the want of room is caused by the failure of a high-arched palate to descend, or whether the irregularity is to be regarded as a primary "stigma of degeneracy" accompanying other deformities, is not plain. The delayed eruption of the incisor teeth rendering the hard palate high and narrow and leading to incoordination in its development, is often an important factor.

The second, and undoubtedly true cause in a certain number of cases, is trauma, at times setting up a chronic low-grade type of inflammation; but considering how well the perpendicular plate of the ethmoid is protected by the bridge of the nose and nasal bones, and the great preponderance of such deformities in civilized races, where the chance of injury is comparatively slight, that it can account for a large percentage of cases is unlikely.

Malformations may be classified as spurs or ridges, thickenings or deviations, either of which may exist alone or in combination and may be cartilaginous or bony. They vary in their importance according to the amount and character of the obstruction which they cause, interference with the drainage and ventilation of the sinuses by encroachment on the middle and superior meatuses being the most serious. Spurs and ridges usually take the form of crests, spines, or rounded thickenings confined to the cartilaginous septum, though sometimes they may become partially ossified. A somewhat common spur occurs on the bony septum, starting just behind the quadrilateral cartilage. It follows the junction of the perpendicular plate of the ethmoid with the vomer and runs in an upward and backward direction, projecting more and more from the septum as it proceeds. Such an one is usually osseous. A very important type of deviation is that in which the perpendicular plate of the ethmoid becomes bowed, impinging upon the middle turbinal, for this obstructs both the drainage and ventilation of the frontal, ethmoidal, and sphenoidal cells. This type is also frequently accompanied by the ridge along the crest of the vomer, usually on the opposite side, so that the septum has an S-shaped appearance. The so-called dislocation of the quadrilateral cartilage where its anterior extremity is turned to one side, is also fairly common.

While many septal deformities exist with no symptoms and are not detrimental to the health, they are often the cause of severe local and general complications, in which case they are obstructive or irritative in character. The symptoms most generally met with are: (1) a sense of stuffiness in the nose, low down when the inferior turbinal bone is pressed upon, higher up over the bridge when the middle turbinate is affected. (2) Pain is frequently complained of, the frontal region, bridge of the nose, and inner angle of the orbit being the usual seats. Pain on pressure over the latter region is very significant of anterior ethmoidal inflammation, while frontal headache is often found associated with high deviations and is present on awakening in the morning, differing from that due to ocular trouble. (3) Irritation of the ethmoidal and frontal sinuses is sometimes accompanied by dizziness, which is brought on or increased by sudden movements of the head and jarring of the body, and is present when the eyes are closed, which serves to differentiate it from that of ocular origin. (4) Asthma is sometimes due to irritation caused by the deformity. (5) An increased nasal secretion is usually present, the secretion being thick and mucoid in character when the mucous membrane is inflamed low down, or sometimes thin and acrid and may become purulent when the sinuses are affected. (6) Postnasal catarrhal inflammation is present when the nasal obstruction prevents the drainage of the secretions and they flow back to the epipharynx. (7) When the obstruction is well forward or low down nasal respiration is usually obstructed. The descent of the diaphragm during inspiration creates a lessened pressure in the nasal chamber which offers the obstruction to the air, thereby drawing the blood of the turbinates to the surface and rendering them turgid and obstructive. The amount of obstruction will vary from time to time, but its secondary symptoms persist, as dry pharyngitis, laryngitis, and tracheitis, disturbed sleep, nasal voice, and mental sluggishness. Besides the appearance of the septum itself, some of the more common objective symptoms are (1) external deformity of the nose: (2) epistaxis, due to the formation and separation of crusts which collect where the dust-laden air impinges on the prominent part of the deformity; (3) the presence of pus in the olfactory fissure between the deviated septum and middle turbinate, and (4) simple dry rhinitis on the unobstructed side.

The more important diseases which may be caused or aided in their development by septal deformities are all of the inflammatory conditions of the nasal mucous membrane, acute and chronic inflammation of the sinuses, acute and chronic otitis media, chronic catarrh of pharynx and larynx, trachea, or bronchi, nasal neuroses and polypoid degeneration of the nasal mucosa. In practice we find that various obscure symptoms may disappear following the restoration to normal of the nasal passages.

The early operations for septal deviations were various types of cutting and crushing procedures in which destruction of the resiliency of the septum was made, thus allowing the obstructive parts to be pushed to the other side. These are often advisable at the present time, on account of the simple technique and lessened shock to the patient, and are preferable to the employment of the more recent submucous resection. The following are among the best known and most effective:

The Watson operation consists in making an L-shaped incision through the septum and pushing the deviated portion to the other side and is adapted to angular cartilaginous deviations.

Sluder's operation is available only for marked angular deviations. Three incisions are made parallel with the crest of the projection. These are carried through the cartilage, leaving two strips attached in front and behind only, which, when forced into position, overlap.

The Gleason operation consists in the formation of a U-shaped flap, having its base upward, which includes the cup-shaped deviation, the one in which this method is applicable. The flap is then forced to the open side, its resiliency being overcome by fracturing its base.

In the Asch operation a crucial incision through the septum is effected by means of special instruments, forming four triangular flaps, which are forced to the open side and held with splints. It also is employed in cup-shaped deviations.

The Roe operation is performed by using a specially made forceps having a male and female blade. These are adjusted over the septum, the male blade on the side of the convexity. On closing the blades the projecting portion of the septum is forced to the other side, being fractured in the process. This operation may be used in any case not exhibiting a heavy ridge.

In the Kyle operation a long V-shaped portion of the septum is removed along the line of greatest convexity. The incisions are made with a special saw and are not carried entirely through the septum, which is afterwards straightened and held in position with nasal splints.

The Price-Brown operation consists in making two parallel incisions and uniting them by another as in the letter H. The flaps thus formed are then pushed to the side of the concavity.

Simple spurs and ridges may be removed with the saw, spokeshave or chisel, while soft septal hypertrophies may be reduced by application of the actual cautery.

Recently the submucous resection operation has largely superseded all others, as it may be applied to any deviation, and when successful its results are usually superior to those obtained in other ways. This consists essentially in the elevation of the perichondrium and periosteum on both sides of the septum, to include the deformity. This is done through a vertical anterior incision, usually on the obstructed side, as practised by Hajek or Killian, which may be supplemented by an anteroposterior incision according to Freer, if occasion arises. The obstructive portions of the cartilage and bone are then removed without injury to the mucous membrane and the flaps allowed to fall into apposition, being held by suitable packing for 24°-48°, healing taking place by first intention.

Various instruments have been devised to facilitate these different steps, the choice of which depends upon the individual operator. It is probable that the cartilage does not reform, its place being taken by fibrous connective tissue. The gland elements, however, are but little changed.

The advantages of this operation are its applicability to all forms of obstruction, its excellent result and the comfort to the patient from the absence of nasal splints and short convalescence.

Its disadvantages are the difficulty in performing the operation, thus increasing its length with corresponding shock to the patient and making its results a little more problematical than with a simpler method. Irritation due to vibration of the membranous septum in the air-stream is sometimes noted.

As its chief disadvantages may in considerable measure be controlled by the operator, it seems probable that they will continue to be less prominent as improved technique is developed.

55 Grant Street.

REMARKS ON FLAT FEET.

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The muscles which hold the arch are chiefly the tibialis posticus and anticus. Their tonicity is diminished or often destroyed by inflammation, interference with metabolism or over-fatigue, due to standing, paresis, or paralysis of the nerves supplying this group. The diminished tonicity relaxes the contractile element and causes an actual lengthening of these muscles. The superincumbent weight then falls directly upon the foot, which stretches the tarsal ligaments and displaces the tarsal bones. The tonicity of these muscles is highly susceptible to toxins, as shown by the frequency with which patients develop flat feet who are convalescing from attacks of contagious diseases. Also there is a high percentage of flat feet in patients who are suffering from wasting diseases. This certainly could not be explained by the theory of mere coincidence, but rather by the decrease of tone of the tibial muscles, due to toxins in the blood, or disturbed metabolism which always exists in serious diseases.

Fig. 1.—Imprint of flat feet, patient standing

Occasionally a patient comes to us with the sole complaint of pain in the feet and flat arches. Examination, however, reveals an Argyll-Robertson pupil and other symptoms of locomotor ataxia. Sometimes a patient whom we treat for flat feet does not live up to our favorable prognosis. When by accident or intention we examine the urine we may find there sugar or evidence of nephritis, which explains the retarded progress. Was there ever an orthopedist who did not have the unpleasant experience of treating a case of supposed flat foot and finding the patient getting worse instead of better until it dawned upon him that the clammy foot with subjective pain very much out of proportion to the deformity was not at all a case of flat foot, but arteritis obliterans, the bane of foot practice?

When the arches are flat, the diagnosis is flat feet. The crucial test of the strength of the arch is not their appearance when the weight of the patient is off his feet, but rather when the weight is upon them. This we can only ascertain by the mirror test or by careful and scientific imprints. It often happens that patients have normal arches when they are in the sitting or lying position, but as soon as they stand up their arches become completely flat. I beg to submit imprints of a case which illustrate this point (Fig. 2).

Fig. 2.—Imprint of normal feet, often seen in flat feet when the patient sits.

The lesion of flat feet is a dislocation of tarsal bones which does not differ in any respect from dislocation of bone anywhere else in the body, with the exception that the process is less acute. The bones that are chiefly affected in this deformity are the astragalus, which is pushed downward, forward, and inward, and the scaphoid, which becomes rotated. The pain in flat feet, as in dislocation, is due to the pressure of displaced bones on nerves and tissues, to the stretching of ligaments and to reactive inflammation. In chronic cases adhesions, ankylosis, and spasms of muscles add to the suffering. Early reduction is followed by the disappearance of symptoms and the restoration of normal anatomical relationship and function of the joints. If unreduced it usually remains a joint with chronic inflammatory symptoms, adhesion, ankylosis, limited motion of joints, deformity, and abolition of function.

The prophylaxis is difficult and often impossible to enforce, for the reason that among the important causes of flat feet is the abuse of the feet by too long standing, bad shoes, and false position in walking. Too long standing is often impossible to rectify, because the majority of these patients are laborers whose occupations require it. The false position in walking, viz., with heels in and toes out, was so long taught in the armies and schools that it has become instinctive in civilized races. This position shifts the line of weight which normally falls on the middle and strongest part of the foot to the inner border. Most modern shoes are made pointed. Physiological walking requires the toes to remain spread, with plenty of room to execute a prehensile movement. The modern shoe squeezes the broad, fan-shaped portion of the foot and converts it into an apex. The majority of patients who come to us for the relief of flat feet bear evidence of this shoe-abuse in corns, bunions, hallus valgus, and other deformities of the toes, which are responsible for the breakdown of the arch.

The best treatment in the acute inflammatory stage is physiological rest, with the patient in bed. This, however, is often impossible, and we resort to the substitute of strapping the arch with adhesive plaster or supporting it with felt, or, best of all, with thin celluloid plates. Professor Schantz of Dresden uses hot, effervescing foot-baths with good results, as well as support. In the subacute stage massage is added.

Fig. 3.—Celluloid plate for use in flat feet; side view.

The metallic plates often give rise to pressure-symptoms while the celluloid plates, on account of their resiliency, seldom do. In the last fourteen months I have made 125 pair of celluloid plates according to the method of Professor Schantz. In comfort, lightness, and cleanliness, celluloid plates are ideal. When the inflammatory symptoms have subsided, in addition to support, gymnastics should be commenced. I cannot speak too highly of the value of gymnastics in the treatment of the chronic stage, as it is the only means we have which strengthens the muscles, breaks up tarsal adhesions, develops the elasticity of the joints, and increases the range of adduction. When ankylosis has already set in, patients should still be given the benefit of a course of active and passive resistance exercises before resorting to "brisement forcé."

95 West One Hundred and Niniteenth Street.

CONSERVATISM IN THE USE OF FLAT-FOOT PLATES.

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The foot is normally a springy mechanism which is governed by the action of the leg muscles. The tone of these muscles varies in different individuals and often depends upon the amount of work which is thrown upon them. Thus, in a heavy person, much more work is required than in a person of lighter weight. Also, in an individual with a general debilitating diathesis, the tone of these muscles may be below par and not strong enough to keep the springy mechanism in the normal attitude. It is frequently noted that individuals have a right and

left foot entirely different in muscular development and tone, and consequently different in functions also.

There are very few normal feet among the civilized shoe-wearing peoples. This fact is probably due to the muscular atrophy which shoes bring about, together with the joint strain which is caused by the mode of dress, especially among women, whereby the balance of the body is thrown in such a way as to overtax the mechanism of the foot and to break the equilibrium of the muscular action about the ankle joint.

For the correction of the static foot error in posterior flat-foot, flat-foot plates are frequently essential in some stage of the treatment. The objects of flat-foot plates are: (1) to guide the muscular action and thereby assist in restoring the tone; (2) to restore the general balance of the destroyed muscular equilibrium and allow the muscles, tendons, and ligaments to contract; (3) after the muscular equilibrium has been established, to prevent the recurrence of the asymmetry of muscular pull and thereby establish a functionating foot which eventually will become strong enough to do its own work without the assistance of plates.

In order to accomplish the above, it is necessary to prepare the foot for the wearing of plates in some instances, which is done by active and passive force applied either with or without an anesthetic. When the foot is flexible and no complications are present, the slow process of building up by means of felt pads is the most satisfactory. If the diagnosis of the foot condition warrants the immediate application of plates, these should be made of average height and gradually raised at intervals of from three to six weeks until the foot assumes its normal muscular action, but by no means should they be rigid so as to restrict muscular action.

The material for the plates should be sheet steel, gauging from 22 to 16, according to the weight of the patient, and the surgeon's desire to bring certain groups of muscles into play. The author has tried many materials, and finds that heavy bronze, German silver, copper, brass, white metal, and sole leather are unfit for flat-foot plates because they do not allow enough spring and have a tendency to weaken all muscular and ligamentous tone about the foot. Plates made of these materials are frequently much more easily worn by the patient, who is not aware of the harm that is being done, and who finally becomes dependent upon them. The author has seen much harm done to the feet by plates of this kind.

The technique for the preparation of the steel plates, in brief, is as follows: The casts are made of the feet in the usual manner. These casts are then cut by the orthopedic surgeon according to the symptoms of the patient, and the gauge is prescribed according to the amount of work he wishes the plate to do. These plates are then fitted to the patient and changed in height or shape, as the individual foot may require. They are then tempered, and covered with a thin coat of celluloid, leather, or nickel, as one may choose. In some cases the plates should not be finished and the patient should be allowed to wear the tempered plates for a week or ten days, so that alterations may be made, if necessary. Often, at this time, the plates can be safely raised to a greater height.

The practice of placing the patient upon any "arch-support," as is the custom of many physicians, is decidedly harmful to the patient in more than one way. In the first place, in nine out of ten cases, there is no diagnosis of the foot condition made. The patient is placed upon any support and receives temporary relief, but in a short time he is worse off than before. This fact has been called to my attention so frequently that there is no question, in my mind, but that it is as important to fit a patient with proper plates as it is to fit him with proper glasses. The use of the steel supports requires more skill on the part of the orthopedist, and is harder for the patient in some stages of the treatment, but the ultimate results are unquestioned—an improved functional foot with the prospect of an early removal of the plate, entirely or partially. In some cases the plate is prescribed only when the feet become fatigued.

In order to accomplish the best results in flat-foot work with patients who require plates, exercises should be given in conjunction with the wearing of plates. These exercises should be changed from time to time as there is improvement, or if no improvement occurs. This is especially true with children who are growing rapidly. The foot exercises should be continued for a considerable period after the patient has ceased to wear the plates, with the view of conserving the good that has been gained by the use of the plates.

The object of these notes is to emphasize the harm that may be done by the promiscuous use of flat-foot plates when applied by persons without skill and knowledge acquired by conscientious orthopedic training.

140 Allen Street.

Indications for Cesarean Section in Prolapse of the Cord with Contracted Pelvis.—A. Couvelaire, having examined the statistics of prolapse of the cord combined with contracted pelvis found at the Hôpital Baudelocque, between the years 1893 and 1904, gives the conclusions at which he arrives. When the prolapse is irreducible, no matter what is the disproportion of the head to the pelvis, there is an indication for the cesarean section, because the life of the child may be sacrificed. When it is possible to reduce the cord and remove it from compression, if there is not great disproportion between the head and the pelvis, section is not indicated. But with great disproportion it is better to perform cesarean section than to rely upon symphyseotomy, after dilatation has become complete. Compression of the cord may occur at any time and dilatation may be very slow, so sacrificing the life of the child. Operative interference should not be deferred.—*Annales de Gynécologie et d'Obstetriques.*

Biliary Ileus.—Leriche and G. Cotte say that biliary ileus is caused by cholecystitic adhesions of the peritoneum by a large gall-bladder full of stones which press upon the intestine, by paretic phenomena consecutive to peritonitis, and, more frequently, by an abnormal migration and arrest of a calculus in the lumen of the intestine. This complication is relatively frequent, is more common in women than in men, and occurs after the age of forty years. It is generally produced by a single calculus which has found its way into the intestine by ulceration from the gall-bladder without passing down the ducts. It occurs most frequently in the lower part of the small intestine. The calculus becomes coated by fecal matter which enlarges its size. The most common added factors in its production are cicatricial stenosis, tuberculosis, neoplasms, and adhesions. Ulceration may cause spasm of the intestine. The wall of the intestine becomes inflamed and ulcerated and peritonitis may set in. In general obstruction comes on suddenly, since it is only with large calculi contained in the gall-bladder that the intestine can be obstructed. In obstruction high up in the intestine grave symptoms occur early. The obstruction may last for 6 to 10 days and then the calculus appears in the stools. Symptoms may disappear for a time to reappear in crises. In many cases spontaneous cure occurs. Obstruction situated high up is almost always rapidly fatal. A medium laparotomy is the best operation, followed by incision at a little distance from the obstruction and the removal of the calculus.—*Gazette des Hôpitaux.*

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POSTERIOR BASIC MENINGITIS.

THERE has been for a number of years a certain mystery connected with the name posterior basic meningitis, an uncertainty as to the exact nature of the disease, and a difficulty in determining its proper position in the classification of the meningitides. Described first by Barlow and Gee, and later studied by Barlow and Lees, it was considered for some years to be a definite clinical entity, an opinion which from the symptom complex and pathological picture seemed to be thoroughly justified. The age incidence, it practically always occurring in infants of less than one year old, and often in those under six months, the extremely marked opisthotonus, the so-called "post-basic stare" produced by the retraction of the upper lid with the rolling downward of the eyeball, and the tendency to recover, served to differentiate the disease from tuberculous meningitis. On the other hand, the fact that it was rarely fatal before the third or fourth week and often not for many months, and that it ran practically a nonfebrile course were sufficiently characteristic to differentiate it from the more common cases of epidemic meningitis or spotted fever, and from the other purulent meningitides. The peculiar localization, too, of the thick pus to the posterior portion of the base of the brain seemed to be typical of this disease alone.

The first serious doubts of the independence of posterior basic meningitis were cast by Still in 1898, when he isolated from the meninges of eight typical cases organisms which he was unable to distinguish from the *Diplococcus intracellularis meningitidis* of Weichselbaum, the etiological factor in epidemic cerebrospinal meningitis. Since that date, particularly in England, where most of the work on this disease has been carried on, the belief in the entity of posterior basic meningitis, though dying hard, had gradually waned, and the opinion has become steadily more common that the condition is not a disease in itself, but a manifestation of a chronic type of cerebrospinal fever occurring, not during epidemics, but either after or entirely independent of them.

Two years ago the subject was again brought up by Houston of London, who compared the organisms of this disease with some obtained from the epidemic of cerebrospinal meningitis in Belfast, and stated that, while culturally similar, there was a total lack of agglutination and opsonin reaction of the organisms of posterior basic meningitis with the serum from an epidemic case, and *vice versa*. Recently in this country Martha Wollstein of the Rockefeller Institute has obtained from Houston three cultures of diplococci from posterior basic cases, and compared them with fourteen strains of the epidemic variety taken from Flexner's collection and from fresh cases. Her results, which are reported in the *Journal of Experimental Medicine* for July, 1909, show that, while she had but limited opportunity to obtain serum from fresh human cases of meningitis for her investigations, by using immune horse serum she was able to demonstrate no difference between the reaction of the two classes of organisms, and she believed that the Flexner-Jobling serum should be of value in the treatment of posterior basic meningitis.

This difference in the findings of the two bacteriologists is most unfortunate, as it puts the subject back into much the same state of uncertainty in which it was a few years ago. The opportunities for proper study and comparison of these two diseases have been poor, for whereas the posterior basic variety has been relatively common in London for many years—our knowledge of it, in fact, being a product of the Great Ormond Street Children's Hospital—the epidemic disease has until quite recently been very rare there, and, on the other hand, while in this country cerebrospinal fever has, at least in New York City, been a tragically familiar sight, typical cases of posterior basic meningitis are scarce indeed. Few observers have, therefore, had the opportunity of studying the two diseases together. There can be no question that the two conditions are closely allied, but the bacteriologist will have some difficulty in persuading the clinician that they are the same disease. Three years ago, before the recent epidemic in England, when sporadic cases of cerebrospinal meningitis were almost unknown in London, there was rarely a day on which one or more posterior basic cases could not be found in the wards of any of the great children's hospitals of that city. If the organisms of posterior basic meningitis are identical with those of epidemic cerebrospinal meningitis, those prevalent in London at that time and producing the slow chronic nonfebrile posterior basic meningitis were remarkably uniform in their behavior and must have been in a very attenuated state as compared to the virulent micrococci which caused the acute, rapidly fatal disease which has recently caused such havoc in New York, Belfast, and Edinburgh. Further investigation is required in a locality where the two diseases can be observed side by side, fresh cultures made, and plenty of human serum obtained for agglutination and opsonin reactions. In the meantime, until the matter is settled, every case of posterior basic meningitis may well be treated with the Flexner-Jobling antimeningococcus serum. Besides giving the infant the chance for recovery offered by the serum, such a procedure might add valuable information as a therapeutic test of the unity of the two diseases.

EPILEPSY AND EPILEPTOID CONDITIONS IN CHILDHOOD.

It has long been a mooted question as to what extent convulsive manifestations during infancy and childhood are an expression of true epilepsy or not. A comprehensive discussion of this subject has been furnished by G. Aschaffenburg (*Archiv f. Kinderheilkunde*, Vol. 46, p. 242), who accepts the classification of infantile convulsions made nearly ten years ago by Hochsinger. The latter divided all the convulsive phenomena of childhood into two groups, the first including the simple variety and the myotonia of the newborn, while the second group comprises those convulsions that are due to hyperexcitability of the nervous system. In the former group laryngeal spasm never occurs, and the convulsive outbreaks may usually be traced back to some infectious fever, autointoxication, etc. In the second group, which comprises the condition widely recognized by German pediatrists as pathological spasmophilia, the convulsions are again classified into four different categories, as follows: 1. Respiratory spasms, occurring as an initial or accompanying phenomenon of clonic convulsions of the extremities associated with loss of consciousness; 2. Eclampsia, associated with laryngeal spasm, occurring either before, during, or after the convulsion; 3, genuine tetany; and, 4, nodding spasms. The author believes that infantile epilepsy includes all those cases occurring early in life that do not belong to any of the above groups. He asserts that the usual conception of epilepsy is too narrow. It may be broadly defined as consisting of periodic disturbances of the psychic equilibrium, producing mild or severe disturbances of consciousness, with or without convulsions. The latter are not a necessary factor in the clinical picture. As attacks of true epilepsy he characterizes the outbursts of distemper in children, which are periodic in their occurrence, and which frequently attain the height of true maniacal outbreaks. It had been noted by Pfister that the hereditary victims of epilepsy and hysteroepilepsy, even before the outbreak of the typical, periodic, epileptic convulsions, and beginning during the fourth year of life, exhibited such outbreaks of distemper, sulkiness, and an indisposition to play, which seizures appeared to be the first manifestations of the epileptic condition. It is, therefore, not a matter of indifference that an early diagnosis of epilepsy should be made from such a clinical picture, however much it varies from our usual conception of the disease. Of greater importance, however, is the fact that by means of a rational prophylaxis it is possible to retard the further development of the disease. It is not punishment, but rest and bromides that these children need. The author of this paper does not doubt that the term epilepsy is a generic one, and includes a number of diverse forms, whose mutual relationships are not as yet known. He is inclined to recognize a possible connection between infantile spasmophilia and epilepsy, although he admits that such relationship cannot be proved.

Against this view may be cited the observations made by Walter Birk (*Muenchener Klinik*, 1907, p. 318), and by the same author in conjunction with M. Thiemich (*Jahrbuch f. Kinderheilkunde*, Vol. 65, 3d Series 15, No. 1), on the later development of 53 eclamptic infants studied in the pediatric service at Breslau. None of these children later became epileptic, but only one-third showed normal development, the remainder showing some form of cerebral degeneration. Of those that attained the school age, only one-half progressed normally, while the remainder were sent to schools for defectives. It is noted that one-quarter of the children attending the latter gave a history of spasmophilia during infancy. Even in those children whose mental development was apparently normal, there was observed an increased sensibility and a nervous voice, while light sleep, pavor nocturnus, headache, anorexia, and morning vomiting were common occurrences.

REINFECTION IN SYPHILIS.

One of the most disputed points in the pathology of syphilis has been the question of immunity derived from a single luetic infection. Ricord formulated the law of permanent immunity after a single infection, and later Fournier added the great weight of his knowledge and authority to this view of the matter. Little by little, however, reports of a second infection in syphilitics began to appear in the medical press, and in a recent monograph on the subject published in Volkmann's "Sammlung klinischer Vorträge," Felix John has succeeded in collecting three hundred and fifty-six such reports. Of course, to an implacable believer in perfect immunity as a consequence of a single luetic infection all such data are irrelevant because such a man is always ready to attribute any manifestations of the disease to the first infection, however improbable such an explanation may be. To the unbiased, however, John's monograph is certainly convincing in establishing the fact that a single luetic infection, while it makes a second attack of the disease unlikely, does not render it impossible.

John has applied most exacting criteria in judging the reports gathered by him, and finds that fourteen instances at least meet every possible objection. The first infection in these cases was diagnosed by competent syphilologists; secondary and tertiary manifestations of the disease followed in due course; many years later another lesion was acquired after an exposure to infection, and again the affection ran its usual, though somewhat milder, clinical and pathological course. Sixteen other cases, just as convincing so far as internal evidence of the occurrence of a second infection is concerned, suffer simply from incompleteness of the printed report or the shortness of the period of observation. Many other cases reported serve as corroborative evidence of the possibility of reinfection with syphilis, though the great majority of the reports found in literature cannot be accepted as instances of such occurrence. Anyone, however, familiar with the frequently fallacious conclusions appearing in the current medical reports will grant that such a percentage of unacceptable evidence is not unusual in any disputed question.

The discovery of the *Treponema pallidum* has, of course, brought with it the possibility of more direct and conclusive proof of the occurrence of reinfection with syphilis. Indeed, one or two of the instances quoted by John occurred recently enough to have allowed the demonstration of this organism in some one or another stage of the disease. The total evidence brought forward by the author is, however, such that any new and more complete reports can only make assurance doubly sure, for his interesting work shows sufficiently well that reinfection in syphilis is as possible as in any other disease that confers some immunity upon the patient. Such immunity, however strong, is quite probably never absolute so far as all possible cases are concerned.

The Precancerous State.

In the absence of precise knowledge of the etiology of cancer all attempts at prophylaxis must be gropings in the dark. At the same time it has seemed that certain kinds of benignant growths are more apt than others to degenerate into cancerous growths, and that certain kinds of irritation predispose to the occurrence of cancer. The avoidance of such irritations and the successful treatment of such growths are two steps in this difficult problem of prevention. O. Laurent, writing in the *Revue Médico-Sociale* for May, 1909, has developed this idea of prevention. If chronic irritation of any nature may be regarded as the antecedent of cancer, if certain processes become more often than others cancerous, factors that incite to malignancy, preparers of an appropriate soil for cancerous growths, these may be avoided. Among these states he denominates inflammatory hyperplasia, functional hyperplasia, and heterotypical growths. Examples of this are nævus pigmentosus, papilloma, and adenoma; chronic gastritis and ulceration of the stomach; deep cervical fissures and various other scars; biliary calculi, and goiter. Melanotic epithelioma develops always at the expense of nævus pigmentosus, and leucoplakia is often precancerous. The careful treatment and removal of such lesions becomes a medical and surgical duty of the practitioner. Embryonic heterotypical conditions, chronic inflammatory growths, and metatypical tissues are always to be regarded as bad things at once to be gotten rid of.

The Thaw Decision.

The decision of Justice Mills that Thaw, the murderer of Stanford White, is a paranoiac, and as such unfit for freedom, is one that cannot fail to give satisfaction to all sane citizens. It was preposterous that a dangerous lunatic should be loosed on the testimony of laborers, ministers, and other ignorant laymen who had met him casually and held a few moments' conversation with him on indifferent subjects; yet a judge of less judicial mind than the one who rendered the decision might conceivably have been led to share the delusion of the man's afflicted mother that there is a conspiracy to keep him behind the bars of an asylum if not a jail. In his admirable review of the evidence in the case, Justice Mills lets it be seen that the testimony of Dr. Baker of Matteawan had much to do with the final decision to dismiss the writ. This is another ground for satisfaction, as showing how murder trials and proceedings of the kind just closed would be conducted if the medical experts were public officers, hired and paid by the State, absolutely free from bias, and without the temptation to testify in a way pleasing to the side from which came their fee. The charge of venality so freely made against the medical profession in general and medical expert witnesses in particular during the first and second Thaw trials, could then no longer be made. If, as a result of this trial, the needed reform in the matter of expert testimony is accelerated, the patient at Matteawan will, albeit unwittingly, have rendered one real service to the community.

Mr. Edward T. Boag.

All graduates of the College of Physicians and Surgeons of New York City will learn with sorrow of the sudden death of Mr. E. T. Boag, late registrar of the College. He was drowned in Raquette Lake in the Adirondacks on Tuesday, following the upsetting of a canoe. Mr. Boag was seventy years of age and had been registrar of the College for forty years, until June of this year, when he retired. He was thus known personally to many generations of students, and will be remembered with esteem and affection by the great majority of the living graduates of the school.

News of the Week.

New York Academy of Medicine.—The Wesley M. Carpenter Lecture for 1909 will be delivered on Thursday, October 21, at 8.30 P.M., by Dr. H. T. Ricketts, Professor of Pathology in the University of Chicago. Subject: "Some Aspects of Rocky Mountain Spotted (Tick) Fever, as Shown by Recent Investigations." The anniversary address, November 18, will be made by Dr. Louis Livingston Seaman, late Major and Surgeon U. S. Engineer Corps. Subject: "Personal Observations on the Sleeping Sickness in Central Africa."

Examination for the Indian Service.—The United States Civil Service Commission announces an examination on September 8, 1909, to secure eligibles from which to make certification to fill two vacancies in the position of physician (male) in the Indian Service at Nett Lake, Minn., and Volcan, Cal., at $1,000 per annum, and other similar vacancies as they may occur in the Indian Service. The examination will consist of the following subjects: Letter-writing, anatomy and physiology, chemistry, materia medica and therapeutics, surgery and surgical pathology, general pathology and practice, bacteriology and hygiene, and obstetrics and gynecology. The age limit is 25 to 55 years on the date of the examination. Men only will be admitted to this examination. In accordance with a recent act of Congress an applicant for this examination will be required to be examined in the State or Territory in which he resides and to show in his application that he has been actually domiciled in such State or Territory for at least one years previous to the examination. Applicants should at once apply to the United States Civil Service Commission, Washington, D. C., for application form 1312. No application will be accepted unless properly executed, including medical certificate, and filed with the Commission at Washington.

Inadequate Vital Statistics.—The extent to which the United States is behind other nations in

the matter of completeness of birth and death statistics has been shown recently by the following statement from Census Director Durand: "The States having effective registration laws of death are as follows: California, Colorada, Connecticut, Indiana, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, South Dakota, Vermont, Washington, and Wisconsin. Minnesota, Montana, Nebraska, North Dakota, Ohio, and Utah have recently adopted laws whose results are now under observation. Other States have registration laws which do not meet the requirement of this office. The vital statistics reports of the bureau relate solely to deaths, no State nor even a single city being yet certainly known to have a complete registration of births (90 per cent. of all births that occur—minimum standard) to warrant its admission to the registration area for births."

The New York Osteopathic Society has started proceedings before the Supreme Court in Brooklyn to obtain an injunction restraining the New York Board of Health from enforcing the new section of the Sanitary Code which requires that death certificates must be signed by those having a degree of doctor of medicine and makes no provisions for other registered practitioners.

School for Consumptives in Chicago.—There was recently opened in Chicago by the Board of Education a special school for tuberculous children on the grounds of the Harvard School, Seventy-fifth street and Vincennes avenue. The school is held out of doors in tents. The Board of Education supplies tents, grounds, equipment, and teaching force, while the Chicago Tuberculosis Institute furnishes food, transportation, and medical services. The school opened with thirty pupils selected from a large group of so-called "physically subnormal children," after a careful examination to determine those best fitted to make the experiment.

The National Red Cross Society is planning to increase its membership from 20,000 to 100,000. In a letter recently published President Taft heartily endorsed the proposed increase in the society.

The Governor of New Jersey on Medical Experts.—At a recent address to the surgeons of the the National Guard at Sea Girt, Governor Fort took occasion to express his opinion of expert medical witnesses in homicide cases. He said, regarding them: "During my term upon the bench of the Supreme Court of the State it was my privilege to see much of the medical men of the State. Experience has given me great faith in the medical witness—not, however, the medical expert witness, so-called. My faith in this latter class has never been great, and observation has only tended to lessen my opinion of him. Courts and juries give great weight to the testimony of the local medical practitioner, but very little to the man who appears as an expert witness, especially in homicide cases. The man who testifies to-day in a homicide case that the defendant is insane and then shortly afterward testifies that he is sane is neither influential with the courts nor respected by them. He is an injury to the profession and to the cause of justice."

Recovery Among the Criminal Insane.—Dr. Lamb, medical superintendent of the Matteawan Hospital, in a recent report states that of thirty-four persons released from the hospital as supposedly cured, "fourteen returned to the hospital or prison; eight became partially insane again, two killed themselves, three became dependent upon relatives, six disappeared, and one was in part self-sustaining."

A New Health Board Building.—The New York Board of Health has sent a communication to the Board of Estimate stating that the building now occupied by the Department at Fifty-fifth street and Sixth avenue is too small for its needs, and asking authority to purchase a building now in course of erection at Irving place and Sixteenth street. The desired building is twelve stories high and covers a plot of ground 100 by 123 feet; it can be bought for $850,000.

The Army Nurse Corps.—Miss Jane A. Delano of New York has been appointed superintendent of the Army Nurse Corps, *vice* Miss D. H. Kinney, who resigned several weeks ago. Miss Delano was formerly superintendent of nurses at the Bellevue Hospital in New York City and is president of the National Association of Nurses.

Infant Mortality in Manhattan and Brooklyn. There has been a marked change in the relative infant mortality in Manhattan and Brooklyn during the past two weeks. Whereas up to the week ended July 31 the death rate of infants under two years for the Summer in Brooklyn had been higher than in Manhattan, during the week ended August 7 the death rate in Brooklyn decreased 22 per cent., while that in Manhattan showed an increase of 39 per cent. over the previous week. In New York for the week ended July 31 the deaths from Summer complaint cases, which cause the greatest mortality among children, were 129, while in Brooklyn there were 137. For the week ended August 7 the death rate for the same cause in Manhattan was 180, and in Brooklyn it was 112. The infant mortality for New York for the month of July for the past three years shows a decided decrease, as is shown by the following table:

	1907.	1908.	1909.
Deaths from diarrheal diseases, under 2 years	1,722	1,755	1,144
Deaths from all diseases, under 2 years	3,206	3,204	2,419
Deaths from diarrheal diseases, under 5 years	1,803	1,709	1,185
Deaths from all diseases, under 5 years	3,675	3,385	2,768

New Medical Law in Arkansas.—The new medical law which went into force in Arkansas on August 6, 1909, provides for more extensive reciprocity privileges between Arkansas and other States as follows: The boards may, at their discretion, arrange for reciprocity in license, with the authorities of States and Territories having requirements equal to those established by the Arkansas boards, and every person desiring license under reciprocity must make application to the secretary of the board representing the school of medicine from which he graduated. License may be granted applicants for license under such reciprocity on payment of $25. All boards are authorized to revoke licenses for the following reasons: Chronic and persistent inebriety, the practice of criminal abortion, either as principal or abettor; conviction of a crime involving moral turpitude; publicly advertising special ability to treat or cure chronic and incurable diseases; the presentation to the board of any license, certificate, or diploma which has been legally or fraudulently obtained, or the practice of fraud or deception in passing an examination. It is also

provided that physicians charged with any of the above may be given a hearing before being proceeded against. The law provides also that any member of the medical boards may grant a temporary permit to practise medicine between sessions of the boards, upon satisfactory proof of the applicant's ability, and upon the payment of the regular fee for examination.

The Iowa State Board of Health has recently made radical changes in the sanitary laws of the State. The sanitation in cases of contagious diseases is to be left largely in the hands of the attending physician. He attends to the disinfection, which is at the expense of the patient. The county also is relieved from the expense of quarantine for smallpox, the patient being obliged to pay all expenses of physician, nurse, and attention. Reporting, placarding, and disinfection for measles, mumps, whooping cough, typhoid fever, consumption, and pneumonia are discontinued. The only diseases over which the authority of the State Board now extends are scarlet fever, diphtheria, smallpox, cholera, leprosy, epidemic cerebrospinal meningitis, and bubonic plague. The period of quarantine is markedly reduced in these diseases. Smallpox patients may be released as soon as the peeling process is completed, and quarantine for scarlet fever shall be raised on recovery, to be certified to the health officer by the attending physician. Diphtheria patients may be released six days after the membrane disappears from throat and nose, providing two consecutive cultures are negative.. The wage-earner in a family quarantined for diphtheria may go and come, but must change his clothes and bathe face and hands with a disinfectant before leaving the premises. Practically the only point in which the laws retain their former rigidity is in the matter of consumption in the schools. Tuberculous students and instructors are forbidden to attend any public or private school. The reason given for this marked reduction in the rigidity of the sanitary laws is that the former laws were so expensive to enforce that the counties could not afford to live up to them.

Toronto General Hospital.—Arrangements have been made between the boards of the Toronto General Hospital and the University of Toronto by which the university is to pay to the hospital the sum of $700,000. In return for this the new hospital is to be built in close proximity to the university, and the professors and heads of departments in the university are to be *ex-officio* heads of the services in the hospital. The total cost of the new hospital will be in the neighborhood of $2,200,000, of which $1,900,000 has already been subscribed.

Sea Breeze Hospital for sick infants and their mothers at West Coney Island, New York, will remain open until September 10 this year, instead of closing at the usual date of August 31.

New Hospitals.—A number of millionaires around Lake Geneva, Wisconsin, have taken steps to build a modern hospital. Nearly all of the capital stock of one hundred thousand dollars already has been subscribed. The hospital is to be located on a hill overlooking the east shore of the lake adjoining the property of Otto Young. The Board of Directors of the Lutheran Deaconesses' Home in Chicago has completed arrangements for a new $75,000 hospital, to be built adjoining the old home at Haddon Avenue and Leavitt Street. A donation of $5,000 has been made by the Illinois Steel Company to the South Chicago Hospital, to be applied toward its indebtedness.

Charitable Bequests.—By the will of the late Col. Thomas Emmett Addis of New Haven the following institutions in New Haven received bequests: The New Haven Hospital, $100,000; Grace Hospital, $100,000; Connecticut Training School for Nurses, $5,000, and New Haven Dispensary, $5,000. After the distribution of a few other minor bequests the residue of the estate, valued at $400,000, is to be divided between the New Haven Hospital and the Grace Hospital. By the will of the late John Edward Brown the Perkins Institute for the Blind in Boston receives $100,000, the Gwynne Temporary Home for Children in Boston $20,000, the Industrial School for Crippled and Deformed Children in Boston $20,000, and the Home for Incurables in Chicago $50,000.

The Medical Society of the Missouri Valley will hold its annual meeting at Council Bluffs, Iowa, on September 9 and 10, 1909. Dr. C. B. Hardin is president of the society, Dr. Charles Wood Fassett is secretary, and Dr. V. L. Treynor is chairman of the committee on local arrangements.

The Upper Peninsula Medical Society, meeting at Calumet, Mich., on August 4, elected the following officers: *President*, Dr. E. T. Abrams of Dallas Bay; *Vice-Presidents*, Dr. R. Binne of Sault Ste. Marie and Dr. John McRae of Calumet. The next meeting will be held at Sault Ste. Marie.

The Waldo County (Me.) Medical Society was organized at a meeting held at Belfast, Maine, on July 29, 1909. The society will hold meetings quarterly, and will be a branch of the State association. The following officers were elected: *President*, Dr. A. E. Kilgore of Brooks; *Vice-President*, Dr. Eugene Stevens of Belfast; *Secretary*, Dr. Jesse Cook of Unity; *Treasurer*, Dr. O. S. Vickery of Belfast. A Board of Censors was appointed to receive applications of members, composed of Dr. A. E. Kilgore of Brooks, Dr. C. R. Hines of Searsport, and Dr. D. P. Hurd of Thorndike.

Obituary Notes.—Dr. Lewis Balch of New York City died on August 9, 1909, aged 62 years. Dr. Balch was educated at McGill University and the College of Physicians and Surgeons of New York, receiving his degree from the latter institution in 1870. For many years he practised as a surgeon in Albany, holding at various times the position of surgeon to different Albany hospitals, Professor of Anatomy and Medical Jurisprudence in the Albany Medical College, Health Officer of Albany, and Secretary of the New York State Board of Health. At the outbreak of the Spanish-American war Dr. Balch went to Cuba as surgeon of the Second Regiment, New York Volunteers, and later to the Philippines as brigade surgeon with the rank of major. Returning from Manila, Major Balch was put in charge of the sanitary improvements at Colon, Panama, in which work he made for himself an enviable reputation. Since then he has lived in retirement at the Army and Navy Club in New York.

Dr. Joseph W. Southall of Amelia, Va., died at his home August 2, 1909, aged 77 years. Dr. Southall was prominent in his profession and in Virginia politics, having served in the State Senate for several terms, and also as State Superintendent of Public Instruction.

Dr. W. L. Chester of Jackson, Tenn., died on

July 26, 1909, at Memphis, Tenn., aged 50 years. He was a graduate of the University of Louisville in 1879, since which he has practised in Jackson.

Dr. Sarah Hackett Stevenson of Chicago died in that city on August 14, 1909, aged 66 years. She was educated in the Illinois State University and the South Kensington Science School in London, and received her M. D. from the Woman's Medical College in 1873. Dr. Stevenson was the founder of the Illinois Training School for Nurses, and a promoter of the Home for Incurables, the first woman to be appointed instructor in the Northwestern Medical College, and also the first woman member of the American Medical Association. She was a delegate to several international medical congresses, and the author of a work on biology.

Dr. Ignatius Donnelly of St. Paul died in Minneapolis July 31, 1909, aged 51 years. He was a graduate of the Jefferson Medical College in 1883, and had practised until a few years ago in St. Paul as an eye and ear specialist, when his health required his moving to Butte, Mont.

Dr. Francis E. Roche of Ogden, Utah, died of blood poisoning at his home on July 31, 1909, aged 67 years. He was born in Ireland, and received the degrees of Bachelor of Arts and Doctor of Medicine from Dublin University. He was also a Fellow of the Royal College of Surgeons, and for seven years surgeon major of West Essex. On coming to America in 1876 Dr. Roche settled at Oakland California, but nine years lated moved to Utah.

Dr. Joseph Alison Scott of Philadelphia died of heart disease at Northeast Harbor, Maine, on August 13, at the age of 44 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1889, and he later served as resident physician to the Pennsylvania Hospital and the Johns Hopkins Hospital. He was for a time Medical Examiner for the Penn Mutual Life Insurance Co. and Professor of Clinical Medicine in the Philadelphia Polyclinic and College for Graduates in Medicine. He has been for a number of years one of the attending physicians to the Pennsylvania Hospital and also Clinical Professor of Medicine in the University of Pennsylvania. He was a capable clinician and he had made numerous valuable contributions to medical literature.

Correspondence.

BLOND IDIOTS.

To the Editor of the Medical Record:

Sir:—I have read with great interest Dr. Woodruff's paper "Who Are the Unfit" in your August 7 number. His book "The Influence of Tropical Light on White Men" set me to thinking along these lines. Twelve years of my experiences have been among feeble minded and epileptic children, 3,000 of these unfortunates having passed my way. The Mongolian idiots, who average 40 in 1,000, and are on the increase, are blonds, but two exceptions having occurred in 126 cases, and those two had gray eyes. Heredity does not play a part in this form of idiocy. The congenital feeble-minded in this 3,000 were, with few exceptions, blonds, and those exceptions were not true brunets. The feeble-minded who were made so by illness were brunets, adding weight to the fact that brunets have greater vitality. Another striking fact concerning the Mongolian idiot, a fact nowhere mentioned in connection with his characteristic hand, is that the forefinger is longer than the third, with few exceptions, and those had that finger as long as the third and were the darker blonds. Among normal children I find but 20 long forefingers among 1,000, and two-thirds of these are girls. These children are of high moral development, and are among the best scholars as to school work.

Bertha C. Downing, M.D.

Lexington, Mass.

OUR LONDON LETTER

More Congresses — Health — Medical Meeting — French Doctors in London—Obituary.

(From Our Regular Correspondent.)

London, July 30, 1909.

A second week of congresses. The British Medical at Belfast has occupied it throughout, but the others, noticed in my last, have extended their proceedings into a part of it. The anti-vivisectionists held their threatened second demonstration in the park, and there, as at the meetings under cover, violent language was repeated.

The Health Congress at Leeds had a joint meeting of the Preventive Medicine and Child Study sections to discuss the control of infectious diseases among school children. Dr. Ralph P. Williams said personal contact was one of the chief factors in the spread of infection and was promoted by the use of long desks, though, of course, he referred to the more potent causes as deficient ventilation, etc. He strongly criticised the present system of basing government grants on attendance, which, like the prize system, induced parents to send the children to school when ailing, for then it often turned out that the early stage of infectious disease was begun. Parents and teachers should be taught this, and to recognize suspicious cases. Dr. Thomas declared emphatically that the control of infection had shown no improvement, although great advances had been made in other work by the health authorities. Isolation and disinfection were inadequate and the indiscriminate closing of schools useless, and therefore foolish. The need was to exclude individual children, and parents should be asked to notify the teacher immediately of any indisposition. Dr. T. Orr had investigated the tenacity of existence of the diphtheria bacillus on slate, wood, and paper, and he told the audience that its activity continued for several days during exposure to diffused light and for a much longer time when kept in the dark. Dr. Gibson did not think much of isolation in scarlet fever, but relied rather on more efficient notification. Several speakers mentioned the success of abolition of prizes in certain localities, and the hope was expressed that the Board of Education would take action as the result of these discussions.

At another meeting Dr. Kaye computed that of the 6,000,000 children attending schools less than 4,800,000 could be properly described as sound in body and mind, and what amazed him was that a large proportion of the infirmities were removable, or, if taken in time, preventable.

At the concluding meeting of this congress Dr. Brathwaite, of the Home Office, made the important announcement that extensive changes in the law relating to inebriates might be anticipated in the near future, as the departmental committee had recently reported in favor of extending the existing powers of dealing with them. He said every inebriate was a potential criminal, a burden on public funds, a danger to himself and others. Moreover, by precept, example, neglect of his family, and the procreation of his species was contributing to the supply of drunkards, to the detriment of the national welfare. The doctor added that in his twenty-five years' experience he had received less aid from total abstainers than others, for their cry was total universal abstinence, short of which nothing satisfied them, but years must elapse before that could be reached, if ever. In the meantime the evil of multiplying drunkards goes on and no cry is raised against the unsatisfactory state of the law. Go on, he said, with preventive measures, but do not neglect curative and protective legislation, which will not only pay at once, but are necessary from all standpoints, Christian, humanitarian, and economic.

The Pharmaceutical Conference has also held its annual congress this week. It opened on Monday at Newcastle-on-Tyne, when addresses of welcome were given by the university, the municipality, the local medical profession, and, of course, the local pharmacists. On Tuesday Mr. J. F. Tocher delivered his presidential address in Armstrong College to a large gathering. He held that most of their difficulties were economical. Referring to the tax on alcohol, he said if it were to extend to a solvent for drugs it would economically prove injurious to hospitals, clubs, and the sick poor generally. Instead of taxing necessary medicines ordered through the legitimate channel—the medical profession—if the Government would put a heavy tax on nostrums and medicines not so ordered

the State would not only do a service to humanity by diminishing the misuse of drugs, but furnish the Pharmaceutical Society with funds to enforce the law and protect the public.

The British Medical, as I said, extended over the week, though the sections only occupied three days. What with dinners and entertainments of all kinds, the "doctors' picnic" is a sort of week's dissipation salted with science, this last in fifteen sections, one additional having been appointed during the year. The special reporters you have to represent you in the more important sections and general meetings will supply you with an account of all those proceedings. As to the more specialized sections, they can wait for reports or comments on the discussions as may seem desirable. The addresses on "Medicine," "Surgery," and "Obstetrics," by Dr. Philip, Mr. Barker, and Sir J. Byers, were, of course, the *pièce de resistance.*

A party of about forty French doctors are in London this week in connection with l'Enseignment Médico-Mutuel International, of Paris. The president and founder, M. Etienne Bazot, is of the number. They are visiting the royal colleges, several of the hospitals, the Natural History Museum, etc. These will occupy them from Thursday until Sunday, after which they will make a tour to Oxford, Cambridge, Edinburgh, and the other university cities. They expect to return to Paris on August 15.

The death is announced of William Brown, F.R.C.S. Ed., Medical Officer of Health for the city of Carlisle. He was educated at Edinburgh and qualified at the two royal colleges. Later he took the English College of Surgeons membership. His reports on the health of Carlisle and other contributions to medical literature were important.

Dr. Rayner Winterbotham Batten, who died on July 15, aged 74, was consulting physician to the Gloucester Royal Infirmary, on the staff of which he had been for thirty-three years. He took an active part in the social life of the city where he lived, and was foremost in all philanthropic and religious movements. He was working only two days before his death from heart failure.

OUR VIENNA LETTER.

(From Our Regular Correspondent.)

AUENBRUGGER CENTENNIAL—PRESERVED MOTHER'S MILK—PATHOGENESIS OF ARTERIOSCLEROSIS—OSMOTIC POWER OF THE INTESTINES—HYPOPHYSIS EXTRACT—TEMPERATURE OF HEART AND LUNGS—BLOOD REACTION FOR TUBERCULOSIS.

VIENNA, July 15, 1909.

At the centennial of the death of Leopold Auenbrugger there was unveiled on the house in which he died a memorial tablet, founded by the Vienna Medical College. Auenbrugger, born in Graz on November 19, 1722, was the discoverer of percussion of the chest. His article, *"Inventum Novum,"* published in 1761, describing his discovery, was ignored by the contemporaneous clinicians, especially by Gerhard van Swieten and Anton de Haen. These two latter sought to bury the fact so that this blessed discovery would have been entirely forgotten with Auenbrugger's death had not Jean Nic. Corvisart, Napoleon I.'s personal physician, recognizing its great significance, given due praise to the neglected and often derided old man in an article on the discovery, confirmed and perfected by himself. In France percussion was zealously used and added to by Laennec through his introduction of auscultation. It was Joseph Skoda, however, in Vienna who put it on a scientific basis.

Ernst Mayerhofer has been making some feeding experiments with preserved woman's milk. The need of a method to preserve mother's milk speaks for itself. Mayerhofer proposes a modified Budde procedure to accomplish this. To 400 c.c. of mother's milk he adds 0.1 c.c. of perhydrol. If the reaction is evil he adds magnesium peroxide besides the hydrogen peroxide. With proper care of the milk (weekly repetition of the process and, eventually, neutralization of that which has become acid) it is possible to give to infants mother's milk which is months old. The results at the Kaiser Franz-Joseph Children's Hospital in Vienna demonstrate that it is possible to make woman's milk stable by sterilization without its losing any of its qualifications as a nutriment, and that preserved mother's milk serves much better than cow's milk as food for premature infants. In this manner every infant hospital may be emancipated from the danger of a temporary loss of wet nurses; indeed, they can nourish infants naturally and with good results for some time without wet nurses.

Prof. Dr. Biedl and Dozent Dr. Ludwig Braun have made some investigations into the pathogenesis of arteriosclerosis, in which they tried especially to clear up the mechanical cause of the condition. They were able to produce marked changes in the thoracic aorta, especially in its ascending portion, in rabbits, by repeated compression of the abdominal aorta. The compressions were made on normal rabbits by pressing the aorta against the spinal column above the origin of the renal arteries once daily for a period of about two minutes. If the pressure was made below the renal vessels the changes in the thoracic aorta did not occur. From these researches it was concluded that circulatory changes occurred from the compression of the aorta which entailed changes in the aorta in some manner which required further investigation. In further studies the authors were able to produce sclerotic changes in the aorta and the smaller vessels by feeding on a dry diet of oats. Further investigations will now be carried out to determine to what extent these changes are dependent upon a thickening of the blood. It is stated, finally, that sclerotic changes may be produced in the complete arterial vascular system of rabbits by means of absolute fasting.

Ernst Pribram has investigated the intestinal wall as an osmotic membrane in acute and chronic enteritis. If one uses the intestine as a colloidal membrane and tests its permeability for crystalloids (salt and sugar) in the fresh, unchanged state, one finds that in individuals (both animal and human infants), with chronic enteritis, its permeability is markedly decreased, while in acute enteritis it is increased to a high degree. The experience of the clinicians, galactosuria in infants with acute enteritis, febrile attacks on feeding salt or sugar, and the brilliant results from osmodietetic therapy would lead one to expect that conditions exist in the living organism quite similar to those found *in vitro.* But not only crystalloids, but also colloids, albumin, ferments, toxins, etc., diffuse much more rapidly through the acutely inflamed gut than through the healthy one. The cause of this difference lies in the condition of swelling (acute enteritis), and in the thickness of the superficial layers (chronic enteritis). From this Pribram proposes to administer in acute enteritis a diet as poor as possible in salt and sugar, but in chronic enteritis to increase the osmotic pressure by diets rich in these substances and so aid absorption.

Professor von Frankl-Hochwart and A. Frölich have studied the action of hypophysis extract upon the sympathetic and voluntary nerves. The injection of hypophysis extract, carried on in cats, dogs, and rabbits, stimulates the bladder to contraction in a high degree, and simultaneously increases its irritability to the faradic current working on the N. pelvicus of the voluntary nervous system. The N. hypogastricus belonging to the sympathetic system is not influenced by it. The rabbit's uterus is similarly markedly affected by hypophysis extract. Repeated injections have a weaker effect than the primary one. The effect is independent of the blood pressure. The extract does not affect the salivary glands, the vagus, or the N. erigens. The pupils are markedly contracted. The extract of the hypophysis acts in a different manner from suprarenal extract. The latter is a stimulant of the sympathetic system; the former stimulates some voluntary and some sympathetic nerves, and its action is especially marked upon the abdominal organs. In disease of the hypophysis disturbances of the genital power occur, and, with sufficient involvement of the hypophysis, this may be completely lost. Bladder disturbances are not uncommon with hypophysis tumors without acromegaly, possibly due to an absence of secretion of the hypophysis. The extract is not poisonous. It is possible that the clinicians may be able to make use of this property of the extract to increase the excitability of the bladder and uterus.

Professor Exner has been investigating the relation between the temperature of the heart and that of the lung. In cold-blooded animals the heart is separated from the lungs, and in many surrounded by the liver. In warm-blooded animals and in man it is almost completely surrounded by the lungs, and in birds by the pneumatic sac. This situation of the heart has the result of cooling the heart muscle, which, by its activity, produces much heat, and prevents overheating. The

human lungs remove from the body daily in the neighborhood of 322 calories, of which 80 are used up in warming the inspired air and about 242 in saturating it with water vapor. When the body is threatened with the danger of hyperpyrexia the lungs remove more heat by faster breathing—thermic dyspnea—by which more air is inhaled than normally. The cardiac work amounts to approximately 10,000 kilograms daily, of which two-thirds is converted into heat, by which about 70 calories are produced. The heart gives over a part of the superfluous heat to the neighboring organs. The researches of Yoshimura in the Vienna Physiological Institute on the temperature relations of the heart and lungs, made by means of thermal needles stuck into the organs, show that the ventricular wall is in the neighborhood of 0.5° warmer than the lungs, and that different localities in the lungs are cooler in proportion to their distance from the heart. The wall of the left ventricle has a higher temperature than the blood contained in it; when the heart is laid bare this may reach as high as two degrees. The blood in the left ventricle is colder than that in the right, since the latter has been returned from portions of the body in which active metabolism is going on. The heart gives off from its surface one-tenth to one-fifteenth of the heat which it produces. When one prevents the cooling of the heart by the lungs by surrounding it with dry cotton, as a poor heat conductor, the temperature of the heart rises; it beats faster and then stands still; on removing the cotton it begins to beat again. The right heart is not surrounded by the lungs in man; the sudden cooling is of less significance here, as the right ventricle easily gives off heat on account of the thinness of its wall, and produces but little, its working being relatively slight, only one-seventh to one-eighth of that of the left ventricle.

Based upon 800 cases of various diseases, Erich Stoerck has found a test which is positive in some 60 per cent. of the cases of phthisis. The serum of the patients, on addition of twice its volume of ½ per cent. carbolic acid solution in normal saline, causes a precipitate after 10 to 12 hours in the thermostat. In some cases a precipitate occurs if one adds to the serum a sufficient quantity of fresh bacillary lipoid in salt solution, whether it be obtained from the fatty portion of the tubercle bacillus or from yeasts. By an emulsion of the ethereal extract of 0.5 gm. of lipoid-rich bacilli in 250 c.c. of ½ per cent. carbolic acid saline solution, a reagent is obtained, which, in about 75 per cent. of all cases of pulmonary tuberculosis (the reagent being mixed with the serum in the proportion of 2 to 1), causes a precipitation after a few hours in the thermostat. This precipitation also occurs in cases of far advanced tumors, in severe diabetes, in the early stages of infectious diseases, and after the injection of large amounts of milk. It is necessary that the test be made in the morning, when the stomach is empty, 10 to 15 hours after the last meal containing milk or fat. Membranous plates also occur occasionally in the serum. These have nothing to do with the fine granular or flocculent precipitate, and must not be mistaken for it. The material which gives the reaction is apparently of a fatty nature. Both phenol and sodium chloride are necessary for the typical reaction. The effort to replace phenol by other acids, as hydrochloric, oxalic, and acetic, gave no definite results. When isotonic cane sugar solution was used instead of the sodium chloride the reaction failed in nearly every case. Other bodies than the lipoid obtained from bacteria did not stand the test, though now and then lecithin, sodium glycocholate, and vaseline gave a precipitate. The reaction would be of practical value in the differential diagnosis between early pulmonary tuberculosis and other diseases, with the exception of tumors with degenerative changes, severe diabetes, and acute infectious diseases. The reaction appears to be conclusive only if it occurs constantly on different days.

Mercury and Sulphur.—D. Respighi finds that sulphur acts as an antidote to mercury in the intestinal canal and when sulphur waters are being drunk it is found that the patient will tolerate a larger amount of mercury than when they are not in use, without the occurrence of mercurialism. Sulphur is not only an antidote to mercury in the intestinal canal, but also to the mercury circulating in the blood. Whenever we have symptoms of mercurial poisoning in syphilis we should make use of the sulphur waters as an antidote and eliminant.—*La Riforma Medica*, February 24, 1908.

Progress of Medical Science.

The Boston Medical and Surgical Journal, August 5, 1909.

The Etiology of Tumors Considered from the Standpoints of Congenital Tumors and Tumors Following Repeated Injuries.—S. B. Wolbach states the hypotheses of Cohnheim, Ribbert, and von Hansemann. After considering metaplasia of epithelium, heterotrophic proliferation of epithelium in chronic inflammatory processes, carcinoma following well-known pathological processes, carcinoma associated with unusual occupations and practices, and carcinoma following *x*-ray exposures, the author summarizes as follows: "I have endeavored to present a few data which support the belief that congenital tumors and tumors of infancy and early childhood most commonly take origin from isolated or misplaced cells. At least we have very positive evidence that certain tumors, such as teratomata, hypernephromata, mixed tumors of the kidney and parotid, and the retinal tumors arise from such errors of development. I have endeavored to show that in the cases of *x*-ray carcinoma and a few other instances, such as Bilharzia disease and Kangri carcinoma, there is a proved casual relationship between malignant tumors and antecedent pathological processes. The more peculiar the source of the injury, the greater is the value of the evidence when the association is marked by a strikingly large number of cases. The similarity in the evolution of the skin carcinoma in widely different kinds of exposures points to a common underlying process whatever the nature of the injurious agent. In the case of *x*-ray carcinoma and Bilharzia carcinoma, there is a proved similar antecedent pathological process. *X*-ray carcinoma is to be regarded as the first instance of an experimentally produced malignant tumor. Its occurrence, following definite lesions of the skin, of a continuous and progressive character, places the whole subject of carcinomata following repeated injuries upon a firm basis. It designates this field of investigation as the most promising one for research into the origin of carcinoma, because we have at least one and perhaps several examples of proved relationship. The facts presented do not speak for belief in simple trauma as a cause of tumor production. They do indicate that long-continued progressive lesions of connective tissue supporting epithelium are responsible for the acquisition of malignant properties by the epithelium. This belief is not so far removed as it would first appear from the hypothesis of von Hansemann, who believes that the malignant property of epithelium is a primary disease. There is no incompatibility in a theory which holds to the idea that similar properties may be acquired by years of changed environment and nutrition. It may be said that no series of experiments upon animals, in the attempt to produce tumors, has ever been carried out which in any way approached duplication of those conditions we find in man associated with the production of cancer. The element of time is perhaps the most important factor. Many years always elapse between the onset of the antecedent pathological process and the occurrence of cancer. In the case of *x*-rays ten years is perhaps the shortest period. The magnitude of the problem and the value of results should justify the expenditure of time and money necessary to more adequately investigate this field of the cancer problem.

Superficial Dermatitis of the External Auditory Canal.—Clarence John Blake says that under conditions of maceration the epithelial layer is easily separable, both from the outer surface of the drumhead and from the inner end of the auditory canal. Normally it disposes of its detritus in the form of flattened epithelial scales, not after the usual manner of disposal in other parts of the skin, but by a well-defined movement or progression which carries the effete material toward the outer end of the canal until it is there mechanically excluded. In a series of investigations the lines of movement of this epidermal layer, so far as the drumhead is concerned, were definitely mapped out several years ago, the general lines of movement being from the center toward the periphery, upward and backward, and then outward along the posterior wall of the canal. Recent investigation also shows that the corresponding movement of the epidermal layer of the external auditory canal is mainly along the superior posterior wall, with a gradual inclination downward toward the inferior wall, which is reached at the point of junction of the cartilaginous and osseous canals. The rate of movement of the epidermis of the drumhead from the center of the drumhead to its periphery is much more rapid than the movement along the canal wall, and, moreover, this latter is appreciably slower toward the end of the course toward the isthmus than at the beginning at the inner end of the

canal. A superficial dermatitis of the external auditory canal affects principally this epidermal layer, though the primary exhibition may be through the underlying derma, the result of a local irritation or the symptom of a systemic condition. In acute inflammation the primary mechanism is a dermal hyperemia with serious transudation and elevation of the thin dermal layer which, under maceration, disintegrates and, mixing with the serum, affords an outflow macroscopically simulative of pus. Under these conditions the most effective first treatment is thorough cleansing by means of syringing with a weak, warm solution of soda bicarbonate, followed by careful drying with sterile absorbent cotton, this process being repeated at intervals until the exfoliated epidermis has been entirely removed. When this has been effected the denuded surface should be painted with a solution of silver nitrate of a strength of 60 to 80 gr. to the ounce. In the subsequent treatment care should be taken to search for any spots of ulceration or small areas of granulomata in order that they may be touched with a stronger silver solution. The exfoliation of the outer portion of the canal should be treated by scrubbing with weak peroxide and soda bicarbonate solution, followed by application of alboline. In chronic forms of epidermal disturbance where the epidermal layer seems to have lost its normal progression, or to have it so much impaired as to result in the accumulation of superimposed epidermal layers *in situ*, these layers should be carefully peeled away from the canal wall and successively removed by means of forceps, the underlying hyperemic surface being searched for areas of granulomata, with a view to their treatment with silver nitrate. In all these cases it is well to keep the individual under observation in order to guard against recurrences, either of the acute form or of the resultant epidermal accumulations, until the skin has resumed its normal functions.

Psychasthenia.—A. H. Ring summarizes his paper as follows: (1) Janet, who coined the word "psychasthenia," intends to include under the term obsessions, manias of doubt, tics, agitations, phobias and the deliria of contact, states of anxiousness, neurasthenias, and bizarre sensations of strangeness and depersonalization. These he would group together into a grand pychosis similar to hysteria and epilepsy. (2) Psychasthenia is at base a disturbance of the feelings, the will, and perception, and may range from mere eccentricities in the superficially normal through mild depression to melancholia and dementia. (3) There are two types: 1, Those in which the disturbance shows itself, principally in motor fatigue, and 2, those in whom the principal affection is in the sensory motor and emotional sphere, the latter offering the less favorable prognosis. (4) Phobias result from an unhealthy, prolonged feeling tone of depressing ideas and may be conscious or subconscious. (5) Doubts and indecision are evidence of fatigue of the higher centers which preside over formative and newly synthetized associations. The final judgment is thus rendered difficult or impossible, and the victim finds himself in a state of vacillation and with a tendency to revert to the lower and simpler associations long formed. Weakened cerebral inhibition also plays its part. (6) Obsessions and impulsions are the emotional result of the above factors, and show themselves principally as a failure to inhibit the feeling-tone of ideas automatically repeated, yet the all-pervading asthenia checks the impulses short of accomplishment. (7) Psychasthenia should be differentiated from hysteria, epilepsy, dementia præcox, manic depressive insanity, and paresis. (8) The treatment is largely prophylactic and educational. Physical and hygienic measures should be combined with explanation, persuasion, and encouragement. Logic appeals to these patients, but they are not good hypnotic subjects.

New York Medical Journal, July 31, 1909.

Achylia Gastrica and Insufficientia Pylori.—A. L. Benedict refers to the discussion between Dr. Mark I. Knapp and Dr. Max Einhorn in regard to the use of the term achylia gastrica. Speaking generally he does not believe that it is possible to give a description of either pyloric insufficiency or achylia gastrica in the sense of presenting a clinical picture. This does not mean that he has never suspected the occurrence of these conditions in advance or that his conjectures have always been wrong, but that there is no unmistakable characteristic clinical picture of either, and that a diagnosis cannot be made until the examination has actually been made. The writer opposes Dr. Knapp's statement that "the pyloric region is the lowest part of the stomach, hence all ingesta drop there by mere gravitation." In a perfectly normal stomach the pyloric region—but not the pylorus—is only slightly higher than the great curvature; in comparatively slight degrees of atonic dilatation and ptosis it is practically a long way from being the lowest part. He also objects to Dr. Knapp's implication that supermotility of the gastric muscle generally is necessarily associated with pyloric spasm, or that achylia gastrica is necessarily atrophic and insufficiency of the pylorus hypertrophic, or that an exaltation of one function may not coexist with a depression of another function. He agrees, however, with Dr. Knapp's statement that achylia gastrica should not be inferred from the absence of stomach contents an hour after a meal. To sum up, Dr. Benedict believes that there is such a condition as achylia gastrica, and such a condition is insufficientia, or at least, relaxatio pylori. They are absolutely different conditions, having in common only the element of depression of function, which may be functional in the ordinary sense or as secondary to an organic lesion. They are so different that there can be no question of correct nomenclature or interpretation of a single disease or symptom complex, so different that they may exist independently or may coincide in the same case.

Does Zymosia Gastrica Solve the Soil Problem of Tuberculosis?—Dr. Mark I. Knapp presents this report as a result of the study of the gastric condition of one hundred cases of the New York Board of Health Clinic for Pulmonary Tuberculosis. He refers to his paper on Organacidia Gastrica, in which he distinguishes three distinct subdivisions of organacidia gastrica, viz.: organacidia gastrica simplex, gastrosia fungosa, and zymosia gastrica. He has since added a fourth subdivision, namely, organacidia gastric ab amylo, which is the result of eating large quantities of starches, either in the shape of plain bread, or cakes, or potatoes, etc. After describing the experiments Dr. Knapp makes the following deductions: (1) Every case is one of zymosia gastrica: (2) in seventy-eight per cent. of the cases the pylorus is affected; (3) in eighty-six per cent. of the cases free hydrochloric acid is present together with various and abundant growth of microorganisms. One case showed zymosia gastrica many years before pulmonary conditions developed. It would seem that this occurrence of sporulating, budding yeast is rather more than a coincidence, and that zymosia gastrica must bear a certain relation either to the development or to the progress of tuberculosis. The assumption that zymosia gastrica may possibly be held responsible for the soil conditions of tuberculosis is very daring; yet zymosia gastrica apparently constitutes some factor in the condition of tuberculosis. The interest of science demands that we get more information on the subject, and that such of the profession who interest themselves in the scientific research of tuberculosis inquire with special care into the gastric condition.

Tuberculous Infection Through the Tonsils and Adenoids.—A. J. Pratt believes that the tonsils and adenoids are only very troublesome vestigial organs; that they have no beneficial function, are disease producing, and that we are better off without them. The inherent resistance of all mucous membrane to germ invasion, and the bactericidal properties of its secretion give protection, but when there is abrasion invasion takes place. In the crypts and fissures, closed as they often are by secretion plugs and attachments of the pillars and mucous membrane, and swollen by chronic and acute inflammation, the path is opened, and the invading germs go on their way to the lymphatic glands to be destroyed or to establish infected centers. The course of infection is illustrated by Dr. J. Grober's three experiments. In these experiments sterilized emulsion of black Chinese paint was injected into the tonsil, in the first instance in a rabbit, and in the other two experiments in dogs. In the rabbit the glands and lymph vessels were fairly packed with coloring matter. Beyond the zone of the glands and lymph vessels very little coloring matter was found. In the dogs at autopsy the tonsil and loose connective tissues containing the afferent lymphatic vessels of the tonsil were of a deep black color; along the muscles of the neck as far as the hyoid bone, and even beyond the thorax to the parietal pleura, there were streaks of pigment. The lymph vessels of the peritracheal connective tissue and of the esophagus as far as two or three centimeters above the bifurcation of the trachea were also colored. All the lymph glands on the lateral wall of the pharynx, hyoid bone, larynx, along the deep vessels of the neck, and supraclavicular fossa were black. The parietal pleura at the apex showed an exudate. In one dog fibrous exudate was found in the apices of both lungs, thus forming a bridge of inflammatory material from the parietal to the visceral pleura. Coloring matter was present in the exudate. From these experiments Grober builds the hypothesis that tuberculous infection of the apex of the lung may take place via the deep lymphatic chain, the supraclavicular glands, and thence the parietal lymphatic vessels, where an inflammatory exudate is

thrown across to the visceral pleura. The tubercle bacilli travel across this inflammatory bridge and enter the apex of the lung. Dr. Pratt believes that the tonsil and adenoid have more to do with tuberculous infection of the lymphatic glands of the neck, larynx, and lungs than all other sources. The majority of tuberculous tonsils are primary infections; rheumatic fever, acute endocarditis, septic thrombophlebitis, pulmonary gangrene, and other infected conditions have their initial lesion in the tonsil and adenoid. In all tuberculous cases the tonsils and adenoids should be thoroughly removed that the present and future source of infection may be eliminated.

Journal of the American Medical Association, August 7, 1909.

Pulmonary Complications of Laparotomy.—J. C. Munro reviews the pulmonary complications of the last 1,000 laparotomies performed in the Carney Hospital, Boston, showing only 34 cases, of which 11 only were really postoperative in the strict sense of the word. The others had existed before the operation. This very low mortality, 0.4 per cent., was obtained by simple ordinary precautions during the months when the climatic conditions were at the worst. The anesthetic was pure ethyl chloride followed by ether given in as small quantity as possible by the drop method. Analyzing cases, as carefully as he can, he can find no special definite cause or causes that can be eliminated in future. The majority of the patients were out of bed within 48 hours, and were given as liberal a diet as they could be persuaded to take. All were encouraged to move their body and limbs and were given usually plenty of water to keep down thirst.

The Colon Tube and the High Enema.—The question of how far the soft rubber colon tube can be inserted into the bowel to administer an effective high injection is taken up by H. W. Soper, who describes experiments performed by him in which the position of the tube was verified by the x-ray. Sixty cases were examined where it was attempted to pass long blunt end soft rubber tubes, with side openings, into the rectum, the patient being in the knee chest and side positions. The only case in which he succeeded in passing the tube above the dome of the rectum was one of Hirschsprung's disease or congenital idiopathic dilatation and hypertrophy of the colon, and even here it was necessary to use the sigmoidoscope to introduce the tube. He thinks it is only in cases of abnormal development of the sigmoid that it is possible to introduce a soft rubber tube higher than six or seven inches in the rectum. A short tube six inches in length is therefore best for all sorts of enemata when using water for fecal evacuation, and it is possible, as he has frequently demonstrated, to thoroughly cleanse the entire colon by using a large caliber (one-half inch) short tube. It is also best when retention of liquid is desired.

Tuberculosis of the Larynx.—W. E. Casselberry notes the common opinion of the formidable nature of laryngeal tuberculosis, and seeks to establish for this type of the disease, what is now well known in the pulmonary type, that in certain patients Nature develops an adequate resistance which, properly aided, may arrest the disease. In 24 out of 60 cases observed by him, the disease was of the hopeless, non-resistant type. Twenty-two of the 60 patients had some elements of hopefulness in them, their natural resistance being sufficient to cause temporary amelioration and arrest, but not a permanent betterment, as a rule. Of this number, 8 are known to have succumbed in from 3 to 7 years, and 12 more are evidently doomed to follow the same course. Two, however, of this second group have now almost, if not quite, reached a state of permanent arrest of the disease, and one of these is reported. The third group is composed of 11 patients in which the laryngeal lesions are or were in a state of arrest after a lapse of periods varying from four to fourteen years. This does not mean that they are absolutely free from tuberculous disease, but that all progress in the laryngeal symptoms has ceased. Seven of these cases are detailed and 2 of them have been since reported on by another physician than the author. Several other cases are also reported in which death occurred from tuberculosis elsewhere, the laryngeal disease having practically ceased. The above cases show that the prognosis is not altogether bad and that, if the disease is recognized early and properly managed, we will have better results than heretofore. The treatment is described. Locally it consists in intralaryngeal surgical treatment by excision of circumscribed infiltrations and curettage of ulcerated areas; the use of galvanocautery deep punctures, local application of lactic acid and creosote or formalin. Casselberry does not advise external radical operation except under urgent conditions, but not in the presence of advanced pulmonary disease. Mentholated emollient spray is, within limits, a sedative to cough and pain, and suited for home use. Cocain and orthoform combined are effective also to some extent. Systemic treatment with tuberculin by the opsonic method has seemed to him helpful, and in the resistant types the three cardinal principles of open-air life, rest, and forced feeding are more imperatively demanded than in ordinary tuberculosis. Rest to the voice is essential and business dictation and even social conversation must be interdicted. The advantages of climatic treatment also must not be overlooked. Casselberry concludes with the statement that simple tuberculous hyperplasia has not infrequently undergone resolution, and even tuberculous ulcers have occasionally healed. Partial improvement of the patient's condition has also been observed, and the effects of treatment under observation enable us to differentiate the cases in which a hopeful resistance can be looked for. In like manner the non-resistant cases can be recognized, and the patients guarded from privation and hardship of travel and useless surgical intervention.

Tuberculous Hemoptysis.—J. M. Anders presents a statistical study of 5,891 cases of tuberculosis from the records of a number of Philadelphia public institutions, with special reference to the causes and incidence of hemoptysis. The cases, he says, fall naturally under two heads: (a) Those caused by congestion of the bronchial mucosa and lung tissue; and (b) those due to ulceration or erosion of blood vessels or rupture of miliary aneurysms. It is doubtful, he thinks, whether the degree of hyperemia is not greater in other disorders less liable to be accompanied with hemorrhage, and therefore the tubercle bacillus may probably be considered a factor. The early hemorrhages in tuberculosis are rarely dependent on congestion or erosion, the usual source being the pulmonary vessels. In advanced pulmonary tuberculosis his study of the hospital records decidedly supports the view that fatal hemorrhages usually proceed from a ruptured aneurysm or erosion of a pulmonary vessel. He finds in this study of a much larger number of cases than in a former investigation, which gave only 28.7 per cent. of cases of tuberculosis with hemorrhage, that the larger statistics indicate a higher incidence. Thus in a total of 5,302 cases, excluding those formerly analyzed, hemoptysis was found in 1,950, or 36.6 per cent. As stated in his former communication, on cases kept under longer observation, the percentage rises to 28.7 to 41.8 per cent., and taking the complete records of the Phipps Institute this symptom was manifested in 43 per cent. More cases occurred in the total number among males than among females, but prior to the twentieth year of life the ratio was a little higher in the female sex. This corroborates his early findings, that hemorrhage appears earlier in life in the female than in the male. The prognostic significance is also different. Profuse and fatal hemorrhages are less common in females, and this is a matter of some importance and interest. The collective investigations into the seasonal relation of hemoptysis show that, contrary to the preconceptions of most writers, it is most frequent in the winter months, while August, September, May, and March, in the order named, seem to rank next. The Phipps Institute statistics also indicate the same thing, that the steady cold of December, January, and February has no preventive influence as compared with sudden changes and enervating warmth. In 51.5 per cent. the bleedings were recurrent, and in 69 per cent. hemorrhages appeared in the first and early part of the second stage of the disease, or that of ulceration. Mere bloody or blood-streaked expectoration was recorded in 16.5 per cent., and in only 314 was only one hemorrhage specified. These last results are in accord with those from his former investigation.

The Lancet, July 31, 1909.

Chronic "Rheumatic" Myositis.—N. S. Yawger believes that the most frequent cause of the so-called "gouty" or "rheumatic" pain is a form of chronic myositis. In a search of literature he had been amazed to learn of the frequency of the development of chronic myositis in muscles other than those of the head and neck, and his attention has also been attracted to the errors in diagnosis to which this condition had given rise. Among the causes affecting this condition are heredity, climate, and weather. Temporarily infiltrated muscles have been observed in a child two years old. They may appear at almost any time of life, and are common in old age. It is probable that no voluntary muscle enjoys an immunity, but there are sites of predilection, the most common of which is in the muscles of the head and neck. The gluteal, lumbar, and deltoid regions, and calf muscles are often involved. The muscles may be invaded at their points of insertion, or the infiltrations may appear in the bodies of the muscles; at times the infiltration extends to the periosteum to which

the muscles are attached, and also to the fascia. The pathology of these diseased muscles is largely hypothetical. These deposits may develop in muscles that are overworked, in those not sufficiently exercised, in those that are much exposed, and where an injury has been sustained. The symptoms are those of pain, which may be sharp and cramplike, or an aching sensation. If the swollen muscle impinges upon a nerve trunk there may be a true neuralgic pain. At times there is paresthesia. There are often associated symptoms in various parts of the body, as depression of spirits, mental torpor, unnatural drowsiness, marked susceptibility to cold, torpidity of the liver, indigestion, painful spasms of the calf muscles, general myasthenia, pyorrhea alveolaris, and hypersensitiveness of the teeth. There is only one lesion likely to be mistaken for an induration, and that is a gumma. The mistakes to which these rheumatic deposits give rise are numerous. Many cases of cephalalgia are of this variety; involvement of the intercostal muscles has been taken for intercostal neuralgia and pleurisy; in the abdominal wall they have been mistaken for acute and chronic appendicitis, gastric ulcer, abdominal and pelvic adhesions, calculus of the kidney, and floating kidney; involvement of the gluteal region for sciatica and hip-joint disease; in the neck they have been mistaken for swollen glands; the frequently complained of growing pains of children he believes are due to this condition. A number of cases are cited illustrating these mistakes in diagnosis.

A Case of Missed Labor Treated by Abdominal Section.—C. E. Purslow relates the case of a woman, 33 years of age, who had had four children and one missed abortion. On inquiring into her history at the time of her admission to the hospital it was found that there had been no vaginal hemorrhage for a period of more than twelve months. The woman had considered herself pregnant, and had felt fetal movements until about three months before her admission to the hospital. She presented signs of a full term gestation, but there was very little liquor amnii, and the uterus was hard and tender on palpation. The cervix was not typically softened, and the os was closed. It was found impossible to pass a Hegar's dilator or a uterine sound into the uterus. At a loss to explain this the abdomen was opened, and the uterus was removed by panhysterectomy. The patient made a good recovery. The pathologist reported that the uterus was closely molded to the fetus, and that there was barely an ounce of liquor amnii. The fetus had the appearance of a full-term child. The skin was of a dirty brown color and easily detachable; it was covered with a cheesy substance. The bones of the skull were loose and easily movable. The wall of the uterus was about one-half an inch in thickness; the muscle was pale and easily split into layers. The placenta was situated almost centrally over the internal os, and lined the lower two-thirds of the uterus. The specimen was quite odorless, and a thin gray membrane separated the uterus from the placenta, and remained attached to the former when the latter was removed. The walls of the arteries were thicker than usual, many of the large spaces were filled with old thrombi, and in some organization of the thrombi was well marked. Dr. Purslow thinks that the occurrence of missed labor in a case of complete placenta prævia is unique. The obstruction caused by the tough placenta explained the inability to pass a sound or dilator into the uterus.

Incarceration of the Vermiform Appendix Containing a Foreign Body (Pin) in the Sac of an Inguinal Hernia in a Child.—Thomas H. Kellock reports the case of a male child two years and four months old who had a small, hard swelling in the right inguinal region, which seemed to be neither painful nor tender. The tumor could not be moved independently of the spermatic cord, although traction on the testicle did not have much effect on it. There was nothing in the child's condition or history to suggest syphilis or tuberculosis. As there was also an empyema, operation was delayed for a time, until the child recovered and the general condition improved. After separating some of the adherent parts the tumor was isolated, and found to have a pedicle leading up through the external abdominal ring and to be intimately connected with the spermatic cord. On making an incision behind the tumor it was found that a sac had been opened, and immediately under the incision the proximate end of the vermiform appendix was recognized. It was found to be adherent at its distal end, but traction on its proximal end brought down the cecum. With some difficulty the appendix was divided close to the cecum, and the latter returned to the abdomen. The remainder of the tumor was removed. The mass was found to contain the whole of the vermiform appendix; the proximal end was healthy, but the distal end was much thickened, and intimately adherent to the wall of the sac. It was found to contain an ordinary pin which was lying almost transversely to the lumen of the appendix, and the point had perforated all the thickness of the wall of the appendix, and was implanted in the wall of the hernial sac and the surrounding tissues. There was no pus either in the appendix or in the surrounding parts. It is only a matter of conjecture whether the impaction of the pin or the descent of the latter into the hernia was the primary occurrence. It is also a matter of doubt whether there was any causal relation between the perforated appendix and the empyema.

A Case of Angioneurotic Edema Associated with Cirrhosis of the Liver.—S. G. Corner reports the case of a male patient, aged 40 years, who had suffered from swelling of both ankles and pain, which had prevented him from walking for three years. All the veins of the lower extremities, together with the superficial abdominal veins, were varicose and distended, and an enlarged vein was present in each axilla. There seemed to be some degree of cirrhosis of the liver. The urine was normal. Under rest, total abstinence, and Scott's dressing applied to the ankles the patient recovered in three weeks and was able to walk. About a month later he began to have swellings in other parts of the body. Night after night a tumor appeared in a new place; any region seemed to be liable to become the seat of a sudden swelling. The tumors generally appeared at night and were preceded by slight itching. The case was diagnosed as one of angioneurotic edema, and 10 grains of calcium chloride was given three times a day, increasing the dose to 20 grains. In about a month the swellings disappeared, whether as the result of the treatment or not, the writer could not say. The patient has now been perfectly well for four months, though he still retains varicose veins of the lower extremities.

The British Medical Journal, July 24, 1909.

Remarks on Common Types of Sore Throat.—A. Stanley Green calls attention to the difficulties that sore throats present both as to diagnosis and treatment, especially in small children. In considering the sore throat of scarlet fever he enumerates four different conditions of sore throat that are met with. (1) The tonsils, faucial pillars, palate, uvula, and oropharynx are swollen and of a deep red color. Sometimes there is inflammatory edema. (2) The appearance presented may be that of follicular tonsillitis. (3) A definite membranous inflammation may occur; the membrane is soft and leaves superficial ulceration as it disintegrates. (4) Marked and deep ulceration occurs in the septic variety; the ulceration may spread upward to the nasopharynx and downward to the epiglottis and larynx; the soft palate may be perforated or the uvula may slough off. The treatment of sore throat in these diseases deserves more attention than is usually paid to them. The application of whatever fluid is chosen with a brush is preferable to the attempt to use a gargle, especially in children. The physician should make the application at least once a day himself. In these cases it is advisable to douche the nasal cavities, and for this purpose the glass douche is preferable to the spray. As regards diphtheria, the diagnosis is often attended with difficulty, especially when the membrane is confined to one or both tonsils; Dr. Green has met cases in which only one tonsil was covered with membrane, but bacteriological examination revealed the specific organism. It was important that these cases should be recognized. Vincent's angina is a condition met with more frequently than is generally supposed. There are two varieties, but he considers only the ulceromembranous. When a gray or yellowish membrane is formed on the tonsils and palate it is difficult to diagnose the case from diphtheria or streptococcus infection without a bacteriological examination. Acute streptococcus infection can be differentiated from diphtheria by taking a swab, as the membrane is difficult to remove and the surface of the tonsil bleeds when the membrane is removed. In this condition a culture from a swab will give either a pure growth of *Streptococcus pyogenes* or a mixed growth of staphylococcus and streptococcus. He finds it best to give 5 to 10 c.c. of polyvalent serum (P.D.) and to swab the throat with a solution made by dissolving a 10-grain powder composed of equal parts of sodium bicarbonate, sodium chloride, and potassium chlorate in an ounce of water; this should be done every two hours or oftener if necessary. This solution will dissolve this membrane or diphtherial membrane if thoroughly applied. It is quite useless to paint these throats with antiseptic solutions as they only tend to harden the membrane. Retropharyngeal abscess should be opened by means of a 3-inch incision along the posterior border of the sternomastoid muscle. In adults, at any rate, this method is attended

with less risk than opening through the pharyngeal wall. The only condition that could be mistaken for a retropharyngeal abscess in an adult is a large gumma. Chronic retropharyngeal abscess in children is not at all uncommon, and the author always performs the external operation, and, up to the present, has not lost a case. In tonsillitis a careful examination of the heart should be made, and if cardiac trouble is discovered small blisters should be applied over the cardiac area. Gargles are worse than useless in these cases; it is better to give the patient guiacum lozenges to suck freely and to apply a warm alkaline lotion to the throat with a brush several times a day. The author prescribes sodium salicylate, sodium bicarbonate, and ammonium bromide; if there is a high temperature, tincture of aconite is added. There could be no doubt about the expediency of removing tonsils which are the seat of chronic tonsillitis or which have been subject to recurrent attacks of acute inflammation. Dr. Green has made a pair of forceps with the blades cutting up and down so that they might fit in between the pillars of the fauces, which were in danger of being injured if the blades cut from before backwards. In regard to malignant growths sarcoma is the most common one which affects the tonsils. If seen before the glands are affected the tumor can in many cases be shelled from its capsule with little trouble and with little, if any, hemorrhage. Even if ulceration has occurred and the condition of the patient is good an attempt should be made to remove the growth. In the treatment of both sarcoma and carcinoma of this region with the *x*-rays and radium Dr. Green's experience is that not only is the rate of growth not checked, but in some cases it is accelerated. In secondary syphilis of the larynx the best local application is a solution of chromic acid (10 grs. to the ounce). Chronic pharyngitis is sometimes due to some constitutional defect, and its successful treatment depends upon ascertaining the cause. If the granules do not disappear under proper treatment they should be destroyed with the galvanocautery blade, only a few being touched at a sitting. Where the swelling of the inferior turbinated bone causes obstruction the application of the galvanocautery to the mucous membrane of the offending turbinates may cure the condition, but in some cases it may be necessary to remove the anterior one-third of the bone; this may be done under local anesthesia. In doing this, Dr. Green uses scissors which he had made with the lower blade a little longer than the upper one. After the cut is made the loop of the cold snare is passed around the cut end, and by tightening it up the amount deemed necessary may be removed. Dr. Green also discusses laryngitis and the importance of an early diagnosis in laryngeal tuberculosis and malignant disease of the larynx. In intrinsic cancer of the larynx early diagnosis and prompt operation give better results than follow the removal of cancer in any other part of the body. Very excellent results have been obtained since the method of attacking the disease by the external operation of thyrotomy has superseded the older methods of intralaryngeal removal. In extrinsic cancer of the larynx ulceration occurs early and the glands are involved much earlier. Even in these cases an effort should be made to extirpate the disease if the condition of the patient warrants it. It should be laid down as an absolute rule that when an adult complains of hoarseness or alteration of the voice of several weeks' duration, the larynx should be carefully examined, and if there is diminished mobility of a vocal cord, with or without definite tumor, the help of a skilled laryngologist is necessary and should be promptly obtained.

Pneumonia Migrans Involving the Whole of Both Lungs, Followed by Empyema: Recovery.—James Bannerman reports the case of a girl, aged three and one-half years, which lasted for five weeks and involved the whole lung area. The disease affected the three lobes on the right side, commencing at the top, and the two lobes on the left side, commencing with the lower. The last involvement, that of the upper left lobe, was preceded by localized pleuritic effusion. About a week after the subsidence of the last attack sickness supervened and the child began to go downhill rapidly. The left base had never regained its resonance, but it now became absolutely dull, with distant bronchial breath sounds. A few days later an increase in dyspnea led to exploration of the left base, where pus was found. One and one-half inches of the eighth rib was resected under local anesthesia. A large quantity of pus was evacuated. A week after operation defective drainage caused a rise in temperature. The cavity was then irrigated daily with a weak solution of perchloride followed by saline solution, after which the patient made an uninterrupted recovery. Six weeks after operation she was running about with an expanded left lung.

The Causes of Obstruction Producing Cyanosis During the Nasal Administration of Nitrous Oxide.—F. Trewby concludes that cyanosis during the administration of gas in the ordinary cases is merely mechanical, being mainly due to the size and shape of the palate and tongue. The tongue varies from the large flabby to the compact muscular variety. The soft palate is important because of the variability of its length. When these structures give rise to the greatest obstruction to free breathing, the patient has a large, flabby tongue, and a long overlapping soft palate. As the soft palate loses its tone it acts as an inspiratory valve and is pressed down on the base of the tongue during expiration. This may be brought about much earlier if gas is given under much pressure through the nosepiece, as the gas passing back into the nasopharynx forces the soft palate against the base of the tongue, thus making expiration through the mouth impossible. If there is no valve at the upper part of the bag, nasal "to and fro" breathing into the bag commences, the patient gradually becoming cyanosed. If there is a valve to prevent this rebreathing, then the only possibility of respiration is by forcing the nosepiece slightly off the face. It is quite easy to keep this class of patients unconscious with the ordinary nosepiece, but only at the expense of cyanosis. A patient with a small compact tongue and short soft palate can be controlled by placing an expiratory valve in the fauces. Between the two extremes are varieties of tongues and soft palates which during administration give rise to more or less obstruction to respiration, with a corresponding amount of cyanosis or gas anesthesia. Cyanosis causes distension of the large veins of the neck and it is quite easy to imagine how with the increased tension within the cervical fascia occurring in asphyxia the airway here may be completely obliterated by pressing the laryngeal opening against the wall of the pharynx and the space just above the pharynx which is extremely vascular. From the fact of the occurrence of nasal "to and fro" breathing during the induction of anesthesia by nitrous oxide, and since in the later stages of the induction the breathing is almost entirely by the nose, the author concludes that any nosepiece without an expiratory valve on it causes unnecessary obstruction and cyanosis, not only while anesthesia is being induced, but also during the continued administration of the anesthetic.

Rigor Mortis in Stillborn Child.—C. Eglington reports the case of a woman admitted to the Birmingham Maternity Hospital with hemorrhage at eight and one-half months in her eighth pregnancy. She had been quite well and remembered having felt the child move as usual until four hours before admission. On admission no fetal heart could be heard. Delivery was natural five hours from the onset of hemorrhage and the placenta was expelled immediately after the child. Artificial respiration was at once attempted, when it was discovered that the child's body was already rigid. The surface of the placenta was unusually smooth and was covered with recently clotted blood.

Berliner klinische Wochenschrift, July 12, 1909.

Experimental Glycosuria.—Sussenguth reports a series of experiments in which he injected solutions of grape sugar subcutaneously into guinea pigs, rabbits, and pigeons. His results differed from those of Kossa and Pflüger, who obtained diabetic coma. His animals showed no constitutional symptoms which could be blamed directly to the sugar in the blood. There was no polyphagia, polydypsia, or polyuria. There was no coma. The animals all became infected and death resulted from the phlegmona rather than from the toxic effect of the sugar. The urine at no time contained albumin. Glycosuria was present in every case; when the sugar injection was small this was remittant, when it was large, constant. The amount of sugar excreted was but a small per cent. of that taken in, and increase in the injections did not increase the excretion proportionately. At autopsy no gross lesions were found in the kidneys. The general condition of the liver and the storing of glycogen were of interest. Instead of the customary regular diffuse deposit of glycogen, it was very irregular in its content, many cells being quite free and the glycogen appearing in patches. The nuclei contained no glycogen. The pigeon livers, on the other hand, were tremendously loaded with it. In the rabbits and guinea pigs there was a decided increase of glycogen in the heart. This did not occur with the pigeons. There was no increase of glycogen in the kidneys. The author concludes that the injections of sugar had no toxic effect on the animal organism, and that the normal glycogen content of the organs was not altered in the manner in which it is in diabetis.

Book Reviews.

American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, A.M., M.D., Assistant Obstetrician to the Hospital of the University of Pennsylvania, Fellow of the American Academy of Medicine, etc. Containing the Pronunciation and Definition of All the Principal Terms Used in Medicine and the Kindred Sciences, Along with Over 60 Extensive Tables. Sixth Edition, Revised and Enlarged. Philadelphia and London: W. B. Saunders Company, 1909.

In this edition of Dorland's convenient pocket dictionary there are twenty-four more pages than in the fifth edition, yet the use of thinner paper has enabled the publishers to reduce the thickness of the book by a quarter of an inch. So far as convenience of handling, print, paper, and binding of the book, it is all that could be desired, but the work shows haste in compilation that does not altogether recommend it to the man who wants a correct definition and not merely a synonym. For example, under Dubini's disease one is referred to myelitis convulsiva and electric chorea; electric chorea is defined as Dubini's disease, and myelitis convulsiva is not defined at all. Reissner's canal is said to be the cochlear canal, which it is not. Oturia is defined as a "discharge of urine through the ear." Why not define it as a discharge of the ear through the urine? This would be a more picturesque and no more impossible performance. This ridiculous word, as well as sutika, moyrapuama, and a number of other terms might have been omitted with advantage. The faults are not numerous, but it is a pity to spoil what might be so good a book with too hasty compilation.

Graphic Methods in Heart Disease. By John Hay, M.D., M.R.C.P., Assistant Physician Liverpool Royal Infirmary. With an Introduction by James Mackenzie, M.D., M.R.C.P. London: Henry Frowde, Oxford University Press. Hodder & Stoughton, 1909.

The use of the polygraph has opened up a new field of study which is full of promise in the diagnosis of obscure disturbances of cardiac function. Formerly the ear detected the presence of valvular lesions, as well as alterations of rhythm, and the sphygmograph showed changes in force and rhythm of the contractions of the left ventricle, but what was being done by the atria and the right ventricle was a matter of conjecture. The polygraph, however, with its simultaneous tracings of the jugular and liver pulses, together with the apex beat and the radial pulse, gives one a clear comprehension of the work of the heart as a whole; it is writing a new treatise on the action of this central organ of the body and explaining many of its vagaries which puzzle and often disconcert the clinician. But the writing of the polygraph is not an open book; its language is new and must be learned by the investigator. This work of Dr. Hay may be compared to a grammar or a phrase book, helping one to master the vocabulary and the idioms of the strange language and to interpret its mysterious and otherwise unintelligible phrases. The author has done his difficult and path-breaking task well, and students of the modern methods of diagnosis in diseases of the heart will find it an invaluable aid in their work.

Syphilis und Nerven System. Neunzehn Vorlesungen für praktische Aerzte, Neurologen und Syphilidologen. Von Dr. Max Nonne, Oberarzt am Allgemeinen Krankenhaus. Hamburg-Eppendorf: Zweite vermehrte und erweiterte Auflage. Berlin: Verlag von S. Karger, 1909.

The first edition of this valuable book appeared about six years ago. The present edition has been considerably enlarged and improved and brought up to date. Certain alterations have been necessitated by recent discoveries in pathology and advance in clinical diagnosis and treatment. Among the discoveries of the past six years bearing on the subject which have been accepted and utilized by Dr. Nonne in this new edition, and mentioned by him in his preface, we note: the isolation of the causative germ, *Spirochæta pallida;* the origin and development of cytodiagnosis and spinal fluid investigation, and the diagnosis of syphilis by the so-called Wassermann reaction. The author's own studies and investigations, modestly set forth in the first edition, having for the most part stood the test of time, are here more fully and authoritatively discussed. While some things which we had come to look upon as settled have had to be unlearned. These the author clearly points out, and things still under discussion he seems to treat in a fair manner. His lectures are interspersed with records of cases. Many of the illustrations are original. The text comprises 641 pages, while 58 pages are given over to bibliography and, what is not always found in German books, a carefully prepared cross index.

Experimental Pharmacology. A Laboratory Guide for the Study of the Physiological Action of Drugs. By Charles Wilson Greene, Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Third edition, revised; with 37 new illustrations. Philadelphia: P. Blakiston's Son & Co., 1909.

This little book of less than eighty pages gives an outline of the laboratory experiments necessary for the student in pharmacology. The drugs selected for this purpose are: Alcohol, ether, chloroform, chloral hydrate, the opium series, caffeine, strychnine, cocaine, quinine, atropine and scopolamine, nicotine, curare, pilocarpine, physostigmine, aconite, veratrine, digitalis, ergot, suprarenal gland, nitroglycerin and the nitrites, carbolic acid, potassium, calcium, and barium salts. Under each drug there is given a list of experiments chosen with due consideration to the facility with which they may be performed by students.

A Handbook of Suggestive Therapeutics, Applied Hypnotism, Psychic Science. By Henry S. Munro, M.D., Americus, Georgia. Second Edition. St. Louis: C. V. Mosby, Medical Book and Publishing Company, 1908.

The writer stated in the first edition that his book was intended for the general profession, rather than for neurologists or psychotherapeutists, and as such it was accepted. The first edition was exhausted within a year. It appeared at an opportune time. The profession was being assailed on every hand by inquiries concerning suggestive therapeutics, due largely to popular lectures on moral control of nervous disorders and the practice of various cults on the part of the clergy and other laity. The physician's attempts to direct the "psychic factor in therapeutics" has been practised since the beginning of medicine. It is only of late years that it has become a conscious practice, and the science and art of psychotherapy have been elaborated. Every attempt by the profession to rescue psychotherapy from what the writer styles the "placebo capsule of religious dogma or bonepath massage" should be welcomed. The usefulness of suggestive therapeutics cannot be overestimated. The actual practice of hypnotism, however, could not and should not be done by every practitioner. It is better left in the hands of the few, yet preferably medical men. This second edition of Dr. Munro's book shows a completer index and the addition of some new material. The writer's enthusiasm leads him into advocating psychotherapy in treating at least the mental state in every disease.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles on Treatment, Medicine, Surgery, Neurology, etc., by Leading Members of the Medical Profession Throughout the World. Edited by W. T. Longcope, M.D., Philadelphia, U. S. A. Volume II., Nineteenth Series, 1909. Philadelphia and London: J. B. Lippincott Company, 1909.

This volume of the well-known quarterly consists of twenty articles under the headings treatment, medicine, surgery, gynecology and obstetrics, ophthalmology, otology, proctology, psychiatry, and pathology. In the first article Shoemaker considers the methods and the results of immunization against typhoid fever; Allyn writes a readable article on the treatment of tuberculous serofibrinous pleurisy; Goodman considers the present status of the Cammidge reaction, giving a review of the literature and the results of a personal study of the test; intraocular tumors are considered by Buchanan; two articles on perithelioma of the testis and on the pathogenesis of spontaneous cerebral hemorrhage by Bushnell and Fletcher, and by Ellis close the volume. In the interest of the subjects treated the value of material, and the excellence of illustrations this volume keeps up the high standard set up by its predecessors in the series.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M.D., Assistant Physician to the Outdoor Out-Patient Medical Department of the Jefferson Medical College Hospital. June, 1909. Philadelphia and New York: Lea & Febiger, 1909.

The present number contains articles by W. B. Coley, on Hernia; I. G. Clark, on Gynecology; E. M. Foote, on Surgery of the Abdomen Exclusive of Hernia; A. Stengel, on Diseases of the Blood, Diathetic and Metabolic Diseases, Diseases of the Spleen, Thyroid Gland and Lymphatic System; and E. Jackson, on Ophthalmology. Among the sections of more than ordinary interest and value we would specially notice those on Hernia Connected with Undescended Testicle, Pseudoincarceration of Hernia, Cancer of the Uterus, Gonorrhea in the Female, Exophthalmic Goiter and Diabetes. This number contains J. G. Clark's annual review of the cancer problem.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

Seventy-seventh Annual Meeting, Held at Belfast, July 23—31, 1909.

Special Report to the MEDICAL RECORD.

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SECTION OF MEDICINE.

Friday, July 30—Third Day.

Gastric Illumination.—Drs. THEODORE THOMPSON and H. S. SOUTTAR of London gave this demonstration. After Dr. Souttar had described the instrument, which was of his own making, Dr. Thompson described its sphere of usefulness, at the same time criticising adversely our present methods of the early diagnosis of structural diseases of the somach. By using a nosepiece which rotated the point of the instrument the whole of the gastric mucous membrane could be examined. The principle of the instrument was the production of a very small image of the gastric wall within a rigid tube, which image was looked at with a telescope, a part of the tube admitting of focusing adjustment.

Dr. GORDON GULLAN of Liverpool described an obscure case of hour-glass contraction of the stomach, with special reference to diagnosis.

Treatment of Tic-Douloureux.—Dr. PARVES STEWART of London read a paper on the technique and results of Schlösser's method of treatment of tic-douloureux by the injection of alcohol into the foramen of Exil of one or other branch of the fifth nerve at the floor of the skull or quite close to the gasserian ganglia: the freedom from pain was produced for ten or eleven months at first, and after subsequent injections for longer intervals, and there were no paralyses or deformity. The injections might have to be repeated at first every day or two. Slight transient paresis, edema, or stiffness were the only drawbacks. Of fifteen cases treated, eleven were rendered completely free from attack. The operation was demonstrated on a patient before the section.

Dr. TOM H. WILLIAMS of Washington read a paper on the treatment of tabes dorsalis by antisyphilitic remedies, especially the intravenous or intramuscular injections of mercurial solutions.

Dr. H. D. ROLLESTON of London read a paper on pruritus in lymphadenoma, maintaining that if it occurred in an early stage of the disease the prognosis was unfavorable.

SECTION OF OBSTETRICS AND GYNECOLOGY.

Thursday, July 29—Second Day.

DR. JOHN CAMPBELL IN THE CHAIR.

A Discussion on Endometritis.—Dr. HASTINGS TWEEDY of Dublin, in opening this discussion, said that he made the following divisions of endometritis: Clinically, into acute and chronic; anatomically, into corporeal and cervical. The acute variety was microbic in origin and often went on to chronic. In the treatment of the acute variety (puerperal) he advocated proceeding on general surgical principles, removing dead areas of infection, draining the pools, and endeavoring to increase the bodily resistance. He would give first an intrauterine douche of sterile salt solution with aseptic precautions; if there was any reason to suspect disintegrating material in the uterus he would explore with a gloved hand, but this usually required an anesthetic and the introduction of the whole or half hand into the vagina. He would put in a drain of iodoform gauze soaked in carbolic acid, which he would remove in 24 hours. Before the first douche a specimen was taken for bacteriological examination and the preparation of a vaccine. Anteflexion and retroflexion were dealt with. The blunt curette was occasionally useful when there was danger of rupturing a recently torn perineum if the hand were introduced. The sharp curette was never advisable. In chronic endometritis the symptoms were amenorrhea, dysmenorrhea, menorrhagia, and the passage of casts and clots. The referred symptoms were pain in the back, weakness in the loins, weariness on slight exertion, headache, and dyspepsia. For all these cases the treatment was curetting preceded by dilatation of the cervix, and followed by washing out with a Boyeman's catheter afterwards swabbing with formalin 1 in 3 on a Playfair probe, taking care to boil the probe after putting on the cotton wool. He put in a wick of gauze which he kept in 24 hours. He kept the patient one week in bed. Mild cases might be treated without curetting by swabbing with formalin or injecting iodine; he did not do the latter oftener than once in three months. No operation for repair of the cervix or perineum or for dealing with a displaced uterus should ever be performed without at the same time doing curetting. For cervical endometritis, he advised partial amputation of the cervix, and if that failed to cure then dilatation of the canal and light application of the cautery. Cases of endometritis attended by severe hemorrhage which failed to yield to curetting were best treated by atmocausis, from which he had seen no ill effects.

Professor FEHLING of Strasburg would just separate the cases due to general disease and in these would not use local treatment. He advised wearing a flexible intrauterine tube after curetting. He was opposed to frequent cauterization. In performing curetting he always measured the length of the cavity with the sound fist and let his assistant place a hand on the fundus. He had given up atmocausis. He would not amputate the cervix in a fertile woman; he treated erosion by the sharp spoon.

Dr. ARCHIBALD DONALD of Manchester said the symptoms of endometritis were hemorrhage, leucorrhea, dysmenorrhea, dragging pains in the iliac region, and hypogastrium, and these were relieved by curetting, which must be done thoroughly and carefully. He believed strongly in gauze packing after curettage. In cases of erosion of the cervix he thought that the condition was often due to irritating discharge from the uterus, and he would curette, but in the case of a much thickened cervix he would remove a wedge-shaped piece.

Dr. F. W. KIDD of Dublin had known cases in which too vigorous curetting had been followed by permanent amenorrhea.

Dr. T. J. MCCANN of London combined curetting with modified test case lasting four to six weeks. He used a blunt curette for the body and a sharp one for the cervix, and swabbed out the cervical canal with 50 per cent. chloride of zinc in cases of troublesome cervical discharge.

Dr. THOMAS WILSON of Birmingham considered that the indication for curetting was hemorrhage, and that it was no good for pain or discharge. He found that all cases in which dilators above No. 13 were used presented evidence of laceration of the cervix, if examined by the finger. After curetting he applied strong iodine fortnightly for three months.

Dr. THOMAS CULLEN of Baltimore said that during a period of four years he had all the scrapings which had been removed by the lancette in a large hospital practice examined by a pathologist, and during the whole of that time there were only forty-eight cases in which endometritis was reported. He thought that there was no difficulty in diagnosis from the histological standpoint, but clinically it was often impossible to say if endometritis was present. Vaginal discharge was often due to a weakened

condition of the general health, and disappeared when the latter improved. He used the bladder dilator.

Professor Alfred Smith of Dublin thought that laceration of the cervix was less likely to occur if preliminary dilatation by a tent was used.

Dr. Henry Jellett of Dublin used formaline, had seen cases of occlusion of the cervix after the application of chloride of zinc, and thought it dangerous. In cases of retroflexion he curetted, and if the uterus was fixed performed ventral fixation; if it was movable, Alexander's operation.

Dr. Fred Edge of Birmingham advised hollow dilators to avoid danger of pressing secretion from the uterus into the tubes.

Dr. S. Cameron did not use flushing curette in case perforations should occur, when it would be dangerous.

Dr. Alexander Russell of Glasgow spoke of the importance of sexual rest after curetting and in endometritis.

Dr. T. B. Grimsdale of Liverpool agreed with Dr. Donald that endometritis was the origin of most of the symptoms associated with retroflexion.

Dr. Munro Kerr of Glasgow had also found, as Dr. Cullen, that in many cases regarded as endometritis clinically there was little histological change in the epithelium. Cases in which curetting failed were often really metritic.

Professor Henry Corby of Cork thought that the benefit of gauze packing was that it induced contraction of the uterus.

Dr. E. J. MacLean of Cardiff had found that when packing was used the recovery was not so satisfactory and afebrile.

The President thought that it was impossible to clear out the puerperal uterus by the fingers, and favored the curette.

Professor Tweedy, in reply, said that by passing the hand into the vagina the whole interior of the uterus could be reached.

An Ovarian Tumor, Clinically Malignant, Arising from the Overgrowth of Lutein Cells.—Dr. Smallwood Savage of Birmingham reported this case. The patient was thirty-eight years of age, and had had four children. There had been hemorrhage for seven weeks. She died from exhaustion five and a half months later. The tumor grew from the right ovary, was undoubtedly clinically malignant, and under the microscope showed cells resembling those of the corpus luteum.

Development of the Epithelial Elements of the Ovary.—Dr. Louise McIlroy of Glasgow gave a lantern demonstration of this at a conjoint meeting of the Sections of Anatomy and Obstetrics. She had used the embryo of the puppy, kitten, pig, and human, and considered these better than the rabbit, which was so frequently made use of. She estimated the period of development by measurement. She had found that the so-called Fluger's tubes were really Graafian follicles with a hollow center, due to the ovum being at a different level or having fallen out, and she had found that the cells of the stroma closely resembled those found in chorion epithelioma.

Friday, July 30—Third Day.

Treatment of Contracted Pelvis.—Professor Gehling of Strasburg read this paper. He said that the earliest treatment was the induction of premature labor introduced by Denman. He then alluded to the treatment directed toward reducing the weight of the child, as advised by Prochownik; experiments on animals had confirmed Prochownik's views. It had been proved that the putting on of fat in the fetus took place in the last six to eight weeks of pregnancy, and consequently the restricted diet was of most service then. Another way of causing the fetus to be small was by inducing premature labor; it was most useful in multiparæ, and should be seldom performed at the first labor. He used hydrostatic dilators and sought to obtain a cephalic presentation; he had had children surviving in 76 per cent. of cases. Walcher's position increased the conjugate by 1 to 1.5 cm., and he had used it successfully for the after-coming head. The best means, however, for increasing the conjugate was pubiotomy, which, with a separation between the bones of 4 to 6 centimeters, gave an increase in the conjugate of ½ to 2 cm. For the private practitioner he advised high forceps, and if that failed, craniotomy, and he countenanced perforation of the living child in certain circumstances in the interest of the mother. For performing pubiotomy he chose the subcutaneous method of Doederlein or Bumm, guiding the needle by the finger introduced into the vagina, and he awaited spontaneous labor after dividing the bone. He tamponed the vagina for twenty-four hours and kept in a self-retaining catheter for forty-eight hours. His maternal mortality had been 3.2 per cent.; fetal, 9.6. He preferred pubiotomy to symphyseotomy, as he had found that the latter gave rise to more bleeding and was more liable to be followed by damage to urethra or bladder. He then described the newer method of extra peritoneal cesarean section, and said that it presented advantages in cases already infected; it must be done when the cervix was well stretched, and not at the beginning of labor; if the peritoneum was accidentally opened it could be closed by suture and no harm resulted.

Professor Murdoch Cameron of Glasgow said that pubiotomy caused permanent lameness, and he preferred induction of labor by bougies.

Dr. Munro Kerr of Glasgow had not found the results of induction of labor satisfactory, and he disapproved of high forceps, his experience being that it resulted in 50 per cent. of still-births. He laid stress on the great importance of giving nature as much time as possible, and even with a conjugate of three inches he had seen spontaneous delivery. He though pubiotomy was indicated after one thorough effort with forceps had not succeeded. Pubiotomy was very undesirable in primiparæ.

Professor Tweedy of Dublin said that the pelvis was often inaccurately measured, and the only reliable method was by Skutsch's pelvimeter. This proceeding required an anesthetic; he did not measure the pelvis in primigravidæ until full term of labor. We should act when the fetal heart quickened, and not wait for the subsequent flowing, as by the time that occurred it would usually be too late to obtain a live child. Perforation of the living child should never be done in a lying-in hospital, but was still occasionally unavoidable in private practice.

Professor Fehling, in reply, said that he found that the patients could walk perfectly well after pubiotomy, even when there was no bony union. He measured the pelvis with the fingers under an anesthetic.

Dystocia Due to Central Fixation of the Uterus.—Professor Murdoch Cameron of Glasgow reported two cases, in each of which the os was out of reach until the whole hand had been introduced into the vagina; in each one he found it necessary to perform embryotomy. He said that in every case in which ventral fixation was performed the patient should be sterilized by tying and dividing the tubes.

Professor Jacobs of Brussels considered ventral fixation an extremely dangerous operation; he had seen three fatal case of ileus from strangulation of intestine by the fixation band.

Dr. T. J. McCann of London advised that fixation should be done low down on the anterior wall of the uterus.

The meeting then joined the Opthalmological Section for the consideration of the report of the Ophthalmia Neonatorum Committee.

SECTION OF SURGERY.

Wednesday, July 28—First Day.

The President, Professor Thomas Sinclair, opened the proceedings by reading a short introductory address to the members.

The Operative Treatment of Obstructive Jaundice and the Proper Selection of Cases.—Mr. B. G. A. Moynihan of Leeds opened this discussion. He laid stress on the extreme difficulty, almost amounting to impossibility, of making a correct diagnosis of the actual pathological condition in many cases of obstructive jaundice either by clinical or chemical examination. Investigation should be conducted along three main lines: (1) clinical history, (2) physical signs, and (3) examination of the urine and feces. With regard to (1), the anamnesis exhibited by painstaking inquiry of the patient elicited results of high value as to the inaugural symptoms, and indicated the localization and character of biliary and other abdominal diseases. The history disclosed two types of obstructive jaundice. In the first type the onset was painless and insidious, jaundice being noticed by outsiders before the patient was aware of anything being wrong. Icterus deepened by slow degrees until a greenish-black coloration of the skin was reached; there was no pause in the stealthy onward march, each week finding the tint deeper than before. Simultaneously there was impairment of general health, malaise, increasing loss of appetite and emaciation. Here there was progressive obstruction of the common duct from some cause either within or without the duct, and that cause was nearly always malignant disease, beginning, it might be, in the hepatic duct at the junction of the three bile ducts, in the common duct, in the ampulla of Vater, or in the head of the pancreas; the last situation being far and away the most frequently met with. Exceptionally a stricture of the common duct might be the cause. In the second type there was initial pain, then faint jaundice which deepened quickly, but never reaching the dark color of the first type, the tint being yellow or orange rather than green. Then something happened—increase of pain, or pyrexia or rigors, followed by defervescence of symptoms for a time and then recurrence. The symptoms ebbed and flowed. Here there was generally a foreign body in the hepatic or common duct, almost always a gallstone, but he had known a hydatid cyst to become impacted in the duct. Chronic pancreatitis accounted for some of these cases, but far less frequently than stone. With regard to (2) *i. e.* physical signs, the gall-bladder might be distended or contracted. Courvoisier's monumental work had established that obstructive jaundice with contraction of the gall-bladder was due to stone, while obstructive jaundice with dilatation of the gall-bladder was due to a cause other than stone. This almost amounted to a law, though there were exceptions, *ex. gr.* dilatation associated with cholecystitis, or a stone in the cystic duct. In his experience malignant disease in the head of the pancreas was not palpable through the abdominal wall. Ascites was a valuable physical sign. He cited a rare case of stone in the cystic duct causing both ascites and jaundice by pressure in the portal vein and hepatic duct. With regard to the third line of investigation—examination of the urine and feces, he was satisfied that Dr. Cammidge had made good his claims on this subject, especially in respect of the crystals found in the urine when pancreatitis was present. He mentioned a case in which he diagnosed malignant disease of the head of the pancreas (green jaundice, a distended gall-bladder, and petechial hemorrhages comprising the chief data), whereas Dr. Helen Stewart's report on the patient's urine and feces negatived his diagnosis and indicated an obstruction above the ampulla of Vater. Operation disclosed a duodenal ulcer causing occlusion of the common bile duct; cholecystenterostomy was performed and the patient cured. Referring to calcium chloride, he regarded this drug as worthless for increasing the coagulability of the blood, and thus opposing hemorrhage in operations for jaundice. Crile had suggested an alien serum. Mr. Moynihan had tried this on a "bleeder," using diphtheria antitoxin from a horse with complete success, though previous treatment with gelatine and sugar had failed to arrest the bleeding. He now used a sterile serum from a rabbit, as advised by Munro, and had met with no failure so far.

Removal of cancer of the head of the pancreas was inadvisable, the experience of Murphy and himself showing a mortality of eighty per cent.; but great relief from the intolerable itching of the skin in such cases was gained by cholecystenterostomy. The operation should be done under local anesthesia with a substance such as novocaine; infection was likely to follow if the colon was anastomosed with the gall-bladder, and the junction should therefore be made with the duodenum high up, or even with the stomach. He did not approve of removal of the gall-bladder in obstructive jaundice. Finally, on rare occasions an exploratory operation might be necessary. It should then be done with scrupulous care as to asepsis, after the injection of alien serum, and under local anesthesia. Only one finger should be inserted through the abdominal wall with an irreducible minimum of disturbance.

Sir Thomas Myles of Dublin continued the discussion. He dwelt on the imperative necessity of careful and prolonged examination before deciding on an operation for obstructive jaundice. In 1886 he performed the first successful operation in Ireland for this condition; the distended gall-bladder was drained after evacuation of twenty-eight stones. As to diagnosis, the difficulties were so great that it was not possible to forecast what one would encounter in obstructive jaundice. He deprecated speaking of a clinical law; it was easy to remember a so-called law, but not so easy to remember the numerous variations and exceptions. Though paradoxical, it was not going too far to say that the larger a gall-bladder the more difficult was its diagnosis. He cited a case where the gall-bladder looked like a length of bowel reaching down to the pelvix and containing about a hundred calculi. He eulogized the work of Cammidge, and insisted on careful investigation of the urine, feces, and blood in a clinical laboratory. Referring to operative treatment he thought that removal of the gall-bladder was seldom justifiable; one reason being that drainage of the ducts, which was often highly beneficial, was thereby prevented. He mentioned a case of chronic pancreatitis greatly relieved by posterior gastrojejunostomy after drainage of the gall-bladder had failed to benefit.

Mr. C. P. Childe of Southsea held that more attention should be paid to the preventive treatment of jaundice due to gallstones. When their presence in the gall-bladder was ascertained calculi should be removed before they passed into the ducts or caused later dangers. Whereas the mortality of cholecystotomy was practically nil, at least five per cent. of choledochotomies were fatal. He mentioned cases illustrating certain risks menacing patients with gallstones, including local cancer, gangrene, and rupture of the gall-bladder, ulceration of calculi into the bowel giving rise to obstruction, and cholangitis. In his opinion calcium chloride was of no service in preventing hemorrhage in obstructive jaundice.

Dr. J. Crawford Renton of Glasgow advocated the use of radiography for the detection of gallstone when their presence was suspected in the absence of unequivocal symptoms. He agreed that the diagnosis of enlarged gall-bladder was often difficult, citing a case where the fundus extended to the right iliac region, unassociated with pain or jaundice. Green jaundice was not always due to

malignant disease; he mentioned three cases of this kind in which recovery followed drainage.

Mr. Stanmore Bishop of Manchester was impressed by the value of Murphy's method of examination for gall-stones. He had found calcium chloride useful when given in large doses before operation—thirty grains three times a day by the mouth, and in addition thirty to fifty grains by the rectum. For the cure of biliary fistula by cholecystenterostomy he insisted that the anastomosis must be made with the duodenum; he had twice effected junction with the colon, but both cases were fatal, owing to the passage of feces into the gall-bladder, and in one instance feces had reached the liver.

Mr. W. I. de C. Wheeler of Dublin urged that obstructive jaundice should be prevented by close attention to the early symptoms of cholelithiasis. Cammidge's method, though of great value, was too elaborate for common use. Iodiform given by the mouth in gelatine capsules yielded iodine in the urine when chronic pancreatitis was absent, and *vice versa*. Mayo Robson's test—the reaction of the feces to litmus—was unreliable. Gallstones were not inoffensive foreign bodies and their removal would anticipate secondary lesions. He cited a case of a large gall-bladder adherent to the colon and causing intestinal obstruction which had been diagnosed as carcinoma coli; and another case in which prolonged drainage of the gall-bladder had been successful treatment for chronic pancreatitis.

Mr. A. B. Mitchell of Belfast said that chemical investigation of biliary diseases should be encouraged and due remuneration provided for competent workers. He referred to a case of cancer of the head of the pancreas in a girl of sixteen with enlarged gall-bladder, jaundice, and intermittent pyrexia. He had found calcium chloride useful when given in large doses—twenty grains every two hours.

Professor Sonnenberg of Berlin described a case of acute yellow atrophy of the liver following appendectomy.

Mr. McAdam Eccles of London supported the views of others as to the value of Cammidge's method, the use of *x*-rays, and the administration of calcium chloride in large doses.

Mr. Moynihan in reply said that calcium chloride did not alter the coagulation time of the blood in jaundice, and was worthless. He agreed that obstructive jaundice due to calculi ought to be prevented; surgeons must detect and deal with the inaugural symptoms of cholelithiasis. In obstruction of the common duct, jaundice was absent in one-third of the cases. He advised that the surgeon should exhaust his own investigations before hurriedly resorting to radiography for a diagnosis.

Some Cases of Resection of Intestine.—Mr. G. P. Newbolt of Liverpool read this paper. His first five operations were done for gangrene in strangulated hernia. Murphy's button was used, and four of the five were successful. He now employed no appliance, and usually made end-to-end junction, the herniotomy wound being extended upward, thus avoiding a separate incision into the abdomen. In cases of new growth he preferred a median section below the umbilicus. He also favored end-to-end junction in resection of the colon, special care being observed at the mesocolic border; when there was plenty of gut to allow of overlapping, he made side-to-side junction. In cases of obstruction other than those due to strangulated hernia, he regarded a preliminary drainage of intestine essential to success.

Sir Thomas Myles of Dublin, while congratulating Mr. Newbolt on his successes, thought immediate resection of gangrenous strangulated bowel a hazardous procedure. His own practice was to relieve the strangulation, and then wait about six days before resecting. He also preferred side-to-side anastomosis rather than end-to-end.

Mr. McAdam Eccles of London supported the practice of immediate resection of strangulated bowel. He approached the hernia through a separate incision, and drained the original hernial wound.

Mr. G. A. Syme of Melbourne was against resection of intestine in a hernial sac, and advocated a separate incision for the purpose. He also regarded side-to-side anastomosis as safer than end-to-end.

Mr. A. B. Mitchell of Belfast mentioned a case in which he had successfully resected about twelve feet of bowel.

Mr. C. P. Childe of Southsea referred to a series of seven cases of resection of gut for gangrenous hernia in which he had operated with six recoveries. He effected lateral anastomosis, and did not make a separate abdominal incision.

Mr. Thelwall Thomas of Liverpool thought it safer to operate in two stages for gangrenous strangulation, because of the coexisting septic cellulitis around the hernia. In the first stage, after relieving the obstruction, he secured the limbs of the loop of bowel by stitching them to the edges of the wound. He regarded this as an important step, as there was risk of unsecured gut slipping back into the abdomen.

Thursday, July 29—Second Day.

Differential Treatment of Tuberculous Joints.—Sir William Macewen of Glasgow, in opening the discussion, said that exact determination of the pathological phenomena of a diseased joint must precede treatment, because treatment necessarily varied with the pathology, and, in the case of tubercle, with the stage of the morbid process. In the early or gray stage, while the blood supply is still good and active phagocytosis is going on, treatment may be effective through the blood stream and by direct local measures; but in the stage of caseation and tissue necrosis the former agency was of little use, and recourse must be had to operative removal or the application of chemicals. In view of the secondary effects of joint-tubercle operation should not be too long delayed; and it would be more successful if performed before the capsule of the joint was destroyed. When the disease is recent and limited to bone, as in the epiphysitis of children, operative treatment is decidedly good; but the risk of general tuberculosis must not be forgotten. He advocated operation in two stages—first, making a route through the synovial membrane to be scaled off from the cavity of the joint; and then, after an interval, reaching the disease by a tunnel in the bone, stopping short of the articular cartilage. In the gray stage he injected sterilized iodoform emulsion, taking care to continue injecting all the way out, a few drops of emulsion thus escaping as the needle was withdrawn; but he preferred to have the route shut off beforehand. Failure to recognize the difference between the gray and caseating stages had induced some surgeons to give up the use of iodoform emulsion, since, in the latter stage with diminished phagocytosis, the benefit was much less, and removal of the diseased joint gave a speedier result. But even caseated bone underwent absorption in response to stimulation of the surrounding tissues by iodoform. The injection of subnitrate of bismuth, first used for the purpose of radiography, was also serviceable in treatment. In this connection he pointed out that iodoform, by its *x*-ray shadow, enabled the surgeon to track the tortuosity of a sinus. Bier's method of congestion was good, and its results were still better when combined with the use of iodoform. He also approved of massage, especially when the synovial membrane was affected. In the later, necrotic, stage of tubercle, removal by operation was indicated. He filled the gap in the bone with iodoform in large scales, or mixed with boric acid: toxic effects, common enough when finely powdered iodoform is used, very

seldom occurred, because its absorption was slow, and it could be seen *in situ* by the *x*-rays several years after insertion. Along with operation he advised rest and fixation of the diseased joint. In the final stage, when the articular cartilage has been shed, the question of excision, or possibly amputation, must be considered, even in the case of young children. But excision should be limited to the area of disease, and not done as advised in some text-books; moreover, special care should be taken to avoid arrest of growth in the long bones of children.

Mr. Robert Jones of Liverpool continued the discussion. He remarked on the difference between children and adults in respect of tuberculous joints, and said he seldom excised in the young, often in adults. As tuberculosis in childhood was simulated by other pathological conditions, he differentiated by injecting three to five milligrams of Koch's tuberculin between the shoulder-blades under antiseptic precautions. Radiography was of small value in the diagnosis of early bone tubercle, and so, too, was pain, because of its inconstancy. The most trustworthy sign of arthritis was rigidity; it was of early onset and tended to limit movement in every direction. In the treatment of tuberculous joints in children the greatest reliance must be placed on rest, fresh air, and food. Rest was best secured by a suitable appliance—as a rule without traction. With regard to the posture of various joints, the hip should be extended and abducted, the knee extended, the elbow flexed, the wrist hyperextended, the ankle dorsiflexed so that the heel would be the first point to impinge on the ground, and the spine overextended on a convex surface. Fresh air was of vital importance, and the maximum amount of good was obtained by those patients who were supplied with the maximum amount of fresh air. He declined to treat cases of tuberculous joints in children within the wards of a town hospital; he considered they did better in the slums, and he believed the days of town hospitals for tuberculosis were numbered. The diet should be on a generous scale, all kinds of appetizing and nourishing foodstuffs being supplied, and the children encouraged to eat. For tuberculous abscess he had tried many forms of treatment, but now adopted a conservative attitude, and in many cases awaited events on the lines of expectancy. In his view the tubercle bacillus was not pyogenic. Cold abscesses not infrequently became absorbed without any untoward clinical sign. When absorption did not ensue, he allowed the abscess to travel toward the surface, and then, with scrupulous precautions, evacuated it through a small incision, avoiding the use both of irrigation and the curetting spoon. If the abscess was associated with pyrexia, he opened it and attacked the diseased bone. A retropharyngeal abscess always needed early evacuation through an incision behind the sternomastoid muscle. He was opposed to operation for pressure paraplegia, preferring the overextension of the spine, and he had known recovery follow after four years of this treatment. He recommended a boiled mixture of bismuth subnitrate one part, vaseline, two parts both for diagnosis and treatment; he had also used with advantage a bismuth paste composed of the subnitrate, white wax, and vaseline Immunization by opsonins was too recent to justify an exact estimate of its value, but the outlook was hopeful. Lastly, he agreed with Sir W. Macewen as to the usefulness of passive movements and Bier's method.

Prof. Sonnenberg of Berlin gave details of the treatment and cure of tuberculous joints by repeated injections of Robert Koch's tuberculin. The effect was tested every third week by von Pirquet's inoculation.

W. Arthur Tubby of London contributed a paper which was read by the honorary secretary. He referred to cases of extraarticular origin with subsequent invasion of the joint, and pointed out that in juxta-epiphyseal tubercle, the liability to rapid invasion varied with the relation of the epiphyseal line to the different joints. He drew particular attention to paraarticular tuberculosis of bone. Its onset was insidious; there was constant recurrence of pain in one spot, which was acutely painful on pressure, and where thickening could be felt. Muscular paresis followed; and, though the movements of the adjacent joint were tolerably free, movement in one direction, varying in different cases, always elicited pain. The *x*-rays revealed a tuberculous focus. The disease was apt to light up in an adult after years of quiescence. Syphilis of bone could be discriminated by its nocturnal pain, and by its tendency to involve the shaft rather than the epiphysis. If treatment by rest and counter irritation proved unsuccessful, the diseased area should be excised and cauterized with zinc chloride.

Mr. J. Crawford Renton of Glasgow regarded early diagnosis as imperative, and he found assistance in the *x*-rays and Calmette's method. For treatment he advised Bier's passive congestion, Wright's opsonins, fresh air, and rest. In neglected cases of advanced joint disease, excision was required, followed by careful after-treatment. To prevent bending of the excised knee, he encased the limb for eighteen months in a plaster-of-paris splint.

Mr. J. Ward Cousins of Portsmouth advocated prolonged treatment by rest, deferring operation as long as possible.

Mr. Maynard Smith of London read a paper on the "Inoculation Treatment of Tuberculous Arthritis." He was convinced, by personal investigation of the cases treated in a London Children's Hospital during two years, that the results obtained by the methods in vogue before the introduction of vaccine thereby were unsatisfactory. The administration of tuberculin in dependence on the opsonic index marked a distinct advance, and was applicable not only in the way of treatment, but also for diagnosis, and for determining when cure could be predicted. He presented a table showing particulars of thirty-four cases treated at St. Mary's Hospital by inoculation. Of these, five were treated by inoculation alone, four making complete recoveries, and the fifth was cured with some deformity remaining. In twelve cases previous treatment by splinting, rest, or operation had proved unsatisfactory; by inoculations eleven were cured (eleven cases with complete restoration of function), and the twelfth case was improving under treatment. Of the remaining seventeen cases, nine were cured with partial restoration of function, four were improving, and four were not improved up to the present. He also presented a table of cases to prove the possibility of determining by inoculation whether or not a cure has been effected.

Mr. Rushton Parker of Liverpool spoke of the debt of gratitude due to Hugh Owen Thomas for the introduction of his splint in 1874.

Mr. C. W. Cathcart of Edinburgh claimed that Bier's treatment was of great value, and it had the merit of simplicity. He was strongly in favor of injecting iodoform emulsion into tuberculous abscesses and joints; sterilization was not required if the ingredients were mixed in the proportions of iodoform one part, glycerine nine parts. Immense benefit accrued from the administration of tuberculin, but the estimation of the opsonic index required a good deal of time. Excision was necessary in many cases as the lesser of two evils.

Sir William Macewen, in replying, spoke favorably of Calmette's test for tuberculosis. He laid stress on tenderness as an early sign to be elicited by methodical palpation with a finger. In conclusion he showed a large series of photographs displaying the excellent functional results following the limited excisions he had previously described.

Friday, July 30—Third Day.

Some Unusual Cases of Echinococcus (Hydatid) Cyst.—Mr. G. A. Syme of Melbourne, Australia, read this paper. He related several rare cases of echinococcus in the ilium, sacrum, and spine. When the parasite invaded bone, exogenous reproduction in the cancellous tissue occurred. In the lung, daughter cysts were unusual, and in bone common. Unruptured and uncomplicated hydatid cysts in the liver or lung showed a typical shadow in a radiograph. A liver cyst might discharge part of its contents into the hepatic duct, thus giving rise to symptoms of obstructive jaundice resembling those caused by gallstones; but much more frequently rupture took place through the diaphragm into the lung. The value of the precipitin reaction in the diagnosis of echinococcus was not finally settled. In his own observations at Melbourne he had not obtained any reaction between hydatid fluid and serum from hydatid patients. Observers in the Sydney hospital had met with varying results, some positive and some negative. He thought some aid in diagnosis might be furnished by the eosinophile corpuscles. With regard to treatment he advised removal, by enucleation when possible, and, failing that, by marsupialization. It was imperative that none of the cyst contents should be allowed to get into the peritoneum or the tissues opened up by the operation wound. If a hydatid of the liver had invaded the lung, it should be approached through the abdomen. A suppurating cyst required incision and drainage. Amputation must be resorted to when extensive damage had been inflicted by cysts in a long bone.

Enucleation of the Prostate.—Mr. P. J. Freyer of London read a paper entitled: "A recent series of 200 cases of Enucleation of the Enlarged Prostate, with special reference to the operation (1) in octogenarians, (2) in cases of extremely large prostate." He also exhibited a series of prostates removed by operation, the weight varying between half an ounce and seventeen ounces. Several cases in groups (1) and (2) were described in detail. Fifty-seven patients were in their eightieth year or upwards, the oldest being 89; of these fifty-one recovered and six died. Experience led him to the conclusion that the chance of successful enucleation was as good in the aged as in younger men, premising that the vital organs, and especially the kidneys, were sound. Altogether he had performed the operation on 644 patients, of whom thirty-nine died, *i.e.* a mortality of 6 per cent. The average age was 69 years, and the average weight of the gland two-and-a-half ounces. In 114 cases vesical calculus was present. He strongly recommended the practice of preliminary suprapubic drainage of the bladder for some days before attempting enucleation in patients exhausted by toxemia, pain, suppuration, and pyrexia due to cystitis and foul urine.

The Diagnosis of Malignant Disease by Estimation of the Antitryptic Content of the Blood Serum.—Dr. E. C. Hort of London read a paper with this title, of which the conclusions were the following: "(*a*) A normal antitryptic power appears to be of great service in excluding a diagnosis of malignant disease. (*b*) A raised antitryptic power occurs in many autoinfections (non-malignant), in many bacterial infections, and in 94 per cent. of 100 cases of cancer. Hence a raised content is no proof of malignancy, but is often of great value in establishing a positive diagnosis, in the absence of simple autoinfection and of bacterial infection. (*c*) A raised antitryptic power appears to be often of great value in distinguishing innocent growths from malignant, as, for example, chronic mastitis from cancer of the breast, and simple gastric ulcer from cancer of the stomach. Apart from the diagnostic value of these observations it appears that the fact that the antitryptic power of a cancerous serum is generally high throws some light on the autoinfective nature of the cancerous process on acount of the same phenomenon occurring in simple autoinfections and in bacterial diseases. Further, it indicates the necessity for studying the factors that produce a rise in antitryptic and other antiferment content, such as the intracellular enzymes and co-enzymes, and the products of morbid cell activity, before the cure of cancer, by the establishment of immunity, can reasonably be looked for."

Perforating Duodenal Ulcer.—Mr. A. B. Mitchell of Belfast read this paper and gave a summary of the sixteen cases on which he had operated without a death. He remarked on the frequency of duodenal ulcer as indicated by the fact of thirty-two cases of perforation having been admitted into the Royal Victoria Hospital, Belfast, in the space of five or six years. Four of the patients were not operated on, as they were obviously moribund. Of the twenty-eight cases of operation only three died, two of these occurring before the use of continuous rectal perfusion had become routine. He commented on the insignificance of shock in perforated duodenal ulcer, the condition being often absent; and he submitted that the term should be abolished in relation to this class of case. Pain and peritoneal tenderness were constant features, and, above all, rigidity of the abdominal wall; this last sign was a trumpet call for help. Leakage was usually scanty, owing to spasmodic closure of the pylorus. Opium must on no account be given, because it unlocked the musculature and so encouraged extravasation through the perforation. Immediate operation was the only hopeful treatment. Incision was made through the right rectus, and the hole in the duodenum rapidly closed by a purse-string suture. The abdomen was sponged out toward the right kidney, downward along the course of the ascending colon, and within the pelvic basin. Flushing the peritoneal cavity was inadvisable, and it was better to cleanse too little than too much, since the escaped fluid was not very noxious. The pelvis invariably should be drained through a suprapubic opening. Local drainage in the region of the ulcer was not always necessary; when desirable, a rubber tube carrying a gauze wick might be inserted. The after treatment was of vital importance, especially in regard to the two essential items of the sitting posture and continuous saline perfusion by the rectum at the rate of one pint an hour. Altogether, he had operated on sixteen cases, all of whom recovered; in four of these cases he had combined gastrojejunostomy with closure of the duodenal perforation, and in two instances he had performed gastrojejunostomy after an interval respectively of eight days and sixteen months, with complete success.

Intestinal Anastomosis.—Mr. G. H. Edington of Glasgow read this paper, in which he described a series of ten operations with one death, the fatal case being one of gangrenous strangulated femoral hernia in a woman aged fifty-seven. The cases were distributed in three groups, as follows: *Group A:* Enteroenterostomy; four cases of resection of small intestine, comprising two cases of strangulated hernia, one case of gunshot wound, and one case of traumatic rupture. *Group B:* Ileocolostomy; five cases of cecal obstruction, four being due to irremovable carcinoma cæci. *Group C:* Colocolostomy; one case of union of the transverse colon with the descending colon for obstruction at the splenic flexure.

Scopolamine-Morphine Narcosis.—Mr. C. Leedham Green of Birmingham read a paper on this subject. He claimed that the method had great advantages from the patient's point of view. It lessened nervous tension before an impending operation; the patient was already drowsy when the time came for giving a general anesthetic; the amount of anesthetic required was reduced by one-half; there was no sudden fall from full anesthesia

to partial; there was far less mucus secreted in the air passages, thus greatly lessening the risk of post-operative pneumonia; the operation was followed by sound sleep, lasting four or more hours; there was comparative absence of vomiting, and distinctly increased safety. His procedure was as follows: On the evening before operation sleep was secured by ten grains of veronal; two hours before operation a subcutaneous injection of morphine, one-sixth of a grain, and scopolamine, one-one hundred and thirtieth of a grain, was given; one hour later, if necessary, half the foregoing injection was repeated; at the operation ether was administered.

AMERICAN SURGICAL ASSOCIATION

Annual Meeting Held at Philadelphia June 3, 4 and 5, 1909

THE PRESIDENT, DR. C. B. G. DE NANCREDE, OF ANN ARBOR, IN THE CHAIR.

(*Continued from page 294.*)

Excision of the Larynx for Malignant Disease.—Dr. JAMES BELL of Montreal reported 12 laryngectomies. In his experience partial operations on the larynx were not satisfactory. Excision of the larynx was a safe operative procedure. In 7 of the 12 cases operations were done for intrinsic, far advanced cancer of the larynx; in 5 for primary disease of the organ. Of the 12 cases operated on, 7 recovered.

Dr. W. W. KEEN of Philadelphia in 1898 selected as the subject of his presidential address "Total Laryngectomy," and in it he reported a case of excision of the larynx. The man was now perfectly well, it being eleven years since the operation was done. He recommended at that time that the patient be kept in the Trendelenburg position to prevent aspiration pneumonia.

Dr. GEORGE E. BREWER of New York said that the dangers of the operation of excision of the larynx were (1) Aspiration pneumonia; (2) extension of the infection downward along the muscular and fascial planes of the neck toward the mediastinum; (3) too long deprivation of food in old people who were in a bad general state. He believed in early feeding. He introduced a nasal tube into the lower part of the esophagus, and began feeding as soon as the patient came out of the ether. He began the use of water in about six hours after operation and gave eggnogs and concentrated food from the start.

Dr. ROSWELL PARK of Buffalo said that his first laryngectomy was done about twenty four years ago, and the patient nearly died of iodoform poisoning. He was afraid to use iodoform after that, and in a later case employed subnitrate of bismuth. This patient died. An autopsy was made, and he found the lining of every bronchial tube smeared with bismuth that had formed a paste, so that the patient died of asphyxiation from the bismuth.

Dr. N. B. CARSON of St. Louis, after detailing five cases in which he had resorted to laryngectomy, said that rectal anesthesia added very much to the comfort of these patients.

Dr. GEORGE W. CRILE of Cleveland wished to report twenty total laryngectomies. There were two immediate fatalities in the first eight, but none in the last twelve. The ultimate results were quite unsatisfactory. The oldest case was living between fifteen and sixteen years after operation; another five years after operation; one was alive four years after operation; one after three years, and the remainder had been operated on too recently to be considered at this time.

Further Observations on Transfusion, with a Note on Hemolysis.—Dr. GEORGE W. CRILE of Cleveland, Ohio, said that in pernicious anemia, toxemia, leukemia, Hodgkins' disease, carcinoma, uremia, etc., no benefit had occurred from transfusion. No cases of hyperthyroidism were improved apparently by transfusion. In a case of pellagra rapid convalescence was noted after transfusion from an immune donor. In suitable cases it was of great value in the prevention and relief of the circulatory phenomena of shock. They were encouraged by the results of transfusion in pulmonary tuberculosis. As influencing operative surgery, their further experience amply confirmed the earlier observations of the value, in grave surgical risks, of preliminary and post-operative transfusion. There were two notable groups susceptible to results in contemporaneous transfusion, namely, those in which there had been internal hemorrhage, grave or continuous, demanding immediate operation, and those in which the patients were reduced by long continued disease, by starvation, or otherwise to such a degree as to render them unsafe for the operation required. In those cases the donor was attached and a sufficient amount of blood was transferred until the recipient was sufficiently restored to take the anesthetic. All preparations having been made, the patient was then anesthetized, and in the course of the operation the needed amount of blood was transferred from time to time by the assistant in charge at the direction of the operating surgeon. At the close of the operation a sufficient additional amount of blood was transferred to insure the post operative safety of the circulation. As to hemolysis, it must be considered, first, as but one form of manifestation of the end action between the blood of one individual against the blood of another. Second, if there was hemolysis *in vitro*, it by no means necessarily followed that there would be hemolysis *in vivo*. Their agreement might be an exception. Hemolysis was a valuable aid in the diagnosis of active reaction against tuberculosis, occurring more frequently than in carcinoma. In cancer the reaction was largely dependent upon the stage of the disease at the time of observation. Hemolysis usually occurred in the early stages of cancer, and rarely in its late stages.

The Preservation of Dissections of Surgical Anatomy with Permanent Color of Muscles, Vessels, Nerves, and Organs, by a New Method.—Dr. EDMOND SOUCHON of New Orleans, La., in a paper with this title, said that the details of this experimental work, extending over several years, were published in the *Journal of the American Medical Association* on August 22, 1908, and he wished to recall only the most salient features of this new method. The basic condition was a proper embalming formula which would assure color. The aim was not so much to obtain the real color of the living, as that color varied in the various subjects, but to secure a marked contrast between the fleshy parts of muscles and the tendons, bones, and other white tissues, doing away with the uniform bleached appearance presented by so many otherwise beautiful preparations seen in the museums in this country and abroad. After a number of trials, consuming over forty subjects, he had found that so far the following formula was the one that gave the best results for this work. Arsenic, 2½ gallons; formalin, 6 ounces, alcohol, 16 ounces; carbolic acid, 6 ounces; glycerine, 16 ounces, and creosote, 2 ounces. Very lean subjects should be used. A feature of some importance was to allow the parts to be dissected to drain for ten to fifteen days before dissecting them. Otherwise the dissecting was rendered unsatisfactory by the infiltration of the tissues with the embalming fluid. After the dissection was completed, it was placed in a glass jar filled with a solution of carbolic acid, one ounce to the gallon. This was changed as often as it was discolored by the blood. The next important point was the placing of the dissected parts in an empty jar without solution of any kind, but covered with a lid. He called this stage the curing process. It was second in im-

portance to the embalming solution, as it developed or brought out again the color without darkening the tendons or other white tissues. It also smoothed the surfaces, which might be shreddy or ragged; it sharpened the edges of the muscles, thus giving better definition. It fixed the color so as to keep it from being perceptibly affected when the specimen was finally put up permanently in a weak solution of alcohol, twenty ounces to the gallon of water. The arteries and veins must be painted with moist water colors, as coloring matter used in the injecting material would not show when the preparations were preserved in solutions. All solutions should be changed as soon as they became the least cloudy or discolored. This was essential to the permanent beauty. Otherwise the impurities in the cloudy or discolored solutions would settle on the white tissues, stain them, and destroy their whiteness and brilliancy. Some specimens were refractory in developing color. He estimated so far that 85 or 90 per cent. of the specimens turned out satisfactorily. The remainder were merely good, but not good enough to be placed in a museum, especially with one's name attached. That uniformity of color and results did not invariably follow uniformity of procedures was due, he believed, to the fact that the chemical composition of the tissues varied with the subjects. The great practical value of this new method was to give us the means of building study museums composed only of real dissections placed in very large glass jars, in spacious rooms flooded with light, on tables, so that students could come close to and study them. Thus the students could prepare for the dissecting room. They were assisted in their dissections by referring to the preparations in the museum. Their work in the dissecting room was completed by showing them the great number of things which they never saw in a dissecting room. They were also able to review and fix in their minds what they had really dissected themselves. Practitioners could in a few moments relearn much anatomy. Such was the study museum he was now building for the Medical Department of Tulane University in New Orleans. The museum contained 400 very large glass jars with dissections. He had now 200 good ones, and there were 200 to be made over, because they could now be made better, owing to the improvements in the methods. It would take about two or three years to make over those 200.

Thoracic Surgery.—Professor Friedrick of Marburg, Germany, reported eleven cases of unilateral phthisis in which he had resorted to extensive multiple resection of ribs. In two cases of multiple tuberculosis he performed total pleuropneumolysis, and in four partial pleuropneumolysis. He had not lost a single case from this operation.

Dr. Wm. S. Halsted of Baltimore detailed some experimental studies he had made with reference to lung surgery.

Dr. Charles A. Powers of Denver discussed surgical measures designed to relieve pulmonary tuberculosis.

Dr. Leonard Freeman of Denver said that collapse of the lung might be obtained in several ways: (*a*) By the production of artificial pneumothorax according to the methods of Murphy and others; (*b*) by extrapleural resection of the ribs below the first part of the cartilages to the spine, including the periosteum; (*c*) by removal of portions of some ribs, with periosteum along the axillary line; (*d*) by resections of portions of several ribs and periosteum directly over the diseased part of the lung, usually a cavity near the apex; and (*e*) by a similar operation, without removal of the periosteum, followed by external pressure by means of a truss. He described an operation which he had done in two cases, with encouraging results.

Dr. A. Vander Veer of Albany said that the hypodermic syringe, with long needle, was of value for exploratory purposes and a safe instrument for a good general practitioner to use when in doubt as to the nature of the lesion that was present. Repeated use of the aspirator was not to be condemned so long as the fluid remained sterile, and was the preferable method of treatment in malignant cases. Where we had malignant disease in which the effusion was distressing to the patient, the use of the aspirator afforded great relief. The use of the trocar and drainage tube was advisable if it was shown the aspirator was no longer affording benefit. Resection of the ribs was necessary when no improvement took place with the ordinary drainage tube. The latter operation should be done early in order to protect the lungs from unnecessary pressure and relieve adhesions which, in the young, became so detrimental in causing spinal curvature.

Dr. C. L. Gibson of New York reported an interesting case of tuberculous pericarditis in which he succeeded in effecting a cure by means of incision and drainage.

Treatment of Fistulæ and Abscesses Following Operations for Empyema of the Thorax.—Dr. A. J. Ochsner of Chicago in this paper illustrated the value of the injection of Beck's paste into persistent sinuses and abscesses following operations for empyema of the thorax. A tabulated list of fourteen cases treated by the author by this method was given in the paper. Two formulas were in use: No. 1, consisting of one part of arsenic-free subnitrate of bismuth and two parts of sterile amber vaseline, had a lower melting point than No. 2, which consisted of 30 parts of subnitrate of bismuth, 60 parts of amber vaseline, and 10 parts of paraffin of a sufficiently high melting point to cause the mixture to maintain its form at the temperature of the body. No. 1 was used daily or every second day until the sinus or abscess was practically free from pus; then No. 2 was used, at first every second day, and later less frequently, until healing was completed. These mixtures were injected at 110° to 120° F., by means of an ordinary large glass syringe. Only just enough force was used to fill the cavity. The outer opening was closed with a gauze plug. The remarkable part of the treatment lay in the fact that cases in which the abscess cavity communicated with a bronchus would heal quite as rapidly and as perfectly as other cases, that symptoms of sepsis disappeared rapidly, and that in most cases in which there was no communication with the bronchi the discharge from the sinus soon became sterile.

Visceral Pleurectomy.—Dr. Alexander Hugh Ferguson of Chicago said that by this operation was meant the removal by operation of the thickened visceral pleura in cases of chronic empyema. In six cases in which he resorted to this operation the results had been all that could be desired. All the patients gained flesh and all cavities were completely closed. The youngest patient was twenty-three years of age; the oldest forty-five. The amount of visceral pleura removed varied from a strip an inch long to four inches wide.

Dr. Charles H. Peck of New York reported a case of stab wound of the heart in a colored girl. The wound was sutured successfully and the patient was well twenty-four days after the operation.

Dr. Willy Meyer of New York detailed a new method of esophagogastrostomy for intrathoracic resection of the esophagus.

The Prevention and Treatment of the Sequels of Perineal Prostatectomy.—Dr. James E. Moore of Minneapolis, Minn., said that perineal prostatectomy was a life-saving operation, but a grave one, and should not be undertaken lightly. It was accompanied by a mortality rate of a little over 6 per cent., and over 17 per cent. were either complete failures or were followed by some sequel that made the operation far from satisfactory. Owing to the age and bad condition of these patients there must be a high mortality rate. The nature of the operation was such that complications and sequels were bound to occur, but at the present time the mortality rate was too high and

the sequels too common. According to the latest statistics, 7.4 per cent. of these operations were failures, but in competent hands the patient should always experience sufficient relief to justify the operation, though he might not be completely cured. When a patient continued to suffer pain and tenesmus after the operation it was usually due to a pocketed bladder, diseased kidneys, or an incomplete operation. The prostate was an important sexual organ, and its removal by any route or method was sure to have a decided effect on the procreative powers of the patient. Owing to the reticence and untruthfulness of patients it was impossible to state how often this sequel followed, but it was certain that it occurred so frequently that every patient who was comparatively young in years should have this possible contingency stated to him before the operation was performed. Injury to the rectum was probably the most frequent complication, often causing death, and when a patient survived he was liable to have a urethrorectal fistula. Unskilful use of fingers, downward pulling by retractors, and too tight packing with gauze were the usual causes, by guarding against which this accident should be avoided. When the rectum was torn it should be immediately repaired. Frequently this would fail, but succeeded often enough to justify the effort. Stricture was a more common sequel than was generally believed, and was due to extensive removal of the prostatic urethra. We expected injuries to the urethra from other causes to result in stricture, and there was no reason why it should not follow this operation. Enough of the upper wall of the prostatic urethra should be preserved to secure an unbroken mucous surface extending from the bladder to the meatus. Extensive dissection of the perineum, especially when cross cuts were made, was conductive to stricture. Projecting portions of the urethra were sometimes left, which obstructed the flow of urine by acting as valves. Dribbling or incontinence was an occasional sequel of perineal prostatectomy, and was due to injuries to the neck of the bladder and to the compressor urethræ muscles. Instruments introduced into the bladder to draw the prostate down should be used with the utmost care, lest they injure the neck of the bladder. The compressor urethræ was the important sphincter, and should be preserved by entering the prostatic rather than the membranous urethra. The treatment of incontinence when once established seemed to be hopeless. Perineal fistula was a rare sequel, and was usually due to the deposit of lime salts, the removal of which relieved the condition. Epididymitis was an occasional sequel, but was usually of little consequence beyond the discomfort it caused, and was very often due to the injudicious passing of sounds.

(To be continued.)

Treatment of Sclerema Neonatorum.—Dionigi Tibone describes sclerema as a condition of the new-born, especially of premature infants, in which there is a hypothermia combined with slow and feeble pulse, and a solidification of the subcutaneous fat cells, with hardening of the skin. The infant becomes excitable by no stimulations, looks like a corpse, and is incapable of nursing. The indications for treatment are stimulation, artificial feeding, and keeping up the temperature of the infant. This last indication is carried out in various ways—by applications of external heat, by hot baths, by keeping the child in an incubator, and by enveloping its limbs in impermeable materials which keep the heat in, lessen the surface for radiation, cause fluidification of the subcutaneous fat cells, and make the slowed circulation more rapid. The author gives histories of 10 cases in which these measures were used with some success. The use of impermeable wrappers for the limbs is very simple and effective, as well as cheap, and does not interfere with the application of other means of calorification.—*Rivista di Clinica Pediatrica.*

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Die Erkrankungen der Schilddrüse, Myxodem und Kretinismus. Von Dr. C. A. Ewald. 8vo; paper; 293 pages; illustrated. Alfred Holder, Wien und Leipzig, Germany.

Medizinal-Berichte über die Deutschen Schutzgebiete. 8vo; cloth; 528 pages; illustrated; 9 marks. Ernst Ziegfried Mittler und Sohn, Berlin, Germany.

Physiology and Pathology of the Urine. By J. Dixon Mann, M.D., F.R.C.P. 8vo; cloth; 324 pages; illustrated. Charles Griffin & Co., London, England.

La Nuova Scienza Medica. Per il Dr. Pasquale Fusco. 12mo; paper; 451 pages. Tipografia "La Speranza," Roma, Italy.

Burdett's Hospitals and Charities, 1909. By Sir Henry Burdett, K.C.B., K.C.V.O. 12mo; 1,015 pages; cloth. The Scientific Press, Ltd., London, England.

Genetic Psychology. By Edwin A. Kirkpatrick, B.S., M.Ph. 8vo; 373 pages; cloth; $1.25 net; illustrated. The Macmillan Co., New York.

Severest Anæmias. By William Hunter, M.D., Edin. 4to; cloth; 226 pages; illustrated; $3.25 net. The Macmillan Co., New York.

Über die Behandlung der Geburten bei engen Becken. Von Dr. E. Scipiades. 246 pages; paper. S. Karger, Berlin, Germany.

Über die Entstehung und Verbreitung der Tuberkulose im weiblichen Genitaltrakte. Von Dr. Albert Blau. 8vo, 95 pages, paper. S. Karger, Berlin.

Die Krankheiten der oberen Luftwege. Von Prof. Dr. Edmund Meyer. 8vo; 766 pages; cloth; illustrated; M. 22. Julius Springer, Berlin, Germany.

Études Anatomo-Cliniques, Cœur—Vaisseaux—Poumons. Par le Dr. Raymond Tripier. 8vo; 600 pages; paper. G. Steinheil, Paris, France.

The Philosophy of Long Life. By Jean Finot. 8vo; 305 pages; cloth; $2.50 net. John Lane Co., New York.

Commissioner of Education, Report, 1908, Vol. 2. 8vo; cloth; 1,090 pages. Department of the Interior, Washington, D. C.

Abwasserbeseitigung von Gewerben und gewerbereichen Städten. Von Dr. Albert Schiele. 8vo; paper; 932 pages; illustrated. August Hirschwald, Berlin, Germany.

Lehrbuch der Nervenkrankheiten. Von H. Curschmann. 4to; cloth; 977 pages; illustrated. M. 24. Julius Springer, Berlin, Germany.

Der Einfluss der Mineralwässer auf Verdauungs- und Stoffwechselkrankheiten. Von Dr. Robert Baumstark. 8vo; paper; 63 pages. M. 1.40. Carl Marhold, Halle, Germany.

Diagonose und Therapie chronischer Diarrhöen. Von Prof. Adolf Schmidt. 8vo; paper; 39 pages. Carl Marhold, Halle, Germany.

Conférences sur les Accidents du Travail et les Affections Traumatiques. Par le Dr. Olivier Lenoir. 12mo; paper; 235 pages. Vigot Frères, Paris, France.

Vaccine and Serum Therapy. By Edwin Henry Schorer, B.S., M.D. 4to; cloth; 131 pages; illustrated; $2.00 net. C. V. Mosby Med. Book & Pub. Co., St. Louis, Mo.

Myomata of the Uterus. By Howard A. Kelly and Thomas S. Cullen. 4to; 723 pages; cloth; illustrated; $7.50 net. W. B. Saunders Co., Philadelphia, Pa.

The Treatment of the Diseases of Children. By Charles Gilmore Kerley. 8vo; 620 pages; cloth; illustrated; $5.00 net. W. B. Saunders Co., Philadelphia, Pa.

Diet in Health and Disease. By Julius Friedenwald, M.D., and John Ruhräh, M.D. Cloth; 8vo; 765 pages; illustrated; $4.00 net. W. B. Saunders Co., Philadelphia, Pa.

Dietetics for Nurses. By Julius Friedenwald, M.D. 8vo; cloth; 305 pages; illustrated; $1.50 net. W. B. Saunders Co., Philadelphia, Pa.

Legal Medicine and Toxicology. By R. L. Emerson, A.B., M.D. (Harvard). 8vo; cloth; 503 pages; illustrated. D. Appleton & Co., New York.

Les Eaux Minérales en tant que Sérums Artificiels. Par G. Billard et P. Ferreyrolles. 8vo; paper; 31 pages; 1 franc. A. Maloine, Éditeur, Paris, France.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of August 14, 1909:

	Aug. 7		Aug. 14	
	Cases	Deaths	Cases	Deaths
Tuberculosis Pulmonalis	532	135	431	158
Diphtheria	207	15	173	20
Measles	256	16	216	16
Scarlet Fever	76	4	87	
Smallpox	..	....	..	....
Varicella	14	1	16	....
Typhoid Fever	72	14	71	9
Whooping Cough	45	6	44	13
Cerebrospinal Meningitis	5	6	4	5
Malarial Fever	....	....	....	....
Totals	1,207	197	1,042	227

Dryness of the Pharynx is often associated with atrophic rhinitis.

Dyspepsia in Malarial Subjects.—V. Raymond and L. Salignat have had under treatment at Vichy many cases of chronic malaria contracted in tropical countries, in which they have found chronic dyspepsias to exist. In thirty of these cases they have made accurate determinations of the stomach contents and gastric chemistry. They found that in 53 per cent. there was hyperchlorhydria, in 33 per cent. normal chemism, and in 13 per cent. hypochlorhydria. These troubles are found in recent as well as chronic cases of malarial poisoning, and are the results of various stages of the disease. The liver and spleen are also affected. There is hypertension and then hypotension of the portal circulation, and relaxation of the suspensory ligaments of liver and spleen. All sorts of symptoms are presented in gastric dyspepsia of malarial origin. In the beginning there is excitation of sensibility of the stomach, of secretion, and of motility. Later succeeds a period of depression, with diminution of secretion. In most cases there is more or less pronounced anemia. Treatment should include the use of quinine and hydrotherapeutic measures.—*Révue de Médecine.*

Tuberculous Endocarditis.—Francesco Fulci, after going over the literature with reference to the possible occurrence of tuberculous endocarditis, sums up by saying that the opinions of authors are still at variance as to the possibility of its occurrence. Perhaps these lesions are merely toxic, not caused by the actual presence of tubercle bacilli. This theory is supported by the absence of specific bacterial lesions and of specific histological formations. Lesions of the same kind can be produced in dogs by injection of emulsion of bacillus of Koch into the carotid artery, after ligature of a ureter made the day before the injection. The result is specific granulations disseminated over the internal surface of the left ventricle and auricle, the aorta, and ventricular surface of the aortic valves. This tuberculosis may be produced without any trauma of the heart, either by direct injection of the specific bacilli into the heart, or by carotid injection after suppression of the kidney function. The examination of the lesions showed necrotic, inflammatory, and reactive phenomena. The bacteriological examination showed few bacilli in the superficial fibrinous deposits when the germs were injected into the blood. The author sums up two groups of experiments on animals made by himself thus: he dissents from the opinions expressed by others in that he obtained no granules that were undoubtedly tuberculous; he never succeeded by endovenous injection in producing undoubted inflammatory alterations of the valves; Marchiafava after years of observation never encountered specific endocardial lesions in tuberculous subjects.—*Il Policlinico.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending August 6, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Illinois, Danville	July 18–25	2	..
Indiana, Fort Wayne	July 10–17	3	..
Kansas, Kansas City	July 10–17	1	..
Kentucky, Lexington	July 17–24	1	.
Newport	July 18–25	1	
Louisiana, New Orleans	July 17–24	1	
Michigan, Detroit	July 17–24	1	.
Kalamazoo	July 17–24	1	
Minnesota, Duluth	July 17–23	3	..
Missouri, St. Louis	July 17–24	1	..
Montana, Butte	July 15–22	3	.
Ohio, Dayton	July 17–24	1	.
SMALLPOX—INSULAR.			
Philippine Islands, Manila	June 5–12	1	1
SMALLPOX—FOREIGN.			
Algeria, Algeirs	June 1–30	..	2
Brazil, Rio de Janeiro	June 13–27	3	5
Canada, Halifax	July 10–17	2	..
China, Amoy	June 12–26	26	19
Egypt, Cairo	June 10–24	3	1
Indiana, Calcutta	June 12–19	..	7
Madras	June 19–25	.	1
Rangoon	June 12–19	.	3
Indo-China, Saigon	May 29–June 12	4	3
Italy, Naples	June 4–11	29	8
Java, Batavia	June 5–19	3	.
Mexico, Mexico City	May 29–June 26	..	43
Monterey	June 11–18	..	3
Portugal, Lisbon	July 4–18	22	.
Russia, Libau	July 3–10	1	1
Riga	July 3–10	.	6
St. Petersburg	May 8–15	20	5
	June 19–July	4	8
Spain, Barcelona	July 5–12	.	4
Vigo	July 3–10	.	1
Turkey, Constantinople	June 27–July 4	.	1
Smyrna	May 27–July 1	.	13
YELLOW FEVER.			
Ecuador, Guayaquil	June 12–25	.	9
CHOLERA—INSULAR.			
Philippine Islands, Provinces	June 5–12	77	52
CHOLERA—FOREIGN.			
China, Amoy and vicinity	June 12–26	3	7
India, Calcutta	June 12–19	.	23
Madras	June 19–25	..	1
Rangoon	June 12–19	..	3
Indo-China, Saigon	May 29–June 12	5	2
Russia	July 10–17	1,020	421
St. Petersburg	July 10–17	844	341
PLAGUE—UNITED STATES.			
California, Alameda County, Sunol	Aug. 2	1	..
PLAGUE—FOREIGN.			
Chile, Antofagasta	June 26	2	In Laz'tto
Iquique	June 30	10	In Laz'tto
China, Amoy	June 12–26	..	210
Canton	June 5–19	..	30
Ecuador, Guayaquil	June 12–26	..	9
India, General	June 12–19	885	766
Calcutta	June 12–19	.	67
Rangoon	June 12–19	..	36
Indo-China, Saigon	May 29–June 12	5	5
Japan, Kobe	June 26–July 3	1	1
Yokahama	June 26–July 3	5	1
Peru	June 26–July 3	26	12

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending August 13, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Illinois, Danville	July 25–Aug. 1	2	..
Moline	July 24–31	1	
Indiana, Fort Wayne	June 19–26	7	..
	July 3–10	4	..
	July 17–31	34	.
Kansas, Wichita	July 10–17	1	..
	July 24–31	2	..
Kentucky, Lexington	July 10–17	3	..
	July 24–31	1	..
Newport	July 19–26	1	..
Michigan, Saginaw	July 24–31	1	..
Minnesota, Duluth	July 23–30	4	..
Missouri, St. Joseph	July 3–24	15	..
Pennsylvania, Philadelphia	July 17–24	3	..
Texas, Fort Worth	July 1–31	1	.
San Antonio	July 24–31	1	.
Wisconsin, Appleton	July 17–31	17	.
SMALLPOX—FOREIGN.			
Africa, Tripoli	June 19–July 10	17	1
China, Hongkong	May 29–June 19	2	2
Tientsin	June 26–July 3	1	2
France, Paris	June 26–July 10	5	..
Indo-China, Saigon	June 19–26	2	2
Italy, general	July 11–18	32	.
Naples	July 11–18	16	3
Java, Batavia	June 16–July 3	3	..
Portugal, Lisbon	July 17–24	2	..
Russia, Moscow	June 26–July 10	47	2
Odessa	July 3–17	2	..
Riga	July 10–17	6	.
Spain, Barcelona	July 12–19	..	4
Valencia	June 26–July 10	12	1
Vigo	July 10–17	..	1
Turkey in Asia, Mercine, vicinity	July 19	..	Epidemic
Turkey in Europe, Constantinople	July 4–11	..	1 .
YELLOW FEVER.			
Brazil, Manaos	June 26–July 3	..	1
Para	June 26–July 10	12	12
CHOLERA—FOREIGN.			
Indo-China, Saigon	June 12–26	7	6
Russia, general	July 17–23	164	73
St. Petersburg	July 17–23	526	234
PLAGUE.			
Australia, New South Wales, Sydney	May 22–29	2	1
Queensland—Mackay	June 6	..	1
China, Canton	June 12–26	70	50
Hongkong	May 29–June 19	33	32
India, general	June 19–26	628	531
Indo-China, Saigon	June 12–26	8	5
Japan, Kobe	July 3–10	2	1
Osaka	July 2	1	1
Trinidad	June 19–July 3	2	2
	July 19	1	1

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Original Articles.

SEROLOGY OF SYPHILIS.*

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To those not familiar with the subject matter at hand, I propose to rehearse some of the most general principles upon which are based these kinds of researches, and that the procedures employed may be clearer to you I have introduced some simple drawings and patterns after the nomenclature of Ehrlich to illustrate the facts that lead up to and give substantial foundation to the Wassermann test.

Confining myself to the essential points, let us first briefly consider the different classes of antibodies. One class is relatively simple, and it is sufficient, in order to bring about a reaction, to put it in contact with the substance toward which, when in apposition, it is endowed with specific power of reaction. Fig. 1 represents diagrammatically the action of simple antibodies as may be seen in the principle of the Widal reaction. (*a*) The typhoid bacillus representing antigen A1 becomes agglutinated in the presence of typhoid serum representing antibody A2; (*b*) the principle of antitoxin in diphtheria is based on the principle that diphtheria toxin B1 (antigen) and antitoxin B2 (antibody) are mutually neutralized. These simple antibodies are made up of two parts, the zymophore group (in black) to which they owe their action on the antigens (on the left) when united with them by means of haptophore-antigenophile groups (in white). These antibodies are specific to their particular antigen and unite only when they are reciprocal. Given a known antigen, one could recognize an unknown antibody by mixing them together; if they combined they must be identical.

The other class of antibodies act in a manner more complex. These are the "amboceptors" of Ehrlich or "substances sensibilatrices" of Bordet. Like the simple antibodies, they are specific in combining, but unlike them they are incapable of action in themselves, requiring the presence of a third substance the "alexine" of Bordet or "complement" of Ehrlich. The "amboceptors" must be separated into two classes, natural and artificially prepared ones. Natural being found in an inequal manner among the animal species. One species will contain one kind, another, closely related, contains amboceptors partly different. The artificial amboceptors are created by injecting an animal with the body or antigen to which the amboceptor corresponds. The introduced body has the power to stimulate the animal body cells to produce its specific antibody. Hence the term "antigen" coined by Wassermann meaning generator of antibody.

Every amboceptor has an antigen, and only one, to which it fits and upon which it acts, and by such action the antigen becomes sensitive to the action of the complement. The complement, unlike the antigen and amboceptor, is not specific; it is found in all blood and acts upon any antigen providing it first be sensitized or acted upon by amboceptor. Fig. 2 diagrammatically represents the relationship between antigen (on the left), amboceptor (in the center), and complement (on the right). The chemical diversity of the antigens is indicated by the diversity of shading, the diversity of their amboceptorophile group is indicated by the diversity of their forms. The diversity of the amboceptor's antigenophile group is indicated by diversity of shape. The possibility of reciprocal adaptation is marked by placing them oposite to their respective antigens. The complementophile group is shaped the same in all, showing the complement is capable of adapting itself to all amboceptors. (*a*) Shows the antigen of syphilis is reciprocal with amboceptor of specific luetic serum; (*b*) shows the antigen in form of sheep corpuscles is reciprocal with amboceptors of immune rabbit serum (rabbit inoculated with sheep corpuscles). The complement is shown on the right capable of fitting any amboceptor.

Bearing in mind that the antigen and amboceptor are specific and can unite only when alike, if we add antigen in the form of sheep's red blood cells and amboceptors in the form of rabbit's blood serum that has received inoculations of lamb's corpuscles, known hereafter as specific rabbit serum or specific hemolytic serum, a union will take place (Fig. 3), evidenced in a very pretty reaction termed hemolysis, which consists in a dissolution of the lamb's corpuscles with a liberation of their hemoglobin easily seen macroscopically by the transparent solution of hemoglobin as contrasted with the previously turbid non-hemolyzed blood which would obtain if normal rabbit's blood serum were added (Fig. 4), because amboceptors are absent, and the complement has no power in its absence. However, if the specific rabbit's serum is heated to 56° C. one-half hour it loses the power to dissolve lamb's cells (Fig. 5). This is termed "inactivating the serum," because the complement has been destroyed, but if to this mixture normal serum of any source is added, as guinea pig serum, the rabbit's serum again acquires the power to dissolve lamb's cells (Fig. 6); for the normal serum supplies that which the heat has destroyed (the complement), it "reactivates it." Thus it will be seen that hemolysis depends upon two substances, the amboceptor which is present only in blood of the injected animal and is thermostabile, *i.e.* (withstand 56° C. one-half hour). The other, the complement, is present not only in the blood of the injected animal, but also in the blood of

*Read before the City and County Medical Society, Portland, Ore., March 4, 1909.

any animal and is thermolabile. (56° C. one-half hour destroys it.)

The union of the complement, amboceptor or immune body, and cell is known as the hemolytic chain, and is necessary for hemolysis to take place. The union here is, amboceptor binds with the cell and then the complement binds the amboceptor, when all three substances make one; there is consequently in this case fixation and absorption of the complement, or deviation as it is termed.

We furthermore understand that not only will cellular elements when injected create amboceptors which are specific, but bacteria or bacterial elements, when injected into an animal or existing there pathologically, likewise give rise to corresponding amboceptors or immune bodies which are specific and have the power to fix themselves to bacteria if mixed with them, by one combining group, and to the complement by the other combining group. This is the principle of which Bordet and Gengou took advantage to determine the nature of an infection. By mixing the inactivated serum for diagnosis with the supposed bacteria and adding the complement in the form of normal guinea pig serum, if the serum in question contained antibodies against the bacteria a binding between bacteria, antibody, and complement took place. This is proved by the fact that if lamb's corpuscles are now added, and also a heated specific hemolytic serum, no solution of the corpuscles or hemolysis takes place, because the hemolytic amboceptor has no appreciable effect upon the lamb's corpuscles in the absence of complement or alexin, which is already bound up with the bacterial amboceptor (Fig. 7). Hemolysis would occur, however, if the serum in question did not contain reciprocal antibodies for the antigen, for under such circumstances the complement would have no affinity for the bacterial antibody and would remain disengaged to act upon the lamb's corpuscles through the specific hemolytic amboceptor (Fig. 8).

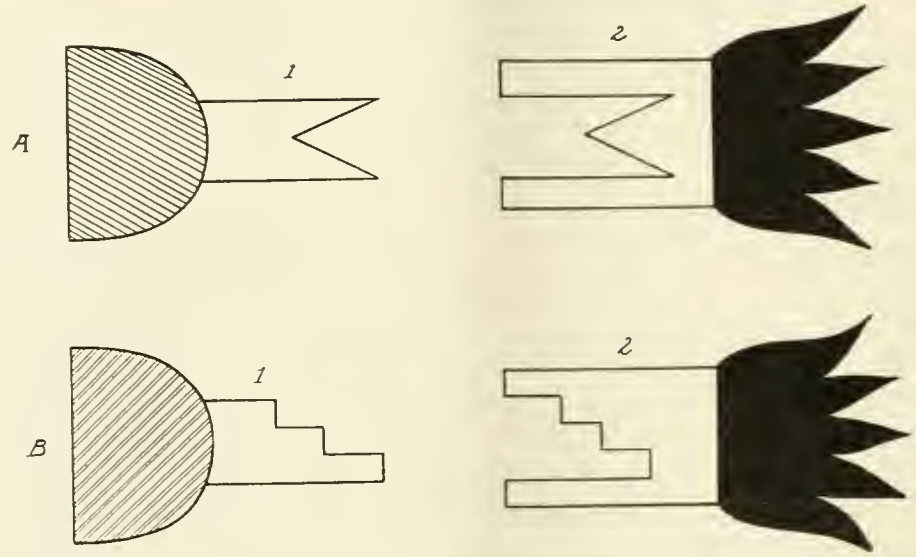

FIG. 1.—Scheme of simple antibodies. (Diagrams modified from *La Presse Medicale*, after Hallion).

The proposition then is this: If we add a known bacterial substance to an unknown serum, which has been freed from complement by heating to 56° C., and find that this mixture has the power to absorb complement we have evidence that the unknown serum contains antibodies which are capable of com-

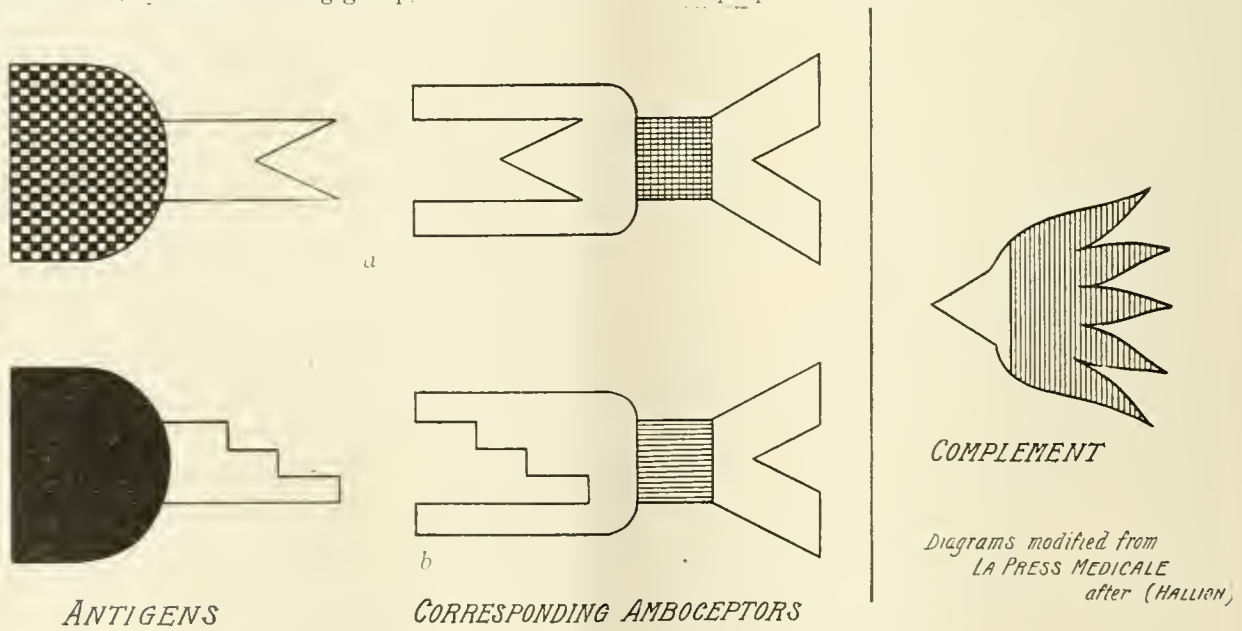

FIG. 2.—Scheme of antigens, amboceptors, and complement.

bining with the known bacteria or an extract of them. Therefore, these antibodies must be a result of an activity of that genus of bacteria. Thus is established the identity of an unknown serum by using known antigen, or vice versa the identity of an unknown organism by using a known serum. Furthermore, the proof that antigen, antibodies, and complement have united may be established by adding lamb's corpuscles and specific hemolytic serum. The lamb's cells, it will be seen, remain unaltered because the complement is already engaged. By means of this ingenious and complicated method, Wassermann, Neisser, and Bruck,[1] using an extract of infected syphilitic organs as antigen, have succeeded in establishing the presence of syphilitic antibodies, first in the serum of monkeys inoculated with syphilitic products, then in individuals afflicted with syphilis, and lastly Wassermann and Plaut in the cerebrospinal fluid of tabetics and general paralytics.[2] Although it is the unanimous opinion of those who have studied the reaction that it is of indisputable practical value, nevertheless the theoretical principles on which it is based still remain undecided.

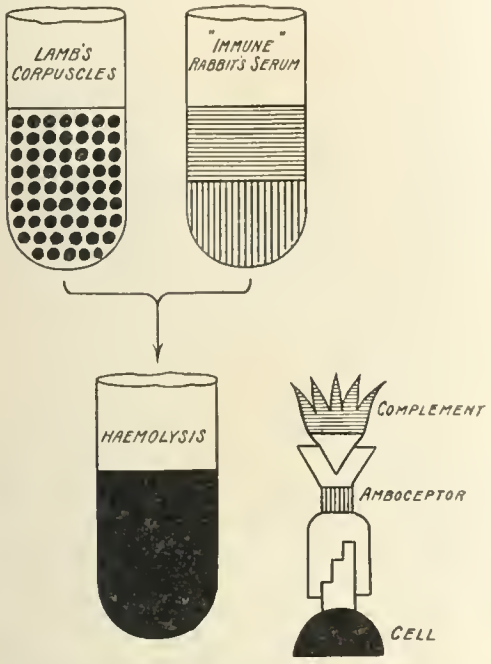

FIG. 3.

Kraus and Volk and Marie and Levaditi were the first to bring out facts contradicting the specificity of the test, when they showed that not only did syphilitic liver extract in the presence of specific sera absorb complement, but that normal liver likewise had that power. This fact was soon confirmed by Plaut, Fleishmann,[3] L. Michaelis,[4] Landsteiner, Braun, and Weil,[5] the latter stating the test was not specific, for he had obtained a positive reaction with syphilitic sera, using extracts of sarcomas instead of luetic liver as antigen. However, later[6] he failed to get a positive reaction in control cases, and obtained 88 per cent. positive reactions in syphilis. Therefore, since the normal liver extracts gave a positive reaction only in the presence of syphilitic serum, the practical value of the reaction is not diminished.

Later Landsteiner, Porges and Meyer, Levaditi and Yamanuchi[7] made the important observation that, contrary to true antigens, the active substances in both syphilitic and even normal livers are soluble in alcohol and sometimes in ether. Following up these observations, experimenters have worked with substances of known chemical combination to replace the liver extract. Landsteiner demonstrated that lipoid substances, especially lecithin[8] would give the reaction. Sachs, Altmann, and Levaditi obtained the reaction with taurocholate, glycocholate, and oleate of soda. Benecke thought this explained why fetal livers were superior since they contain many fat vacuoles enveloped within a soap membrane. Fleishmann[9] obtained positive results using cholesterin and vaseline.

Success having in a way been obtained in finding a chemical substitute for the liver extract, which, owing to the necessity of an untreated liver, was difficult to obtain, it was thought the serum diagnosis could be very much simplified by the use of some such substance. For this purpose Porges[10] and Meyer used lecithin, Sachs and Altmann olein and alcohol as antigen, finally Klauser[11] was satisfied to use distilled water, to which he added the suspected serum, claiming the appearance of a precipitate in a few hours was evidence of syphilis. However, the matter is not so simple. Recent researches of Kraus, von Eisler, and Stumme have shown Porges reaction also positive in tuberculous and malignant cases.[12] Klausner's[13] reaction upon further study is found to have no diagnostic value since it is equally positive in other diseases.

Wassermann insists that extracts be made with salt solution to make the test reliable. The bile salts and oleate of soda, however, seem to give good results. Mayer and Proescher[14] find a 1 per cent. solution of sodium oleate in 0.85 per cent. sodium chloride very satisfactory as antigen.

Even the application of the method devised by Wassermann and his associates is not entirely free from all criticism, for it has been met with in some other morbid states. Thus it has been found positive in experimental trypanosomiasis[24] as well as in

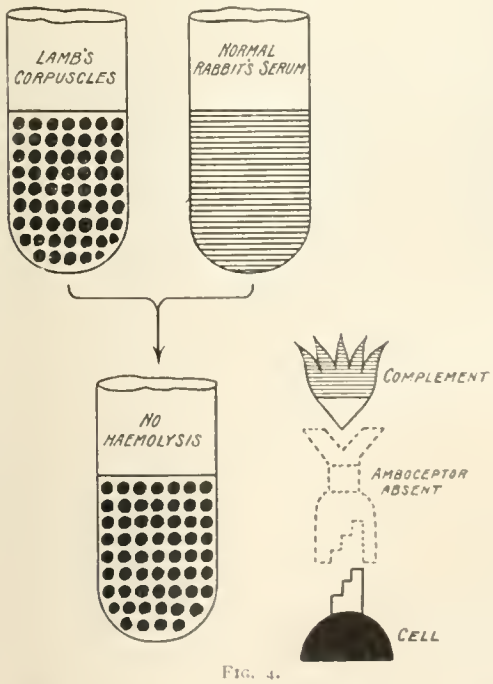

FIG. 4.

frambesia (yaws), but here we deal with diseases which, through their etiological factors, offer much analogy with syphilis and like frambesia have even a great clinical resemblance to it.

As in every other important laboratory method of

diagnosis we might expect criticism concerning the actual value of the method. On the other hand, the thousands of cases in which it has been applied has affirmed its specificity to a large body of eminent workers, and we might well ask if, in those few

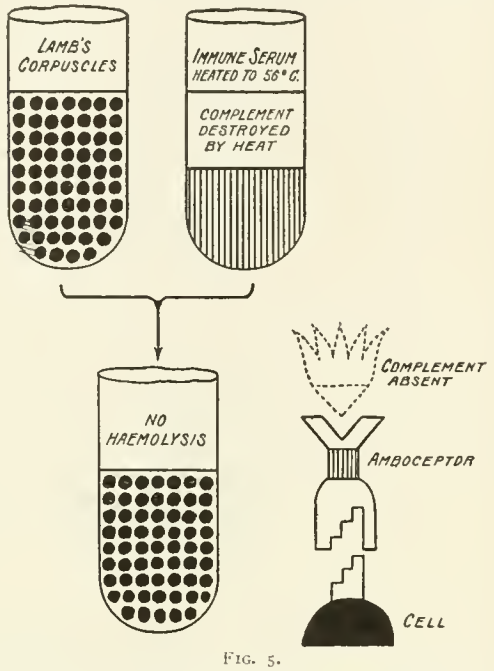

Fig. 5.

cases where syphilis could not be ascertained, there might be a syphilitic infection, hereditary or acquired, leaving no trace clinically or anatomically. The results of those who have examined a large number of sera are very uniform, *i.e.* that about 80 per cent. of syphilitic individuals, irrespective of type, give a positive reaction, and that the blood of the patients who positively have no syphilis invariably gives a negative reaction.

The following are some of the results obtained by various workers: Wile[15] investigated 100 cases, testing both the urine and blood serum, he obtained a positive reaction in both the urine and serum in 66 2-3 per cent. of the syphilitics, but concluded the urine reaction to be not of so much value as the blood serum. Kroner[16] obtained 75 per cent. positive reactions in 40 cases of suspected syphilis; all controls were negative. Meier[17] obtained 81.7 per cent. positive reactions in 118 syphilitics; all controls were negative. Citron[18] examined 108 cases of clinical or suspected syphilis; 74 per cent. reacted positive. Müller[19] examined 197 cases of syphilis; 94 per cent. were positive. Of 500 controls, 97 per cent. were negative. Butler[20] examined 105 cases and 20 controls in which syphilis could be reasonably excluded by examination and history. All controls reacted negative, including cases of typhoid, pneumonia, neurasthenia, etc. Butler grouped the cases under two heads: (1) Cases with manifest or suspected syphilis and cases giving a history; (2) cases with lesions of the nervous or cardiovascular systems in which syphilis was either acknowledged, denied, suspected, or unsuspected. Of the first division there were 61 cases. In the primary stage 100 per cent. were positive. In the second stage 96 per cent. were positive. In the third stage 95 per cent. were positive. In the latent cases 52.8 per cent were positive. Of the second division there were 44 cases, of which 75 per cent. were positive. Fleishmann and Butler[21] examined 41 syphilitics and suspects; in 70.7 per cent. cases reactions were positive. Fischer and Meier[22] examined 114 luetics, of whom 83.7 gave positive reactions.

Since different authors have used different methods of classification, we may expect a difference of opinion as to the value of the test. For instance, Citron reports 307 cases; 156 were nonsyphilitic, and all gave a negative reaction; 108 were of different types, and 74 per cent. were positive. 43 were cases of paresis and tabes and 79 per cent. were positive. Here no distinction between types is made. While in another report Blaschko obtained the following results, according to the stage of the disease: 90 per cent. positive, in initial stage; 98 per cent. positive, in first stage; 91 per cent. positive, in late syphilis, no symptoms; 57 per cent. positive, in late syphilis; 60 per cent. positive, with cerebrospinal symptoms. It will be observed that the percentage of positives will be higher in early untreated cases than in late treated cases, and authors should have some uniform system of reporting results.

As in many laboratory findings improper interpretation of results by clinicians is responsible for much undue criticism, but this does not lessen the value of the test in reliable hands. It must be remembered that effectual treatment may cause the reaction to disappear or be absent. A positive reaction means that the patient has syphilis, hereditary or acquired, but does not necessarily mean that the present pathological process is due to syphilis; he may be suffering from a coincident infection and clinical facts must decide this point. A negative result means that your patient either has not syphilis, or has latent syphilis; it does not necessarily mean the patient is cured.

As in many valuable laboratory aids in diagnosis the technique is laborious. One must be prepared for many disappointments, difficulties will be encountered which are most discouraging. Butler,

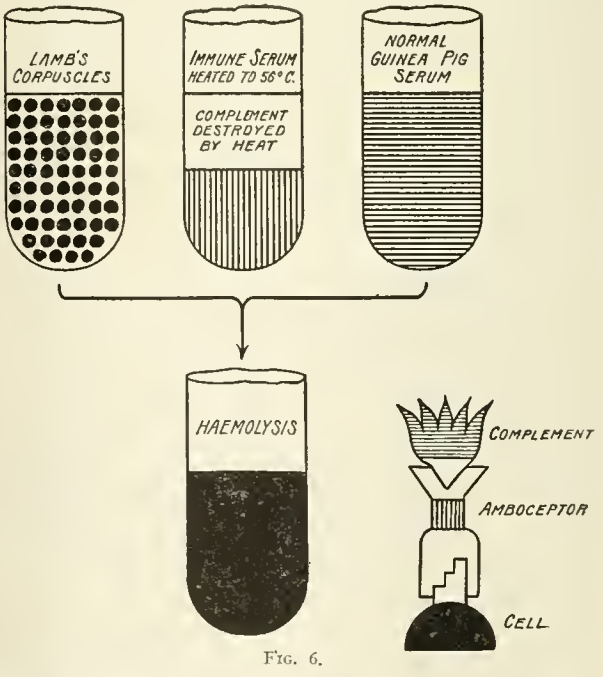

Fig. 6.

Marchildon, and others have shown that an alcoholic extract of liver is just as accurate as the salt solution, and keeps well at room temperature; this simplifies the technique considerably.

To carry out the test the following reagents are

employed: (1) Serum for diagnosis. Easily obtained by filling a 2 c.c. Wright capsule securing the blood from the thumb after the application of a rubber band. This is allowed to coagulate and the serum drawn off, after separation, into a pipette.

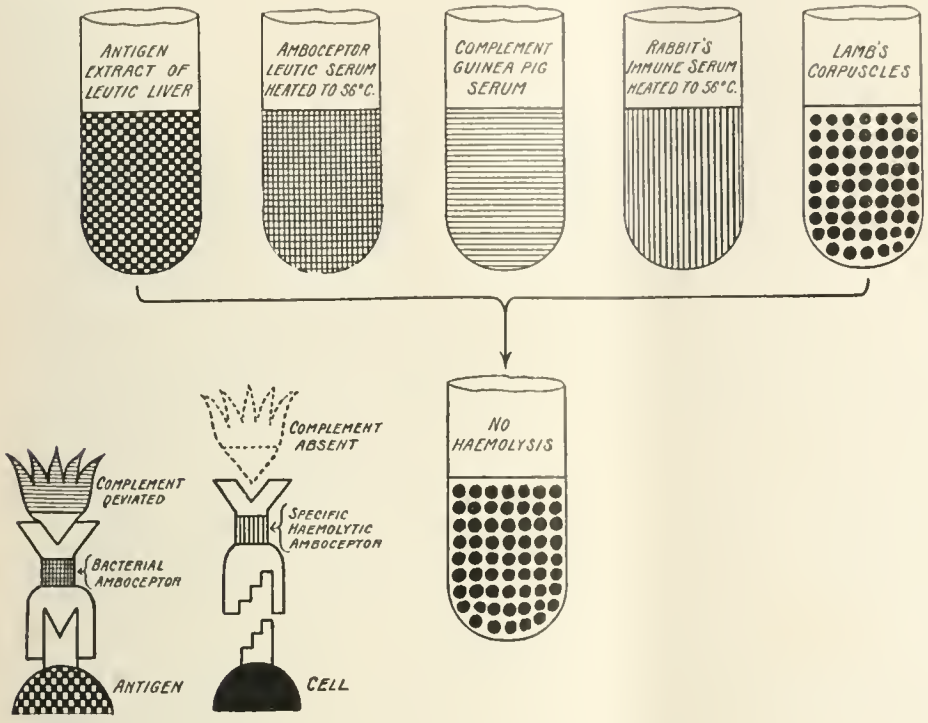

FIG. 7.

Care must be taken to avoid drawing up red blood corpuscles; should this happen, centrifuge the specimen to clearness. Seal the tip of the pipette after drawing off the serum, and after creating a positive pressure in the rubber teat, drop in water bath and inactivate by maintaining at 56° C. for one-half hour. (2) Control sera. Two or three are collected and treated in the same manner. (3) Antigen or organ extract. Made by taking a fetal luetic liver or guinea pig heart, 1 gm. to 50 c.c. of 95 per cent. alcohol, after rubbing up with sand in a mortar; this is placed in a flask and kept at 60° C. one hour in water bath; it is then filtered and kept at room temperature in a dark place ready for use. (4) Complement. A guinea pig is killed and blood from the heart is collected in a sterile tube and placed on ice to coagulate. After the serum has separated it is drawn off and kept ready for use. It is well to collect and prepare the pig serum the day before. The complement is most active twenty-four hours after collecting the serum. This can be kept ten days if 1 per cent. sodium chloride is added and frozen after placing in small tubes. These can be thawed out when required. (5) Hemolytic serum. Made by injecting a rabbit every week or ten days with 5 c.c. of a 5 per cent solution of washed sheep's blood corpuscles suspended in 0.85 per cent. salt solution. Four or five injections are given and the blood collected from the heart a week or ten days after the last injection. It is placed on ice. After the serum separates, pipette into test tubes, seal off, and inactivate at 56° C. one-half hour. This must be kept on ice ready for use. If one prefers, a rabbit can be inoculated with calf's blood; 50 to 80 c.c. may be injected intraperitoneally on three occasions, one week apart. Care must be taken that all serum is thoroughly washed, otherwise anti-complements are generated in the rabbit's serum. (6) Washed sheep's blood corpuscles. Sheep's blood is obtained at the time of killing, collected in a sterile flask containing beads and shaken vigorously. A small quantity is washed in 0.85 per cent. salt solution two or three times and then suspended in salt solution to the extent of 50 per cent.

The next step is to test the material. This includes: (1) Standardizing the amboceptor. This is accomplished by making dilutions of the amboceptor with 0.85 per cent. salt solution and determining what dilution in one drop dose dissolves one drop of a 50 per cent. suspension of sheep's corpuscles plus

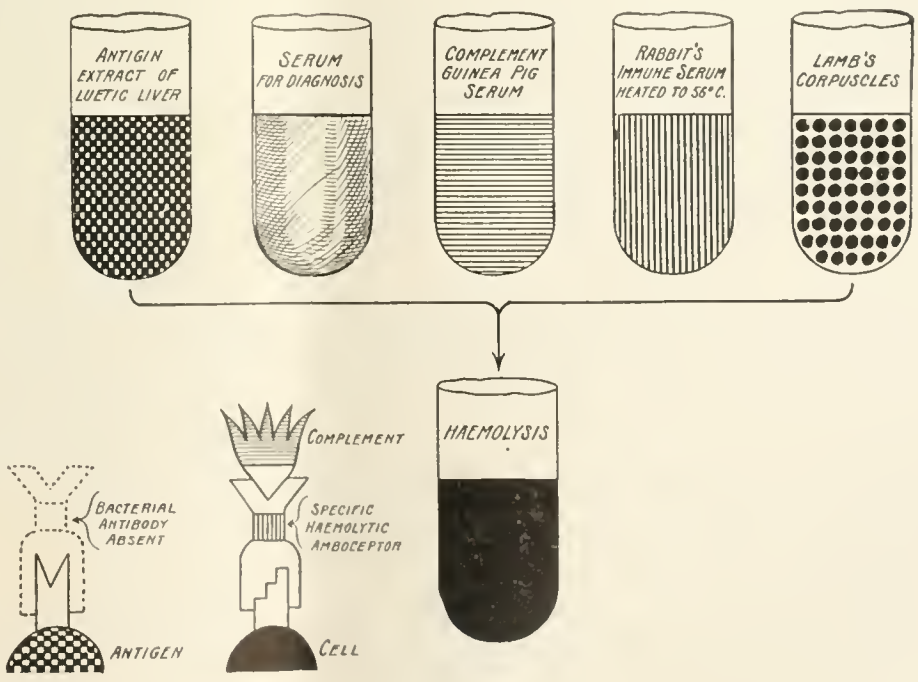

FIG. 8.

one drop of complement in one hour at 38° C. Then twice this strength is used in the test. (2) The extract must be tested to see that it alone is not capable of hemolyzing sheep's corpuscles, or binding up complement. This must be done before each test, and is accomplished by using one drop of extract and one of complement in ten drops of salt solution, incubating one-half hour at 38° C., and then adding amboceptor and blood corpuscles; after reincubating hemolysis should occur in one-half hour. The binding of the complement by the antigen has been a source of great annoyance in the last series of tests we have put up. (3) The sheep's corpuscles must not already be hemolyzed. This can be determined by simply looking at the corpuscle suspension and avoided by using fresh mixtures. (4) The complement must be known to be active. You may be sure of this if the guinea pig serum is fresh.

Tubes should be freshly made of glass tubing, avoiding that which is alkaline; each specimen requires two tubes; these may be two inches long and about one-fourth inch in diameter. A fresh pipette should be made for each, the antigen, amboceptor, complement, and corpuscles. The sera for examination are already contained in pipettes and can be dropped by simply breaking off the tip. The reaction is then carried out as follows: The tubes are arranged in racks and numbered. Add a drop of antigen* to one of the two tubes used for each specimen, then add a drop of serum to each, and finally add a drop of complement to each tube. Shake the tubes and place in the incubator for one hour at 38° C. Remove, add a drop of amboceptor and a drop of a 50 per cent. suspension of sheep's corpuscles, shake, and reincubate for one and one-half hours. The result can then be read. For the examination of one suspected blood, including necessary controls, the test may be set up as follows:

	Incubate 1 Hour.			Incubate 1½ Hours.			Result Should Be
Tube	Liver Ext.	Serum of	Pig Serum	Rabbit Serum	Sheep's Corps.		
1	1 drop	Normal	1 drop	1 drop	1 drop,	50% sol	Solution.
2	"	"	"	"	"	"	No solution.
3	1 drop	Luetic.	1 drop	"	"	"	"
4	"	"	"	"	"	"	Solution.
5	1 drop	Suspect	"	"	"	"	If luetic, no solution.
6	"	"	"	"	"	"	Solution.
7	1 drop		"	"	"	"	"
8	"		"	"	"	"	"

All controls with sera alone, with normal sera, and with antigen alone should be hemolyzed. If hemolysis has occurred in the tubes containing suspected sera plus antigen the reaction is negative, if hemolysis has not occurred the reaction is positive. I cannot urge too strongly the necessity of attention to the details of the technique, the testing of the material, and of having a goodly number of controls scattered among the suspected and known sera. Only in this way can disappointing and unreliable results be avoided.

I wish to report the examination of seventy-five cases, fourteen of which were control bloods from which syphilis could be excluded and all were negative. The remaining sixty-one I have arranged after the grouping of Butler under two main heads. First, cases with manifest or suspected syphilis and cases giving a history of syphilis. Second, cases with lesions of the nervous or cardiovascular systems in which syphilis was either acknowledged, denied, suspected, or unsuspected.

*Personal communication from Butler states this is as reliable as the former method of using dilutions.

The first class represented thirty-seven cases. Of these there were twelve in the primary stage either with initial lesions or before the appearance of secondary symptoms; all were positive. In the secondary stage there were nineteen cases; eighteen were positive and one negative. In the second division there were twenty-four cases: nineteen were positive and five negative. Taking the entire thirty-seven cases of the first group, which comprised what we might term known syphilitics, 92 per cent. gave a positive reaction, and, upon analysis, in the first stage 100 per cent. were positive. In the second stage 94.8 per cent. were positive. In the third stage 66 2-3 per cent. were positive. My low percentage in the third group is due to the fact that I have grouped the third stage and the latent cases together. It will thus be seen that the test is of greatest value in early syphilis. Whether the diminishing value of the test is influenced by treatment I am not prepared to say. However, of the six cases in the third stage, the disease had existed from six to nineteen years in the positive cases and had been treated in an irregular way, while the negative cases were of fifteen years' duration each and well treated. These facts would lead one to think that treatment influences the reaction. Citron[23] observed that under vigorous treatment the reaction tends to disappear. Butler, Fleishmann[24] and Wile[25] have stated that patients under treatment frequently react negatively.

It is impossible to give case histories and clinical data in this brief paper, but some comment on the cases comprising the second division would seem advisable. This group consisted of what might be termed suspected syphilis. There were nineteen positive and five negative cases. Of interest are the following. Case 1.—Patient of Dr. Buck had multiple adenitis, did not remember an initial lesion (wife had had syphilis), reacted negative to tuberculin, gave a positive syphilitic reaction, and has improved under luetic treatment. Case 2.—Patient of Dr. Baar, pernicious anemia, had had syphilis years before, but thought he had been well treated, reacted positive. Case 3.—Patient of Dr. A. E. Mackay, enlarged liver, diagnosed as parasyphilitic, no history of syphilis, but led a life of dissipation, reacted positive many times. Case 4.—Patient of Dr. Coffey, cancer of the rectum, diagnosis confirmed by microscopic findings, formerly diagnosed as syphilis, reacted negative. Case 5.—Patient of Dr. Bell, diagnosed carcinoma of liver. No history of syphilis, intense jaundice, reacted positive.

A positive reaction has been obtained in cancer by others. Marchildon[26] examined the sera of thirteen carcinoma cases and obtained one positive reaction. The case was a woman who presented no signs of syphilis but who had been a prostitute. Weil and Braun,[27] Elias, Neubauer, Porges, and Salmon[28] have called attention to a slight reaction in cancer. But in all the cases so far reported the disease was far advanced and offered no difficulty of diagnosis, and, considering the rarity of the reaction in these cases, it does not lessen the clinical value of the test. Another case of this group was that of a physician who thought he had contracted syphilis through vaccination, and has not only attributed every complaint to this supposed accident, but has antagonized the principles of vaccination very severely. A recent sore throat reminded him of his

old malady. He presented no signs of the disease, and reacted negative twice. This was clearly a case of syphilophobia. Trivial ailments are now ignored and he believes in vaccination. The value of this test in syphilophobia is apparent.

The Wassermann reaction has a large field of usefulness in every department of medicine. Bab[29] calls attention to the vital importance of applying the test to the milk of a woman deciding to nurse a syphilitic infant. He examined the milk of four syphilitic women and found antibodies in large amount. Syphilitic children would be materially benefited by imbibing such milk rich in immune substances. If only the child is syphilitic, an examination of the milk will show whether the mother is a latent syphilitic. If no antibodies are found she should not nurse the child lest she become infected. Opitz[30] believes it of greatest importance to the obstetrician. In one hundred and four maternity cases he obtained a positive reaction in ten cases, the findings being proven as correct by the conduct of the cases later with the exception of two. He would accept no wet nurse without first applying the test. To the neurologist the test is valuable; it has made it possible to obtain evidence of syphilis in many cases of tabes, pachymeningitis, general paralysis, and other parasyphilitic infections. Wassermann and Plaut[31] examined the cerebrospinal fluid of forty-one paralytics, 78 per cent. of which was positive. In nineteen controls all were negative. Marie and Levaditi,[32] in an examination of the cerebrospinal fluid of seventeen patients without general paralysis, proved the test negative, while it was positive in 73 per cent. of patients in various phases of the disease, wherein they demonstrated specific antibodies in the blood and cerebrospinal fluid.

CONCLUSIONS.

The rarity of a positive reaction in normal serum and the high percentage of positive reactions in syphilis or suspected cases clearly shows the test to be of much value. A positive reaction is found with greatest frequency in early cases, and least frequently in latent cases. A positive reaction means that active syphilis exists, but does not necessarily mean that the present pathological condition is due to syphilis; that must be determined clinically. But it does indicate that there should be an exhibition of antisyphilitic treatment. A negative result may be interpreted in many different ways. A negative reaction occurring in one who has had syphilis does not mean absolutely that the patient is well, but that the infection, if present at all, is quiescent. If a negative reaction occurs in an early suspected case it is from 95 to 100 per cent. against syphilis. If obtained in a suspected secondary case the chances are from 90 to 100 per cent. against syphilis. If obtained in a suspected tertiary case the chances are 75 to 95 per cent. against syphilis. If obtained in suspected latent cases the chances are from 50 to 75 per cent. against syphilis. If obtained in a suspected parasyphilitic the chances are 70 to 80 per cent. against its existence. Since antisyphilitic treatment may cause the reaction to disappear it may be an index as to the efficiency of a line of treatment in that particular case. As a diagnostic method it is of probably greater value in syphilis than the agglutinin reaction in typhoid, and as Fornet[33] suggests on account of the importance of serum diagnosis from a practical standpoint, it is to be hoped that modern municipal laboratories will be equipped to undertake these examinations and place the results gratuitously at the disposition of practitioners.

In conclusion I wish to extend my hearty thanks to Dr. W. J. Butler who has given me many valuable suggestions and has placed antigen at my disposal; to Dr. A. E. Mackay, for much valuable material in the way of known cases for controls, and to Mr. Frank McCauley, for conducting the immunization of rabbits, and for constant help in carrying out the many details of the test.

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A SEVERE CASE OF SCARLATINA AND OF DIPHTHERIA SUCCESSFULLY TREATED WITHOUT MEDICINE.*

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On January 26, 1909, I was called by Dr. Geo. B. Ferguson, of the Bronx Borough of New York City, to see in consultation with him a girl, aged five years, who began with a sudden sharp onset of scarlatina in the night, five days before. The throat was very early affected and the characteristic rash ran its usual course, with a high temperature of 104.2° by mouth.

On the third day of the scarlatina a diphtheritic exudation appeared, which rapidly spread. Dr. Ferguson administered 10,000 units of antitoxin,

*Read before the American Association of Physicians, Washington, D. C., May 12, 1909.

and on the next day 5,000 more, but no effect on the exudation followed, and the membrane increased so that when I was called in on the sixth day of the scarlatina and the third day of the diphtheria, the membrane covered the uvula, both palatal arches, the tonsils and the pharynx, so that all these parts were practically hidden by the overlying membrane. The child was wholly unable to swallow, the glands on both sides of the neck were swollen, and the breath had a gangrenous odor. What concerned me most, however, was the unfavorable aspect of the countenance. The child was apathetic and presented a picture of serious septic infection. The pulse was weak and thready.

When we retired for consultation, I told the doctor that it was useless to think of administering any medicine, first, because the child was wholly unable to swallow, and secondly, because we had no medicinal remedies for any of the exanthemata, while it was plain that the diphtheria antitoxin would no longer avail in this case. Meanwhile the hypodermics of strychnine given for her cardiac and general prostration would be no more effective than emptying the little syringe into the grate fire. The only recourse, therefore, was to deal with her throat as we would wash a dirty sidewalk with a hose. I recommended, therefore, that two gallons of hot water, with two teaspoons of chlorate of potash and five drops of oil of peppermint dissolved in it, be made, to pour into her throat every two hours day and night, from a fountain syringe bag elevated six feet above her head. To prevent her gagging or swallowing any of the water, her mouth was to be kept wide open by a rubber ball held between the teeth.

For the first few days the patient felt such relief from this douching that she offered no resistance. Great quantities of the exudates came away with the return current. On my second visit two days afterwards, though the patient was still unable to swallow, I was gratified to note a marked change in her expression, and the enlarged cervical glands looked smaller. On my third visit two days after that, she could swallow, though extensive diphtheritic patches still remained. I then told the doctor that now we were as if in a canoe shooting a rapid with these rocks ahead. First, abscesses in the ears from the scarlatina; secondly, pneumonia, which in my experience carries off twenty per cent. of the fatal cases of scarlatina; thirdly, pleurisy, with a special tendency to empyema; fourthly, cardiac paralysis from the toxin of diphtheria; and lastly, scarlatinal nephritis. All of these occurred in their order except the last, the kidneys never showing the least disturbance. The very next morning after my third visit, Dr. Samuel Goldstein, the aurist, found abscesses in both ears, which, on puncturing the drum, discharged profusely, and continued to do so for over a week, but by his assiduous and skillful management the ears recovered perfectly. On the eighth day of her illness, the temperature, which had fallen to 102°, rose to 105°, and with it there was a marked rise in the leucocyte count. I then found a patch of pneumonic consolidation in the left midscapular region, which was farther surrounded by an area of pleuritic rales extending to the base of the lung posteriorly. Nothing was prescribed for this complication except to continue the throat douching. In five to seven days both the pneumonic signs and the friction rales disappeared; the throat was clear of all diphtheritic patches, the cervical glands had become normal, and the patient was very hungry. But the pulse now became very weak and intermittent, and then for the first time, on the 25th day of her illness, she took medicines in the form of cardiac stimulants in a pill of powdered squills, caffeine, and strychnine. I may add that I was careful not to administer digitalis, because I have seen very painful results from giving digitalis in diphtheritic weakening of the heart, not only because digitalis then fails to increase the power of the heart's systole, but because the arteries at such times seem to become especially sensitive to the arterial contraction, which is one of the effects of this drug. However, the recovery of the heart was very slow, and it continued to be weak and intermittent for six weeks. The child is now quite herself again, except for weakness of the legs, and a muffled, nasal voice from paralysis of the palate.

The history of this case seems to me to support the view that the characteristic complications of scarlatina arise not so much from the original infection as from the invasion of virulent streptococci through the portal opened for them by the local angina in the throat. From them it is that the successive series of tissue changes and inflammations develop. In other words the exanthem first inflames the throat, and the streptococci then do the rest. In this sense scarlatina becomes as local a source of toxemia as diphtheria itself is. With diphtheria also, when ulcerated surfaces are present, mixed infections occur which may wholly neutralize the action of its specific antitoxin.

All this illustrates an important principle which the profession has only recently learned to recognize, and which is that the specific and often fatal complications which follow a particular infection are most commonly due, not to the primary infecting agent directly, but rather to the supervention of invasion by quite different microorganisms. Thus in a bad case of smallpox, we have to contend in succession with two different diseases: The first is variola, whose initial stage of three days has its own severe and characteristic constitutional symptoms ending in its specific vesicular eruption. This runs its course in five days, after which everything seems to subside: pulse and temperature fall, the head and spinal pains, with the gastric disturbance, disappear, the tongue cleans, and both appetite and sleep return. But now a condition supervenes which a surgeon who carefully disinfects the skin before he makes the smallest incision in it, might well regard with dismay. All of the vesicles with their hitherto clear liquid contents now become infected by organisms always present on the skin and turn into swollen pustules containing myriads of staphylococci and streptococci. This latter infection gives rise to the symptoms of acute pyemia induced by the widespread cutaneous ulceration. If only we could sterilize the skin as the surgeon does, so soon as the variola papules appear, we would rob smallpox of most of its terrors, except in those rare cases when variola itself kills before its own eruption appears.

Effective local treatment, therefore, is as much indicated in scarlatina as in diphtheria, in that early stage when they are still virtually local affections, and for this purpose nothing is so certain to fulfil the requirements as a strong stream of water. This can occasion no local injury, and meanwhile it removes great quantities, not only of poisonous exudates, but actively stimulates healthy throat secre-

tions along with a free flow of posterior nasal fluids. When properly applied, no gagging occurs, as so often accompanies throat swabbing, and which itself may not unoften set up inhalation pneumonia. The scarlatina otitis also becomes a much milder complication than that which leaves the patient hard of hearing for a life time and which is said to be the cause of twenty per cent. of deaf mutes in our asylums. I would recommend throat douching, therefore, at the earliest onset of scarlatina, with the first signs of sore throat, before the various kinds of streptococci can gain entrance. This measure is equally indicated in diphtheria, first for lessening the absorption of its toxin, and then for preventing the invasion of streptococci through the ulcerated mucous membrane. When general infection has already occurred, as in this case, the prevention of further invasion may enable the patient's resistant powers ultimately to cope with and overcome the enemies which have made their way into the blood and tissues. I am also fairly certain, from my experience, that the relatively late occurrence of scarlatinal nephritis is preventable by throat douching on the same principles.

23 East Forty-seventh Street.

A LARGE GLIOMA GROWING FROM THE BASAL GANGLIA PRODUCING SYMPTOMS SUGGESTIVE OF A GROWTH IN THE FRONTAL REGION.

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The case is that of a mill worker, a married man, 41 years of age. There is no history of specific disease. His previous history is negative.

I examined the patient for the first time April 27, 1904. He was at that time under the care of Dr. I. J. Moyer, at the Mercy Hospital. The first symptoms of his trouble were noted in January, 1902—about two and one-quarters years previous to the examination. These symptoms consisted of what the patient called "smell attacks." These attacks occurred at comparatively short intervals while he was at work in the mill and consisted of a state of mental confusion during which he smelt an odor; and sometimes the odor preceded the confused period. He was compelled to sit down during these "smell attacks" and rest for some minutes. He never fell during any of them, nor was he ever unconscious.

By the summer of 1902 he was free from these attacks and seemed entirely well. But a little later he began to suffer from pain located in the back of the head. Headache was to him a new thing, as he had never in his life suffered from it before. It became very severe in character. His wife stated "he thought he would go out of his mind." About this time his eyesight began to fail and has continued to do so ever since. The headache, with occasional interruptions, has grown more and more severe up to the present time. It was especially severe during the last three months of 1903. For the past three months the headache has been located in the frontal as well as the occipital region. Occasionally it is located in the frontal region alone, but more commonly in both frontal and occipital regions. Some of the headache is also referred to the vertex. The pain is rather more severe on the right than on the left side.

For the first time in his life he suffered a "convulsion" in July, 1903. Again on February 1st of this year the patient had another "convulsion"; and between that day and the present time (April 27) he has had about a dozen similar attacks. In these attacks he became unconscious, stiff, cold, pale, and breathed heavily. There was apparently very little movement. The patient seemed to sink away; and it is perhaps doubtful whether the attack should be called convulsive movements. For a month past the patient has had some twitching in the right face and mouth. This lasts about half a minute or so and he is not unconscious.

Since the first "convulsive attack" in July, 1903, the patient has been more or less peculiar in his talk. It was noted that his memory was defective; for he would repeat himself a great deal. To his wife his perception seemed slow and dull. The patient did not realize what he ought to do. He was often apathetic and at other times irritable. His wife noted that he was nervous and could not sit still. She also remarked that he was "kind of childish in his ways—funny notions to do things which would cost a mint of money." He was easily persuaded out of his notions. This represented a marked change in his character. In general his mental condition was one of dullness and slowness.

His wife never saw a so-called smell attack which was followed by a sinking attack; but she thinks the so-called convulsive attacks of later days are attacks of the same character. The patient himself describes the smell attacks by saying: "I could not help myself fainting away." In these early summer attacks he would recover in a few minutes and resume his work. At this time and later in the fall of 1903 he had a strong tendency to go to sleep. He could fall over and go to sleep almost anywhere, and sleep was so deep that he could not be awakened readily. The smell attacks, as before stated, left him in the summer of 1902 to be followed by the convulsive attacks which began in the summer of 1903. He quit work in June, 1903, on account of his headaches, weak spells, and mental condition. Long before he quit work the men in the mill, noticing that he was not himself, had kept a watch over him. It was felt that his mental condition was below par and that he had become untrustworthy and unreliable.

Last January the eyes were examined by Dr. Stieren, who discovered double optic neuritis.

In his attacks he would become limp on the right side. There was some jerking and twitching and very marked and complete or nearly complete loss of consciousness for the time. The patient has never vomited. He has had some impairment of hearing in both ears, the right being more defective than the left. About February 10 nearly a tablespoonful of hard, cheesy material, very offensive in odor, came from the right nostril. Immediately afterward the headache was greatly relieved and the patient's mental condition seemed much clearer. Just before this incident the patient's mental condition had been particularly dull, almost stuporous.

The patient's mental condition is one of sluggishness and apathy, with dullness of perception. Hearing is impaired in both ears, more marked in the right than the left. Vision is greatly reduced, the impairment being much more marked in the right eye than in the left eye. With the right he counts fingers with difficulty. He sees with the left better. He is unable to recognize the largest letter on the test card. He has a high grade of double optic

neuritis. The pupils are equal and respond to light fairly well, the right more than the left. The sense of smell is very deficient. It is doubtful whether he can perceive odors at all in the right nose. There appears to be no proper paralysis except a slight internal squint in the right eye. Sensation appears normal. Stereognostic sense is normal.

Dr. Day illuminated the sinus and thoroughly explored the nose. He was unable to discover pus or any evidence of sinus trouble—indeed, nothing abnormal. He ventured the suggestion that probably the gush of pus which occurred on February 10 was due to frontal sinus disease which cured itself; that such sinus disease may have been entirely intercurrent and independent of the main disease from which the patient suffered. In the light of subsequent events it would appear that Dr. Day's suggestion constituted the correct explanation for the gush of pus, for no relation between it and the large tumor which was subsequently found at the autopsy, located deep down in the brain, could be made out.

The headaches, optic neuritis, smell, or convulsive or fainting attacks, together with the mental changes, and the slow onset appeared to point pretty clearly to an intracranial growth; although there was just a little suspicion, on account of the discharge from the nose (February 10), that the lesion might be an abscess.

As to the location, the symptoms did not appear to point clearly to any one place, but the fact that the smell attacks came early, and that the mental changes appeared to be such as have been described by various authors as occurring in lesions of the frontal lobe, and that there was loss of smell in the right side made it seem mostly likely to Dr. Moyer and I that the tumor was located in the right frontal lobe involving the olfactory nerve by pressure. We accordingly asked Dr. R. W. Stewart to operate on this region of the brain for the relief of the tumor or abscess or as a decompressive operation.

Dr. Stewart operated on April 30, removing a large bone flap over the right frontal region which exposed the base of the skull, and thoroughly explored the brain. No tumor or abscess was found, the bone appeared to be perfectly healthy. There was an extraordinary amount of bulging, apparently indicating increased intracranial pressure. I may say at this point that even had there been no prospect of finding a tumor in the operation, trepanning seemed desirable for the relief of the severe headaches and optic neuritis. The patient was greatly relieved of headaches and optic neuritis, and his mental condition was greatly improved after the operation.

When I saw the patient, three months later, he was free from headaches; his eyesight had greatly improved, and he was much brighter mentally. He had no fits or sinking spells since the operation. There was bulging over the right frontal region. Gentle pressure here showed the protruding mass to be soft and not tense. The patient showed no motor or sensory symptoms.

I now lost sight of the patient. He died on August 20. On August 28 I was invited by Dr. Stieren to examine with him and Dr. Moyer the brain of the patient, which had been removed about a week previously. I learned from Dr. Stieren that the patient had been staying at the Home for Incurables for several months past. There he had been dull and more or less apathetic and had suffered convulsions from time to time. He never became hemiplegic or in any other way paralyzed. I was informed that the relief from headache and optic neuritis was maintained for a long time.

The right hemisphere of the brain showed a tumor about the size of a tangerine orange, apparently springing from the basal ganglia, more especially the optic thalamus, and with attachments to the fornix. The tumor grew in an upward direction into the ventricle. It appeared soft, dark in color, and the portion extending into the ventricle was quite free and appeared as a teat-like projection. The tumor appeared to extend in a lateral direction from almost the median line to within about 4 cm. of the cortex on the outer side. Nowhere did it appear to come in contact with or involve the cortex, unless possibly at the base, which had not yet been incised.

The tumor was shown in the antero-posterior section which had been made by Dr. Stieren. A report of this case has been made by Dr. Stieren in another connection with several other cases to illustrate the great relief of optic neuritis which may follow a decompressive operation.

The specimen was given to Dr. F. Proescher, Pathologist to the Allegheny General Hospital, who furnished the following report of his examination of it:

"The microscopic examination of those parts of the brain having, microscopically, the most alterations, reveals the areas in question to consist of rather closely lying cell masses, round or oval and rich in chromatin. The cell masses, viewed under the moderate power lens, show striking differences in respect to size. Between them but sparingly, lies a strand-like framework containing scattered hemorrhages of larger or smaller sizes, and many blood capillaries. The smaller celled area merges without sharp demarkations into the normal brain substance. Under a higher power lens, one sees readily that the above described oval cells differ from each other very considerably in size and shape. The majority of the cells are from three to five times as large as a normal glia cell. One can see only a few cells which resemble the type of the normal glia cell, they being, however, almost entirely protoplasm-free but very rich in chromatin. The remaining cell masses are mostly round or oval; some, however, are oblong. The chromatin framework consists of two or three chromatin granules, around which are implanted in a radial manner, but irregularly, fine chromatin. In isolated places is recognizable an outer very wide protoplasmic zone, the cells of which remind one, by their makeup, of ganglion cells. The strand-like intercellular substance is seen under higher power, to be composed of finer strands which can be followed out through long distances as continuous bundles. Isolated branches are seen to run out even as far as the large glia-celled outer zone, which is rich in protoplasm, as above described. The strands arise in a bipolar fashion.

"*Microscopic Diagnosis:* Glioma, poor in cells."

Remarks.—The chief points of interest in this case are: (1) The problem in localization. (2) The complicating incident of discharge of pus from right nostril. (3) The great relief of headache and optic neuritis which followed operation. (4) The non-appearance of hemiplegia in the case of a tumor the size of a tangerine orange growing from the basal ganglia.

As mentioned in the body of the article, the mental symptoms, dullness of perception, sluggishness,

forgetfulness, irritability, the smell attacks, and the sinking attacks seemed very strongly to indicate that the lesion was located in the frontal lobe. The evidence pointed strongly to the lesion being a tumor, although the gush of pus from the right nostril for a time seemed to cast a doubt on this conclusion and made it seem possible that it might be an abscess. The explanation offered by Dr. Day soon after the gush occurred, that it might have been due to an independent affection, a frontal sinus disease which had cured itself, now appears the correct one.

The case affords another illustration of the great value of trepanning operations for relieving headaches, optic neuritis, and mental lethargy, due to a brain tumor. Although the tumor was not properly localized, it may be said that hardly anything better could have been done for the relief of the symptoms which it produced. Of course, had its situation been exactly known trepanning the bone in the temporal region would have been better, as we might have there had less cerebral hernia. Because the patient has to die subsequently is certainly no reason why we should withhold from him the relief of a decompressive operation; and I have no sympathy whatever with the view that because permanent relief cannot be given it is useless to attempt to relieve the patient for a time.

The absence of hemiplegia with a tumor situated as this one was, and considering its size, is perhaps the most interesting feature of the case. With our present light it would appear to me that it would have been well-nigh impossible to have localized this tumor. Indeed, the absence of hemiplegia and all other forms of paralysis was one thing which made me, in my endeavors to locate the growth, look outside the motor area altogether. Indications did not point to the base of the brain. There was no cranial nerve involvement, and the cerebellum was not indicated by the symptoms as the seat of the lesion. This negative evidence with the positive, which seemed to point to the frontal lobe, led to the diagnosis of a tumor in this region.

Westinghouse Building.

THE DIAGNOSIS OF TRICUSPID STENOSIS;

REPORT OF CASE WITH TRACINGS.*

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Of all the vavular diseases of the heart, the rarest and most difficult to diagnose is tricuspid stenosis. As a matter of fact, with but few exceptions the condition is generally first discovered as an accidental finding on the autopsy table. It is therefore self-evident that many cases are unrecognized which I am sure could be discovered were graphic methods more widely employed; certainly many cases that do not come to necropsy would be correctly diagnosed.

This condition may be either congenital or acquired. The latter only interests us, because the subjects of the congenital variety die early in life. It has been found almost four times more frequently in women than in men, and mainly in adults. Leudet[1] collected 114 autopsies of tricupsid stenosis, of which 11 affected the tricuspid valve alone; 3 were cases of stenosis of the tricuspid and pulmonary orifices; 1 was a case of stenosis of the tricuspid, mitral, and pulmonary valves; 21 were cases of stenosis of the tricuspid, mitral, and aortic valves; 78 were cases of stenosis of the tricuspid and mitral valves.

In 1897 Herrick[2] added 40 cases to Leudet's collection, 138 or 90 per cent. being combined with mitral stenosis. In only twelve cases did tricuspid stenosis occur alone. Newton Pitt[3] found 87 cases of tricuspid stenosis in 12,000 autopsies occurring during a period of 26 years. F. W. Griffith[4] examining Leudet's tabulation claims that in all probability only two of the eleven cases reported by Leudet as confined to the tricuspid valves were unassociated with lesions of other valves.

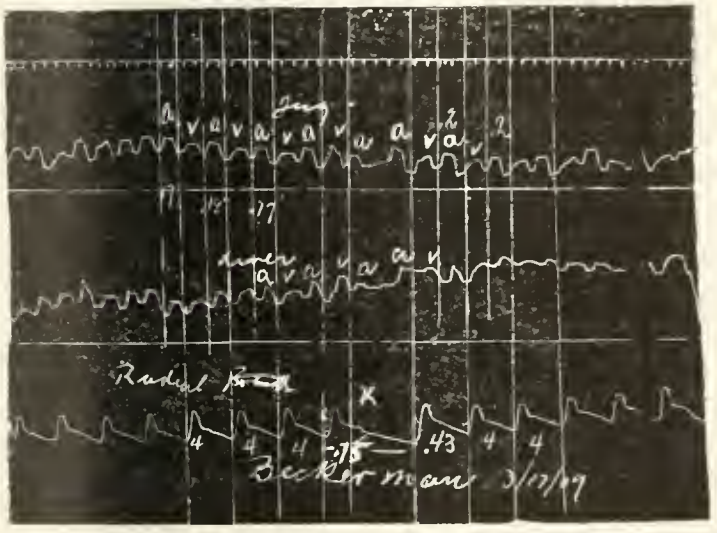

Fig. 1.—The time notches indicate 1/10 second; *a*, auricular wave; *v*, ventricular wave; at *x* is seen an extra systole of ventricular origin.

The above statistics give an idea of the rarity of this valvular affection, and show in particular how unusual it is as an isolated pathological condition. They also account for the fact that tricuspid stenosis has hardly ever been recognized during life; "since the murmur to which it gives rise is identical in time and quality and nearly in position with that of mitral stenosis." Recognizing these facts, all authorities agree that the diagnosis is rarely possible, and mention the condition more as a curiosity. The only suggestive signs referred to are a presystolic murmur limited to the ensiform, and marked enlargement of the heart to the right, but the characteristic murmur is present in but few cases. Mackenzie[5] in many observations has heard this characteristic murmur only three times, this being probably due to the fact that tricuspid stenosis occurs associated with mitral stenosis in between 87 to 90 per cent. of cases, the one overshadowing the other.

To James Mackenzie, who has done so much in advancing our knowledge of heart disturbances, is due the credit of first calling attention to the peculiar jugular and liver pulses in tricuspid stenosis. In his book "The Study of the Pulse" he calls attention to the fact that an auricular type of venous liver pulse is probably diagnostic of tri-

*Read before the alumni meeting of the Montefiore Home, February 28, 1909.

cuspid stenosis. Venous pulsations appear in two types, one the negative, according to the older literature, and the other the positive or better, as Mackenzie designates them, the auricular venous pulse and ventricular venous pulse, referring to their physiological origin. The negative venous pulse

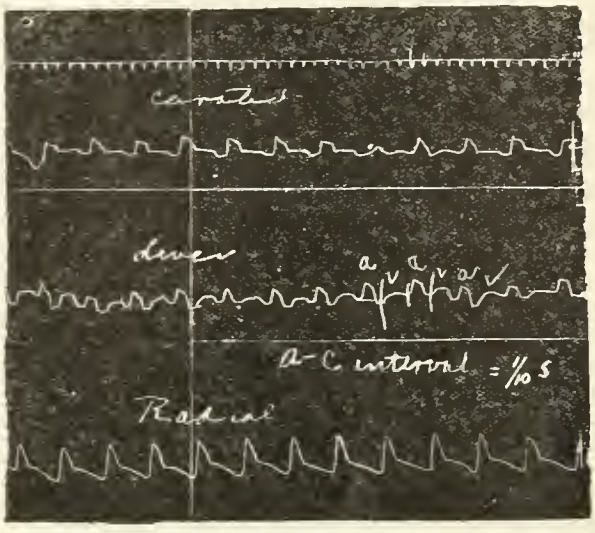

FIG. 2.—Tracing, showing carotid pulse and liver pulse compared with the radial.

is found in a great many individuals, and may be normal or pathological, while the positive venous pulse is always pathological and, as is well known, means tricuspid regurgitation, distention, and paralysis of the auricles.

The negative or auricular venous pulse consists usually of three waves, referred to as *a*, *c*, and *v* waves; the first due to contraction of the auricles; the second, according to Mackenzie, due to impact of the carotid pulse, while others claim it is due to the swaying back of the tricuspid segments; and the third produced by the activity of the ventricle. The wave *c* often is absent, depending on certain conditions not necessary to discuss here. Mackenzie, who was one of the pioneers in adopting polygraphic methods in clinical investigation of circulatory disturbances, made extensive studies of the venous pulse and especially of the liver pulsations. The only type of liver pulse known when he first took up his investigations was the positive or ventricular variety of pulsation, due to the regurgitation of blood through a widely open incompetent tricuspid valve. But in 1880 he observed a case of mitral disease in which the liver pulse did not correspond to the usual type, *i.e.* a positive pulse. At first he did not know what to make out of this. When compared to the tracing of the jugular taken simultaneously it corresponded exactly, there being present a presystolic or *a* wave and a systolic or *v* wave. (See tracing 1.) What was the meaning of this? Mackenzie's explanation proved correct, namely, that there was an hypertrophy of the right auricle which was strong enough to propagate a wave into the vena cava and liver producing the pulsations. He wisely decided that this hypertrophy was the result of some obstruction, and following the analogy of mitral stenosis, he came to the conclusion that there was a stenosis of the tricuspid valve. This train of deduction proved to be correct when the patient came to autopsy. In all he has obtained such tracings twenty times, and in seven of these he has had autopsies, all showing a tricuspid stenosis. He has therefore advanced the statement that an auricular liver pulse is probably diagnostic of tricuspid stenosis. He refers to two exceptions to this rule; one, a case of pericardial effusion reported by Volhard,[6] and two, a case of adherent pericarditis reported by Wenckenbach,[7] both showing an auricular jugular and liver pulse. One other important fact he had made clear, which, by the way, is contrary to the usual statements in textbooks, and that is that the prognosis is not at all grave. He has followed his patients for long periods of years and all have kept up in good condition. This observation has also been made by Volhard, who draws particular attention to the compensatory effect of tricuspid stenosis to mitral stenosis.

The symptomatology shows nothing characteristic except the murmur, which, as has been indicated above, in the majority of instances is missing. Subjectively the patient has the usual symptoms found in endocarditis. Some authors speak of cyanosis as a distinctive feature, but this is only in the later stages, when tricuspid incompetency and paralysis of the auricle supervene. The liver is always enlarged and pulsations are frequently recognizable only by graphic means, and therefore as a rule escape notice. The jugular always pulsates visibly, and in one case noted by Mackenzie the right auricle was so hypertrophied that it sent back a wave with such force into the jugular as to close its valve with a snap. The case which I wish to report is unique in many respects.

J. B., 39 years old, admitted February 3, 1909, native of Russia, bricklayer by occupation. Mother suffered from rheumatism, otherwise the family history is negative. He has had measles. He was always strong and healthy, and served in the Rus-

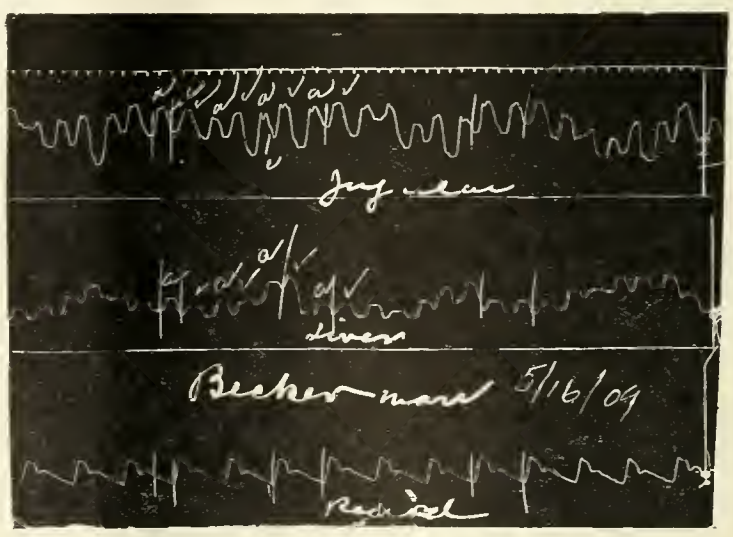

FIG. 3.—Tracing, showing jugular pulse and liver pulse compared with the radial

sian army. Fifteen years ago he fell two stories, and since then has been subject to attacks of vertigo, lasting 5 or 10 minutes. Occasionally he would vomit. No loss of consciousness. For five years past the right foot becomes at times numb and insensible. There is no pain or paralysis. These spells come on once a month, and last about 15

minutes. He is married, and is the father of four children, his wife having had one miscarriage in her third pregnancy. He was accustomed to smoke about 12 cigarettes a day. Took whiskey before breakfast and during the day. At times would take up to six glasses of beer also Sexually moderate. Denies all venereal diseases.

Two years ago he had to stop work because of progressively increasing shortness of breath. Dyspnea would develop upon the least exertion. He frequently has palpitation. No swelling of legs. Never was cyanotic. He has developed hemorrhoids, and a few months ago coughed up some blood. At present he complains of weakness. He is well nourished; the left pupil is a little larger than the right, but both react to light well. There is marked engorgement of the jugular, especially brought out on lying down when all the veins in the neck stand out prominently and the entire region above the clavicles pulsates in an undulatory manner. The chest is of emphysematous build.

The apex beat is not visible or palpable except after exertion, when it is felt in the fifth space, about half an inch to the left of the midclavicular line, and a distinct short thrill is palpable at the apex of the ensiform. The right border is found on percussion in the fourth space two inches from the middle line, the left border in the fifth space five inches from the middle line. On auscultation, a very peculiar murmur is audible. It is strongest and most prolonged over the ensiform, and is of a rough, grinding character. It seems to begin at the end of diastole, but is most evident during systole. As the stethoscope is carried to the left it becomes more blowing, soft, and systolic in character, disappearing at about the anterior axillary line. Pulse is regular, small, slightly sclerotic, systolic pressure 140, diastolic 80 mm. (Erlanger apparatus.)

The liver is palpable midway between the free border of the ribs and the umbilicus. The spleen is not felt. On careful inspection of the right hypochondrium a fine undulation is observed.

Numerous tracings were taken after his admission into the Home, but unfortunately the apex beat could not be registered on account of the emphysematous lung and the thickness of the chest wall. These tracings constantly show that the liver pulse consists of two waves. One is presystolic in time, the other occurring during the ventricular systole. On one occasion extra systoles of ventricular type were present (X—Fig 1). When the jugular is taken simultaneously above the liver pulse, both correspond. This, then, is exactly what Mackenzie found in his cases of tricuspid stenosis. In the neck the venous pulsations were so extensive that the carotid was with difficulty obtained, a further evidence of some powerful *vis a tergo*. (Tracing No. 2.)

In seeking for the etiology we were at a loss as the anamnesis furnished no clue. Dr. Kaplan, our pathologist, made three Wassermann tests, all of which proved positive, likewise the Noguchi modification. Whether the endocarditis is of syphilitic origin remains an open question, but, taking into account the significance of the Wassermann reaction, we are employing the usual antispecific treatment.

In conclusion I wish to draw again attention to the salient points:

(1) An auricular type of liver pulse occurring in a case of endocarditis is diagnostic of a complicating stenosis of the tricuspid orifice.

(2) Stenosis of the tricuspid orifice can hardly ever be recognized by the usual clinical means of investigation; when graphic methods are employed its presence can be determined positively.

In reference to my case, the points to be noted are:

(1) The tracings obtained prove conclusively the presence of a tricuspid stenosis. Most likely there is also a mitral lesion, because of the systolic murmur transmitted to the left and the extensive enlargement of the heart to the left.

(2) The excellent general condition and the slight discomfort experienced by the patient exemplifies the observation of Mackenzie and Volhard.

(3) A probable syphilitic etiology.

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One Hundred and Thirty-eighth Street and Broadway.

REPORT OF AN UNUSUALLY INTRACTABLE CASE OF IRITIS WITH SOME REMARKS ON THE ETIOLOGY OF IRITIS.*

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I am instigated to report this case before the Society not only because it illustrates the tenacity with which inflammation of the iris may, under certain conditions, repeat itself again and again, despite all precautionary measures, but also to demonstrate the impossibility of avoiding post synechia in such cases, even when treatment is administered in the earliest stages and actively persisted in during the entire inflammatory process.

The patient, the subject of this paper, a professional man in middle life, first consulted me in the summer of 1902, on account of a severe attack of keratoiritis in the right eye. Both eyes had been the seat of a mild attack of conjunctivitis three years before, but the present involvement of the right eye was the first serious ocular inflammation from which he had suffered. It was elicited that the patient had had more or less muscular rheumatism since childhood, but in 1892 some of the joints became affected six months after an attack of urethral gonorrhea. A gleety discharge persisted for several months after the inauguration of the urethritis, and the inflammation in the joints was severe for a time, but both subsided under careful treatment, the patient marrying soon after, and his wife giving birth at the end of a year to a healthy child. Another child has since been born, and both offspring and the mother as well are the pictures of health and give no evidence of having

*Read at meeting of Wills Eye Hospital Association, May 3, 1909.

suffered from the systemic poisoning of the father. The patient, too, upon the whole, has enjoyed good health, notwithstanding that he has suffered somewhat from rheumatism, or rather rheumatic pains, usually in the back or hips, but never in the joints. Though at odd times small gouty concretions have appeared in various parts of his body, these would vanish as mysteriously as they had appeared, after months or years, without ever exhibiting any inflammatory signs. At no time since his marriage has he been compelled to take to his bed with fever. He has never suffered from nasal catarrh and various examinations which have been made by a competent rhinologist from time to time have never showed any sinus involvement. His father is gouty and of gouty ancestry. His mother died years ago of heart disease.

When first seen in the summer of 1902, the right eye was the seat of an intense keratoiritis, which persisted with great severity for three weeks, finally leaving the eye with normal vision but with a tag of post synechia below. Six months later (February, 1903) iritis again appeared in the same eye, but disappeared under two weeks' treatment. Both eyes were then free from inflammation for a year, despite rather severe rheumatic pains in the hip, which necessitated his visiting a well-known hydropathic resort before he was relieved. In May of the following year, the left eye became violently inflamed, the iritis being controlled only after six weeks of active treatment. A mild recurrence followed two months later in the same eye and another a year later, which persisted three weeks. During the next fourteen months the ocular inflammations were less serious, a shallow ulcer occurring on the cornea of the left eye and a stye or two on the lids of both, and numerous small chalky infarcts in the conjunctiva of both eyes. In March of 1907, the left eye suffered another attack of iritis, which was followed two weeks later by an involvement of the same membrane in the fellow eye. The next eighteen months passed without ocular complications, but in January of this year, a mild attack of iritis appeared in the left eye and was followed in ten days by an involvement of the right, a recrudescence of the symptoms in the left eye some days later, and finally, three weeks after the initial symptoms had appeared in the left eye, the right eye became reinvolved with an inflammation of unusual severity, from which it is but now recovering.

This is a very brief account of the various attacks of ocular inflammation which have occurred in this unfortunate individual and describes very imperfectly what he has endured. The actual suffering at no time, however, has been very great, for the inflammation has always assumed a serious rather than a plastic type. Upon several occasions the patient has retired for the night with a pupil almost fully dilated and with good vision, to awaken in the morning with vision almost entirely absent, with a contracted pupil and with the anterior chamber deepened and completely filled with a mass of semi-translucent exudate, as though the somewhat turbid crystalline lens had slipped forward and was crowding the anterior chamber. Following the last attack in the right eye, the vitreous was filled with opacities, indicating the simultaneous involvement of the ciliary body and adjacent choroid. Locally the inflammation was controlled in all of the attacks, by atropine in strengths varying from four to eight grains to the ounce, by dionine of from two to ten per cent. solution in strength, by the continuous application of moist hot compresses administered by competent nurses day and night for weeks at a time, and by leeching at the commencement of the attack. In most instances massive doses of salicylate of soda were administered in the beginning of the iritis, in combination with enunctions of mercury, while later potassium iodide was substituted in doses rapidly increasing to fifty grains three times daily. Dovers Powder was also found useful several times a week, to provoke diaphoresis, while the patient was encouraged to drink a large quantity of water and his diet was carefully regulated. The bowels were kept open by salines. Antigonococcic serum was never employed, as I was averse to essaying in his case, any but the most conservative and approved plan of treatment.

Notwithstanding the frequency and virulency of the inflammatory processes to which both eyes have been subjected, vision is normal in each, though the presence of synechia in both eyes, with a commencing capsular degeneration where the iris is in contact with the lens, suggests that later lenticular changes may interfere more or less with visual acuity. The future, therefore, is more or less doubtful, for ten years must still elapse before the age of sixty years is attained, the period at which the masculine sexual functions are commonly supposed to generally undergo a change, and when some authorities have remarked that attacks of iritis in males cease to occur.

Should vision markedly deteriorate, or should other complications from the synechia manifest themselves, iridectomy will be advised, as the influence of this operation in preventing recurrences of iritis, and upon the condition of the eyes in general, in cases of long standing synechia has been generally recognized. General hygienic and dietetic measures will of course be enforced and every effort made to hold the rheumatism in abeyance, since it would appear that gonorrheal rheumatism has been the etiological factor at work in the production of the iritis in this case.

Gonorrheal iritis has long been recognized as a definite form of ocular disease; indeed Brodie described this variety of iritis as early as 1834, and Mackenzie and other early British ophthalmologists were well acquainted with it. In the majority of cases, perhaps, the last attack of gonorrhea occurs some years previous to the iritis, and in most instances there is no attending arthritis. As Higgins has well said,[1] "the probability is that in many men who have had gonorrhea frequently there is left for any number of years in some part of the urinogenital apparatus a very much attenuated virus, which gives no trouble locally, but from time to time becomes more active, and though still setting up no local irritation, is capable after absorption of causing inflammation in synovial membranes or in the iris; in fact, it looks almost as if the iris becomes on occasion an excretory organ and tries to eliminate the poison, receiving considerable damage to itself in the attempt."

Iritis, arthritis, and endocarditis may occur independently or simultaneously, the association being accidental and not necessary, the gonorrheal poison, as Lawford[2] has stated, having like that of most infectious diseases, certain seats of election in the tissues, and it is in no way surprising that evidences of the existence and activity of the poison should

appear in several such tissues at or about the same time. As the same author has also pointed out, both gonorrheal arthritis and gonorrheal iritis have certain points in common. They are both prone to relapse and leave behind them an apparent vulnerability of tissues which may and often does persist for a very long period. An eye which has been attacked by gonorrheal iritis and a knee-joint which has been the seat of gonorrheal arthritis, are liable to recurrences of inflammation without any fresh gonorrheal infection. This liability may last for years. There must, however, be a personal element or an idiosyncrasy in those who suffer, because the proportion of persons who have arthritis and iritis to those who have had gonorrhea is very small.

The late John Griffith[3] attached great importance to gonorrhea as a causative factor in iritis, and thought that the ocular inflammation was not only liable to occur as a complication, but also as a sequel of gonorrhea, the ocular manifestation of constitutional gonorrhea appearing, in his experience, many years after the complete disappearance of the initial local inflammation. Though in some of his cases it was impossible to exclude a very protracted gleet, in the greater number there was every reason to believe that the urethritis was a thing of the past, and that a considerable period had elapsed since the final disappearance of the gonorrhea. He did not imply that the poison of gonorrhea in the system is the precipitating cause of the iritis, for many agents such as exposure may determine the attack, owing to the reduced tissue resistance of the body wrought by the gonorrheal poison, a feature paralleled to that of a gumma in syphilis.

To prove the existence of gonorrheal iritis, Griffith thought the following conditions must be present: 1. An attack of iritis, prone to recur; 2, gonorrhea at some antecedent date; 3, rheumatic pains, either arthritic, muscular, or facial, developing subsequent to the urethritis; 4, exclusion of other causes of spontaneous iritis. Gout and chronic rheumatism, as well as gonorrhea, have long been recognized as capable of giving rise to iritis, indeed no less an authority than our colleague, the late Dr. William F. Norris, averred that the majority of cases of iritis which he had been called upon to treat were due to that cause. A number of observers, however, are very skeptical of rheumatism *per se* evoking iritis, and believe that a great number of the so-called case of rheumatic iritis are really gonorrheal in origin. My own experience teaches that iritis dependent upon rheumatism does frequently occur, but I am also convinced that a gonorrheal element is often present in a large number of rheumatic cases, and that where this is the case the disease assumes a very virulent type. It should be remembered, however, as pointed out by Berkely Hall and Jonathan Hutchinson some years ago, that those with a gouty constitution are more apt than others, other things being equal, to suffer from gonorrheal iritis, as they observed that people who had gonorrheal arthritis were frequently the descendants of those who had suffered from undoubted attacks of gout. The proof of this observation has recently been demonstrated by Treacher Collins, for of one hundred cases in which he and Silcock inquired into the constitutional history of primary iritis, fourteen occurred in connection with gonorrheal arthritis, and of fifteen cases of gonorrheal arthritis who had iritis Collins found an undoubted family history of gout in five of them. In such cases he thought it likely that the iritis might be attributable to inherited gout, rather than to the gonorrheal attack. The case under discussion seems to bear witness to the truth of Hall and Hutchinson's observation, as he inherited a gouty tendency from his father, and had in addition suffered more or less from so-called muscular rheumatism, before the urethritis precipitated the arthritis.

Of one hundred and fifty-nine cases of iritis at St. Bartholomew's Hospital, fifty-six adult males gave no evidence of syphilis. Of these twenty-eight, or 50 per cent., had suffered from gonorrhea. Of the twenty-eight, twenty-six had a history of arthritis, past or present. Finally, in thirteen of these twenty-six, the association of gonorrheal arthritis and iritis was so close as to justify the term "gonorrheal iritis." This was equal to 8 per cent. of gonorrheal cases out of one hundred and fifty-nine cases of primary iritis. In another series of forty severe cases of gonorrheal arthritis, eight were women without iritis, and thirty-two men, of whom five (15.6 per cent.) had iritis as a complication.

Beaumont, living in Bath, England, sees a large number of men of good health with iritis accompanied or preceded by rheumatism in the joints or lower limbs. They confess to a gonorrhea, many months or years before the rheumatism, but are sure there is no relationship of a parental nature between the gonorrhea and the iritis. Iritis occurs but seldom in the rheumatoid arthritis cases which come to Bath, and Beaumont explains this by the suggestion that iritis is a symptom of the earlier stages of the disease, whereas the patients who seek relief in Bath are in the later stages. My own experience is not in accord with this, as I have treated a number of most intractable cases of iritis in advanced cases of rheumatoid arthritis.

Beaumont observed several cases in quite aged women, the inmates of homes, in whom any complicating gonorrheal agency, if present, must have been extremely remote.

In concluding these few remarks upon the etiology of iritis, it should be remarked that all reference to syphilis, tuberculosis, and other possible causes of iritis have been purposely omitted, as it has not been my intention to treat exhaustively of the etiology of iritis, but rather to outline the influence of gonorrhea and gout in the production of this disease, as exemplified in the case under discussion.

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Twenty-first and Chestnut Streets.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

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During the past decade an enormous literature has developed on all phases of tuberculosis. The discussion of early diagnosis has justly occupied a prominent position in all that has been written. And

*Read before the Fifth District Medical Society, College Park, Ga., May 25, 1909.

yet, despite this constant repetition, considerable misapprehension still exists concerning the early diagnosis of this dread disease. In this paper I desire as far as possible to give only practical suggestions culled from personal experience with the disease arising from daily contact with tuberculous patients.

Allow me to indicate in summarized form the classification of pulmonary tuberculosis which has been universally adopted, and which is recommended by the National Association for the Study and Prevention of Tuberculosis. 1. Incipient stage. During this stage tubercles are forming in the lung, and there is very slight constitutional disturbance. 2. Stage of softening, often known as the second stage, during which time the lung tissue is breaking down, there is considerable expectoration, and fairly marked constitutional disturbance, due principally to mixed infection. 3. Stage of excavation, or far-advanced stage, in which there is usually cavity formation and all the constitutional earmarks of consumption.

I desire in this paper to deal only with the practical points which will enable one to make a diagnosis during the incipient stage, the only time when there is a bright prospect for a cure.

In this, as in all diseases, we base our diagnosis on (1) symptoms, (2) physical signs.

Symptoms of Incipient Pulmonary Tuberculosis.—Under this head I shall include the past history as well as the history of the present illness. The first essential point to be inquired into is the opportunity for infection from birth to the time of interrogation. This opportunity may come from residing in the same house with a tuberculous patient, usually parent or other relative, or from close association in office or store with a patient, or from living in rooms or houses previously occupied by tuberculous victims. I believe the ordinary city boarding house to be a fruitful source of infection to young men and women whose limited incomes drive them to seek cheap lodging. Such cases are being constantly brought to my attention. A few weeks ago I was called to see a thirteen-year-old girl who was dying of the disease. The mother could think of no way in which the child had been exposed to infection. Close questioning developed the fact that nine years previously the family had moved into their present home, in which a consumptive had died a few months before. The seeds had been well sown, and during the stress of puberty the organism weakened and the disease asserted itself. I feel assured that a very large proportion of cases developing near the age of puberty have had dormant bacilli in their glandular systems since early childhood—planted there by intimate contact with a careless case, and not transmitted by the mysteries of heredity. A second point of considerable importance in the history is the previous occurrence of pleurisy, perhaps years before. Statistics show conclusively that a large proportion of these pleuritic cases ultimately develop tuberculosis.

Briefly stated, the early symptoms proper, which afford diagnostic data, are as follows: (1) Gradual loss of weight not attributable to other causes. This symptom taken alone, and particularly in the South, is of small moment, but when associated with one or more other symptoms is quite suggestive. (2) Gradual decline of strength, manifesting itself more by a languor most marked in the afternoons and a tendency to tire easily. (3) Slightly dry cough, with often no expectoration, or at best very slight clear sputum, in which tubercle bacilli are comparatively rarely found. There may be no actual cough, but rather a tracheal irritation, shown by clearing of the throat. This I have observed in quite a number of cases. The cough at this stage is usually a very subsidiary manifestation, and occasions practically no discomfort. (4) Hemoptysis. While this symptom undoubtedly does occur in the true incipient cases, it is very frequently present first in the second stage. Many eminent students of the disease now consider it an evidence of softening. However, it is *the* early symptom which most alarms the patient, and thus causes him to consult a physician without delay. Hence it is frequently a blessing in disguise. If it can be established that the bleeding comes from the lungs, there can be comparatively little doubt as to the presence of tuberculosis. One has to rule out other sources. Some months ago a well built young man came to me, giving a history of spitting up several mouthfuls of blood on the previous day. I could find no evidence of tuberculosis on physical examination. At my request Dr. R. R. Daly examined the nose and found an ulcer, fully accounting for the bleeding. (5) Disturbances of temperature and pulse. These are exceedingly valuable diagnostic data. But to be valuable some trouble must be taken to ascertain them accurately. Both pulse and temperature should be charted for a period of at least three days, preferably every two hours. In a considerable percentage of early cases an afternoon rise of one or two degrees of fever will be observed, and an increased pulse rate of ten to twenty or more beats above normal while the patient is at rest. One of the most characteristic effects of the pure tuberculous toxine is the delicate pivoting of the pulse rate. The least excitement, the least exertion will cause tachycardia, which may be perceptible to the patient but frequently only to the physician. A kindred manifestation is the occurrence of erethism, which I have several times observed in young persons.

In addition to the frequent symptoms just detailed, various other disturbances are often observed, particularly persistent digestive disturbances, often associated with anemia. It is also to be borne in mind that in so insidious a disease as tuberculosis some patients may exhibit only a few symptoms in such a mild form that they protest against an examination as a useless procedure, while others may have all the symptoms in severe form. Between these two extremes lie all grades of manifestations to trap the unwary diagnostician.

It is a widespread belief that many cases of tuberculosis begin with a neglected cold. The true beginning of the disease antedates by many weeks or months the so-called cold which really marks the onset of secondary infection, and hence of such prominent symptoms that the attention of the patient is sharply drawn to his condition. It should be our endeavor to make the diagnosis long before the "neglected cold" stage. In order to do this the laity must be instructed what the early symptoms are so they may present themselves for examination early in their disease. Happily, this work of public instruction is now going on with great vigor.

Physical Signs of Early Pulmonary Tuberculosis.—I wish to urge, as introductory to this part of the discussion, that only the most careful and painstaking examination of the bared chest will suffice, and that the stethoscope is a necessity. It is not my purpose to weary you with a hackneyed recital of the

early physical signs which are set down in classified form, and stated pretty much alike in all the text-books. I desire, rather, to briefly give the leading points which I have found to be of most practical value to me.

(1) On inspection I have found the most constant and positive sign to be scapular atrophy. In quite a number of early cases in which the movements and configuration of the chest were apparently normal a noticeable atrophy, usually unilateral, and corresponding to the affected lung, was readily seen. Needless to say, this sign is only suggestive and valuable only in connection with others.

(2) Apical dullness. I would call attention to the fact that in the vast majority of adults the primary site of tuberculous deposits is in the posterior portion of the apex of the lung about an inch from its summit. Hence in both percussion and auscultation the closest attention should be paid to the supra scapular and interscapular regions. The mistake is frequently made of directing most, if not exclusive, attention to the supra and infraclavicular regions which, as a rule, are involved secondarily. In the very early stages careful percussion will often elicit dullness combined with a sense of resistance which is often more trustworthy than the sound. Over the right apex, particularly in front, the percussion note is normally higher pitched than over the left, but the sense of resistance is lacking. I have found by experience that accurate percussion is a most difficult art to acquire. It only comes with constant and patient practice, but yields exceedingly valuable evidence.

(3) Auscultatory signs. It seems to me that frequently in text-books and in the literature generally hypothetical and confusing statements are made concerning the early audible evidences of tuberculosis. I desire simply to state the methods and signs which serve me best. Both physician and patient should be comfortable and avoid strained and unnatural positions. The patient should be stripped to the waist and placed in a good light, while the physician should be armed with his own well tried and trustworthy stethoscope. "It is to be remembered that the stethoscope, like other instruments of precision, requires constant practice in order that proficiency in its use may be gained. Furthermore, one gets accustomed to his own instrument, which yields him a satisfaction superior to any other. One should borrow or lend a stethoscope with about the same compunction he would a tooth brush. It has been from the infrequent use of an unsuitable or borrowed instrument that all slander of stethoscopes has arisen that I have heard."* After the patient is ready for the examination, he must be taught how to breathe properly, for unless he does little information of value will be obtained. The chest should then be gone over systematically. There are just two things to listen for. The first of these is the occurrence of râles. In the early stage they are usually of the fine, moist variety and sound exactly like hair being rolled between the fingers. Occasionally squeaking or whining sounds are heard. These occur at the end of inspiration, and frequently can be elicited only after causing the patient to cough. I desire to emphasize the value of cough followed by a moderately deep breath as a means of bringing out these sounds. One is confused at times by muscle or other extraneous sounds. If this be the case I have found it helpful to direct the patient to hold his breath until complete silence occurs. The patient then being directed to slowly inspire, the presence or absence of râles can be more definitely determined, as the period of silence puts the auditory apparatus in a more receptive and delicately adjusted attitude, and helps wonderfully in removing confusion.

The second thing to listen for—meanwhile detaching the mind from the question of râles—is the character of the breath sounds. The absolutely essential qualification for success here is a thorough acquaintance with the normal breath sounds over the different areas of the lungs. Then the examination is comparatively simple, as one has only to compare the pitch, duration and intensity of inspiration and expiration. If these three qualities are present equally on inspiration and expiration the breathing is bronchovesicular; if they are most marked on expiration, the breathing is bronchial. If now one is listening over an area where such breathing is not normally present, the inference of consolidation, more or less marked, is obvious. In addition to the above characteristics, there is frequently heard in the earliest stages what must be called harshness, particularly on inspiration. This term has been objected to by many clinicians, but nothing else can define the raucous, roughened sound distinctly different from the smooth, gliding sound of the normal respiratory murmur.

One other point of value is the diminished intensity of both inspiration and expiration over one side of the chest as compared with the other. Unilateral dimunition of the breath sounds is occasionally a well marked early sign.

The Use of Tuberculin in Early Diagnosis.—Time necessitates a very brief notice of this important method, about which so much has been written. In adults the various local reactions give such variable results that I have ceased to rely on them at all. Their principal recommendation, to my mind, is their ease of application, but like most short cuts they are untrustworthy and deceptive. I do believe firmly, however, that in all doubtful nonfebrile cases tuberculin should be injected and the following technique employed: 1. Obtain pulse and temperature from 8 A.M. to 10 P.M. every two hours for at least four days. 2. If both are approximately normal, give hypodermically at the angle of the scapula 0.5 mg. Koch's old tuberculin, and keep the same record of pulse and temperature. 3. If there is no reaction in three to four days either repeat the same dose, if there is a suspicion of a reaction, or administer in the same manner 1.25 mg. if no such suspicion occurs. 4. If there is still no reaction after two to four days, repeat or give 2.5 mg. 5. A still larger quantity may be given if still there is no reaction. Some excellent clinicians give as the fourth dose as much as 10 mg. Personally, I should prefer not to exceed 5 mg. If after the administration outlined no reaction occurs the inference may be safely made that no tuberculosis exists in an active form.

A reaction consists in a rise of one degree F. above the previous maximum before injection, associated with general symptoms of more or less marked constitutional disturbance of one to two days' duration. In addition, there is usually manifested at the point of injection redness and slight swelling. Furthermore, a hyperemia of the infected area in the lung occurs manifested by the appearance of moist râles. The lungs should, therefore, be auscultated all during the time of administration,

*Lewis M. Gaines, M. D.—"Accuracy in Diagnosis of Diseases of the Chest," Trans-Georgia Med. Assoc., 1909.

for it is sometimes possible to perceive the râles before the occurrence of marked general symptoms.

Sputum Examinations.—I desire, finally, to emphasize the unreliability of a negative sputum examination. The continued absence of bacilli is of no value in ruling out the disease. Gerhardt makes the statement: "I know of cases in which the bacilli were not found for months or only in the sixtieth specimen, but when the diagnosis of tuberculosis was established by examination of the chest."

It has been our experience with all stages of cases at the Dispensary of the Atlanta Anti-Tuberculosis Association that only in 62 per cent. were tubercle bacilli found on the first examination. The same is true in other large clinics. Hence one should feel no exultation if bacilli are absent not only once or twice, but even for scores of times. Needless to say, the presence of bacilli is valuable and positive evidence of the existence of active disease, and the examination should invariably be made.

Conclusions.—In dealing with so large and important a subject much must necessarily be omitted from a brief paper. My object has been to state those points which I have found of value, and perhaps to excite a discussion which will prove of practical interest. I venture in closing to draw the following general conclusions: 1. The clinical picture of very early pulmonary tuberculosis is utterly different from what is popularly known as consumption. 2. The symptoms of early tuberculosis are exceedingly insidious, and easily overlooked in a considerable number of cases. The laity particularly should be instructed concerning the nature of these early symptoms, and physicians should be on the alert for them. 3. The physical signs of early tuberculosis are difficult of detection, and necessitate a particularly careful examination. 4. Tuberculin properly and carefully applied is of great value in diagnosing early afebrile cases. 5. The prolonged absence of bacilli from the sputum is of no value in diagnosis.

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ON THE ESTIMATION OF THE URINARY AMMONIA, AND A NEW INSTRUMENT FOR ITS RAPID ESTIMATION.

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The determination of ammonia, although of undoubted diagnostic importance, is practically never carried out as a routine measure, methods at present in general use for this test being not only tedious and complicated, but requiring expensive and cumbersome apparatus suited only to the larger laboratories, not to the physician's office.

"A knowledge of the amount of ammonia present in the urine has an important practical value in many conditions met with in everyday practice.[1] The relation between the urea index and the amount of ammonia is very important, showing, as it very often does, the existence of depraved metabolic conditions, usually isidious in their origin and manifestations, and consequently not appreciated either by physician or patient until irreparable damage has been done.

The average normal percentage of urea varies from 2.25 per cent. to 2.5 per cent., and the total amount excreted in twenty-four hours from 25 to 30 grams, or about 80 per cent. of the total urinary nitrogen. The normal ammonia-content of the urine is about 0.7 gram in twenty-four hours, or only 3 per cent. of the total nitrogen.

In disease the urea is frequently greatly diminished, while the ammonia is correspondingly markedly increased. This, in all probability, is due to the manufacture of an excess of acid substances, causing a condition of acidemia, the body attempting to modify this dangerous condition by neutralizing the acid substances with the ammonium precursors which are ordinarily changed in the liver into urea and so excreted. In this way it will be seen that while the urea output is decreased the amount of ammonium salts is correspondingly increased.

The estimation of these important factors—acidity, urea, and ammonia—must shed much light upon the metabolic functions of the body and offers to the clinician information which may be made of the greatest possible therapeutic value.[2]

Tube for rapid examination of the urinary ammonia; the fine lines marking the degrees have been omitted in the illustration.

Elsewhere[3] I have described a simple instrument for the estimation of the urinary acidity. A slight modification of this instrument will permit of an even more accurate determination of the acidity than before, and also a quick and easy estimation of the amount of ammonia present in the urine.

This instrument consists of a graduated glass tube, and, aside from it and the reagents named, the test requires only an ordinary medicine-dropper: 1. Decinormal sodium hydroxide solution. 2. Phenolphthalein indicator solution (one-half per cent. phenolphthalein in 50 per cent. alcohol). 3. Potassium oxalate (neutral powder or crystals). 4. Commercial formalin which has been diluted with an equal volume of water and rendered faintly alkaline with sodium hydrate, phenolphthalein being used as an indicator.

The test is carried out as here described: The tube is filled to the 10 c.c. mark with urine (poured down the side of the tube to prevent foam). Three drops of the indicator solution are now added, then 3 or 4 grams of potassium oxalate and water exactly to the zero mark. The tube now is closed with the thumb and shaken, then decinormal soda solution added slowly (inverting the tube from time to time) until the fluid in the tube assumes just a faint pink color. The total acidity is now read off in degrees at the level of the fluid in the tube, and is marked down. About 2 or 3 c.c. of the formalin solution is now added, and the level again noted. (It is convenient to add sufficient of this reagent to bring the level to some even mark, which is marked down.) The pink color being discharged by the acids liberated from the ammonia salts by the formalin, decinormal soda solution is again added until the pink color is just regenerated. Each cubic centimeter of decinormal soda solution re-

quired to produce this second reaction represents .00068 gram of ammonia. The amount per cent. is obtained by multiplying by 10, or the per diem figures are easily calculated.

The normal degree of urinary acidity fluctuates between 30 and 40 degrees (each degree representing the amount of decinormal soda required exactly to neutralize 100 c.c. of urine). The normal amount of ammonia is approximately 0.054 per cent., or 0.7 gram in twenty-four hours.

Comparison of a number of tests made with this instrument, and a like number of accurate nitrogen estimations (Kjeldahl), Folin's tests, and Nessler's tests, shows only a comparatively small percentage of error. It is freely admitted that the figures obtained by the use of the ammoniometer are approximate; but it must be remembered that this is also true of all the usual laboratory methods, such as the estimation of urea, albumin, or density. As a matter of fact rarely, if ever, is laboratory work in the physician's office, or even in the physiological laboratory, free from error, and it is not expected that such work is to compare in accuracy with the quantitative work of the analytical chemist or the mineralogist.

In medicine we are perfectly satisfied with comparative results. Approximate figures may be of immense value to the investigator, since the percentage of error in the performance of, say, three tests is always the same, and any fluctuations or variations from a normal figure obtained in the same way are, on the face of it, a reliable indices of the condition causing these variations.

The basic principles of this test for ammonia were described by Malfatti[4] and very favorably discussed by Mathison. It can readily be seen that the more expensive delivery burette, graduated pipette and titrating flask may be substituted for the simple tube here illustrated.

I firmly believe that the frequent estimation of ammonia by this method will give indispensable information to the diagnostician, without which his ideas of a given case will be correspondingly less definite, and his efforts in the line of treatment so much the more confined.

The important points of interest about the instrument are:

(1) Great rapidity whereby the estimation can be made.

(2) Simplicity and freedom from the need of any other apparatus whatever.

(3) Diminished original expense and cost of each test.

(4) Portability and the convenience of being able to perform accurate work anywhere, and without previous laboratory experience.

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The Use of Strophanthin in Pediatrics.—U. Franchetti has made use of strophantin in acute and chronic diseases of children for its effect on the heart and circulation. Contrary to the experiences of others that have been published, the author believes that this is an unsafe remedy in heart failure. It causes a marked arrhythmia and irregularity of the pulse. Used either endovenously or subcutaneously it has little beneficial effect in infants in asthenia and diphtheritic intoxication. In chronic heart diseases the author has little experience. The small doses used by the author, although they produced little beneficial effect, manifested toxic symptoms of importance.—*Rivista di Clinica Pediatrica.*

The Presence of Sudanophile Leococytes in Diphtheritic Infection.—Luigi Benini describes the results of blood examination in diphtheria. There is an increase of leucocytosis which intensifies with the severity of the infection. The use of antitoxin produces hypoleucocytosis after a half hour from the injection, followed by hyperleucocytosis lasting for twenty-four hours. The leucocytes contain granules that are named sudanophile, which indicate an intoxicating agent circulating in the blood and having a specific action on the blood. The author has made a study of these sudanophile granulations in the blood of patients at the Pediatric Clinic at Florence. There were ten cases of severe and twenty-nine of less severe diphtheria, and nineteen cases of laryngitis. Experiments were also made in animals. The author concludes that in diphtheria there are degenerative changes determined by the toxins of the disease, and these granulations are found in even the mononucleated leucocytes. No pus corpuscles are found. These sudanophile granules are more frequent in simple angina than in the croup cases. They are greater in number in severer cases and are an indication of the severity of the disease. They diminish on the third day of treatment and disappear as convalescence is established. They are not directly influenced by injections of antitoxin. In febrile complications they reappear, but are not found in postdiphtheritic paralysis. They are determined by the toxic action of the diphtheria toxin on the leucocytes of the blood.—*Rivista di Clinica Pediatrica.*

Radium and X-Rays in Gynecology.—Foveau de Courmelles has published his results in radiotherapy of fibromata and artificial menopause, showing the deep penetration of the *x*-rays. He uses aluminum shields and small doses, and the actual penetration of the rays thus used through the abdominal walls is no longer questioned. This is one of the best means of producing abortion when that becomes necessary on account of the mother's state of health. It is due to the action of the *x*-rays on the ovary and the thyroid body. This method has been used in a young tuberculous girl, at the third month of pregnancy, with success, in whom incoercible vomiting threatened life. After twenty-five applications of *x*-rays in series of four days over the ovaries, each lasting five or six minutes, the fifth day the rays being applied over the thyroid, the fetus and placenta were expelled normally. It is also useful for the treatment of uterine hemorrhage. The action of the rays on growths of the skin is well known. It has been found useful in relieving pain in blenorrhagic rheumatism. As a paint combined with inert substances radium has been used to obtain continuous action in treatment of nevi, angiomata, chancroids, eczema, and lupus. Used in this way, severe burns have been produced. For the stomach, urethra and uterus tubes are still used without danger. The *x*-rays have the effect on the mammary glands of drying up the secretion, preventing the development and causing regression of partly developed osein.—*Gazette de Gynécologie.*

Osteogenic Congenital Exostoses and Tuberculous Dystrophies.—L. Lortat-Jacob and G. Sabareanu give eight personal observations of osteogenic exostoses and sum up others found in medical literature. The authors believe that active tuberculosis in the father at the time of conception is an important factor in the production of exostoses in the infant, and in the absence of other determining causes this is found to be a frequent cause of dystrophies. Landouzy formulated two methods of transmission of the bacillus of tuberculosis: by the mother or father directly, and by the transmission of a diathesis only. The authors have found three cases of undoubted heredity of tuberculosis from the father. There may be found osteitic lesions of classic phlegmasic type or multiple hypertrophic lesions of the epephyses with rarefaction of the bone coexisting with tuberculosis in the same subject. They conclude that hereditary tuberculosis plays an important rôle in the production of congenital osteogenetic exostoses. Very little research in this direction has meen made. In these cases it is necessary to consider pulmonary tuberculosis, and all other more obscure forms of tuberculosis. Radioscopic examination of the patients is of great value in differentiating exostoses from other sources.—*Revue de Médecine.*

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THE ETIOLOGY OF INFANTILE PYLORIC STENOSIS.

DURING the few years since the so-called congenital pyloric stenosis was first described, there has been much discussion as to the underlying cause of this serious and often fatal disease of early infancy, the differences of opinion being shown by the various names under which the condition has been reported, namely, congenital stenosis, congenital hypertrophy, and pylorospasm. Postmortem examination proves that there is an actual hypertrophy of the pyloric muscle and a stenosis of the pyloric orifice, while during life the *tactus eruditus* demonstrates the pyloric spasm. In a well-marked case all three factors are present at the same time, and the point of disagreement is as to which of them is primary, and the reason for its occurrence.

The advocates of the theory of congenital stenosis point to the marked lesions seen at autopsy, to the great hypertrophy of the pyloric ring, and to the true narrowing of the pyloric orifice. These, they claim, are anatomical changes much too great to have occurred during the short period between the child's birth and the onset of the symptoms. To their argument they add the fact that, on one occasion at least, the condition is said to have been demonstrated in a still-born child. On the other hand, the advocates of the pylorospasm theory emphasize the fact that the infant is born healthy, and remains so for several weeks, a condition incompatible with a marked anatomical stenosis. They further show the great rapidity with which muscular hypertrophy may occur at this early age, as is demonstrated by the tremendous thickening of the walls of the colon appearing in a very few days in cases of stricture of the rectum. They, therefore, believe that the primary disturbance is a spasmodic hyperactivity of the musculature of the pylorus, this activity leading to a physiological hypertrophy and a consequent stenosis.

Many reasons have been suggested for this abnormally active spasm of the pylorus. The theory which seems to be the most rational is that it is secondary to an abnormal gastric secretion. In 1900, Knopfelmacher reported two cases in which there was a high grade of hyperacidity, a finding which has been confirmed by observers in both England and America. More recently, Engel of Düsseldorf has had an opportunity to make a careful study of two cases, which he has reported in the *Deutsche medizinische Wochenschrift* for July 22, 1909. Both were typical examples of the condition. In the first case, though a jejunal fistula was made, through which the infant was fed, the vomiting continued and large amounts of gastric juice were expelled, enough to indicate a decided hypersecretion of the gastric glands. The author states that there was no hyperacidity, but his figures show that the hydrochloric acid content of the gastric juice, while not above that of the normal adult, was many times higher than that of the healthy infant, and that the child had in reality both a hypersecretion and a hyperchlorhydria. The second child was kept for some time on rectal feeding, during which a similar hypersecretion of a highly acid gastric juice was observed.

The quantity of hydrochloric acid in the stomach of the healthy new-born child is extremely small, the infant's gastric juice showing only about one-tenth the acid concentration that is found in the adult. It has been shown that one of the most powerful stimulants of pyloric contraction is the presence of acid in the duodenum. From these two facts and his own findings Engel draws the logical conclusion that in these cases of pylorospasm the primary condition is an increase in the amount of gastric juice, due, not only to hypersecretion at the time of feeding, but to a continual activity of the gastric glands, even when the stomach is empty of food, this highly acid fluid constantly overflowing into the duodenum and stimulating the pylorus to an excessive activity, with a resultant muscular hypertrophy and stenosis. For the underlying cause of the hypersecretion he says that, in his two cases at least, there was a strong neurotic family history, and he believes that he had to deal with a true inherited gastric neurosis.

This theory that the pyloric hypertrophy and stenosis are secondary to a spasm of the pyloric ring due to an inherited neurotic hyperacidity is thus based upon actual clinical observation and proved physiological facts, and is worthy of consideration, especially as it points out a possible method of treatment in a disease from which the mortality is now far too large. This is particularly true, as the theory agrees thoroughly with the favorable results reported by certain observers from the use of large doses of the alkalis in this disease. If, however, one waits until the condition is far advanced and the hypertrophy sufficient to produce true anatomical stenosis, the chance of recovery will be poor at the best. The especial value, then, of Engel's paper seems to be to teach that the hyperacidity antedates the pylorospasm. As it has been shown recently that the examination of the gastric contents of the infant is a simple matter and can be carried out as a clinical procedure, it is possible that an early use of the stomach tube in cases of the vomiting in young infants may be of especial value in this disease. It holds out some hope, at least, for the diagnosis of these cases of hyperacidity at a time when appropriate treatment, by overcoming the hypersecretion or neutralizing the hyperacidity, may relieve the pylorospasm and so prevent the pyloric hypertrophy and stenosis.

THE OUTLOOK ON TUBERCULOSIS.

Consumption in all its forms still holds the field as the most important, and, on the whole, most deadly disease. Modern methods of treatment have decreased its prevalence and perhaps diminished its virulence, but its extinction is yet far off.

At a recent meeting of the British Medical Association, Dr. R. W. Philip, of Edinburgh, delivered the address in medicine, taking as his subject the outlook on tuberculosis. He dwells on the fact that it seems in the light of modern observation that tuberculosis is commonly contracted in childhood, and if this conclusion be correct the problem to be faced is of a totally different complexion and proportions from that which was previously conceived. The point is how to prevent tuberculosis from attacking young children. Dr. Philip's views are not quite in accordance with those generally held. He thinks it is by no means proved that bacillus-containing milk is the most fruitful cause of infection in childhood, but is strongly of opinion that everything appears to point conclusively to the relatively airless conditions of home and school life as chief etiological factors. There are homes, indeed, which are veritable nests of tuberculosis, and, according to the speaker, tuberculosis is not only to be credited with a much greater proportion of mortality in childhood than is usually conceived, but is largely responsible for the aggravated manifestations of otherwise simple ailments.

As for the occurrence of tuberculosis in the community generally, Dr. Philip deems that it is far more prevalent than is commonly believed, and he concludes that the mortality within a district may safely be multiplied by ten to express the number of cases of pulmonary tuberculosis worthy of medical surveillance. The entire number of persons who give a positive reaction to tuberculin is very large, and testifies to the tremendous grip which tuberculosis has obtained on the race and its immense ramifications throughout the social organization.

Concerted action is therefore necessary to take measures in order that dwellings and schools, as well as workshops, offices, etc., shall be under proper sanitary control, and especially is it needful that housing in its widest sense shall be most carefully supervised. Treatment of individual patients is not enough, if the disease is to be stamped out, but they must be searched for in their hiding places and the disease be tracked to its breeding grounds.

Of aërotherapy in its relation to tuberculosis, of course, Dr. Philip speaks in the highest terms. The brilliant results achieved by the open-air treatment have been so patent that it is unnecessary to dwell on the subject so far as treatment is concerned. With regard to prevention, however, there is no doubt that aërotherapy is less employed than in treatment, although what is capable of effecting the cure of definite tuberculosis is, *a fortiori*, capable of preventing its appearance. If the principles of aërotherapy were to be carried out thoroughly in all homes and in places where persons congregate, then tuberculosis would manifest in a comparatively short time a remarkable decrease. In the treatment of the great majority of diseases, and of tuberculosis in particular, prevention is the goal at which to aim. When the conditions of the mode of life of the mass of town dwellers are altered for the better, then and not till then will there be any chance of tuberculosis being abolished.

Dr. Philip is not so enthusiastic regarding the value of vaccine therapy in tuberculosis as are some. He sums up the limitations of tuberculin from the physiological side as follows: "So long as the local process is the main feature—that is, so long as systemic disturbance remains relatively slight—we may anticipate benefit from treatment by tuberculin. On the other hand, with advancing intoxication there comes a time when the introduction of tuberculin ceases to have value, or when the introduction of tuberculin may do positive harm. Where the system is already soaked with tuberculous toxins the addition of tuberculin will probably make matters worse. The possibility of activation of leucocytes and bacteriotropic elements no longer exists. The limits of activation have been passed."

Concerning the larger prospect of tuberculosis, Dr. Philip is very optimistic—many will think unduly optimistic. He believes that everything points to its early and final disappearance, and states that this should not be impossible of achievement within a generation or two among the nations which regard public health as an integral part of civilization. The main object in the crusade against tuberculosis is to awaken the public conscience and to educate the community at large with respect to the intelligent methods of preventing the disease. The proper rôle of the physician is that of the educator.

THE DEFECTIVE CHILD.

The defective school child has recently been made the subject of an important investigation in Germany. In striking contrast to the tardiness with which New York City has awakened to the necessity of establishing special schools for defective children, Germany had already set a good example, for in 1905 there were 230 such schools in 150 German provinces, registering 15,000 children. That this enormous material furnished an enviable opportunity for studying the origin and antecedents of the various forms of degeneration encountered early in life was fully emphasized seven years ago by the illustrious psychiatrist Kraeplin, and has recently led to some important researches conducted by Eugene Schlesinger (*Archiv f. Kinderheilkunde*, Vol. 16, No. 1).

The analysis by this careful investigator of the past history and antecedents of 138 defective school children showed that in 27 there was no predisposing event that could be considered sufficiently important to have causative relationship to the present defective conditon. In 24 per cent. of the remainder there were unmistakable evidences of degeneration in the brothers and sisters. In 17 per cent. of the cases truancy may have accounted for the mental backwardness, while in 13 per cent. this was attributed to conditions associated with abject poverty in the home. In most of these cases alcoholism in the parents was a coincident circumstance, but its causative rôle was distinctly apparent in only

2 per cent. of the cases. Ten per cent. of the cases revealed a neuropathic inheritance, but many of these cases could be explained on the basis of severe antecedent illness in the child, particularly nervous diseases, such as epilepsy, cerebral paralysis, and cerebral syphilis, and also to tuberculosis, diseases of the eye, or to the severe disorders of infancy. In 6 per cent. the defective condition was closely linked with defects in speech, in 5 per cent. with psychopathic deficiencies, while only rarely was deafness found to be a cause. In contrast to these etiological factors, only seldom did birth traumatisms, injuries to the head during early childhood, and atrophy of the thyroid, play any rôle, while the fact that hypertrophied tonsils were so widely prevalent excluded these as important factors in the production of the defective condition. In only 3 per cent. of the cases was the condition purely hereditary, and in 8 per cent. purely acquired, while in the remainder hereditary and acquired influences were both operative. In these, however, the acquired factors predominated.

The above figures are pregnant with significance, for they emphasize the eminent importance of environment, and the urgent need of early prophylaxis in diminishing the ranks of the school defectives.

Loosing the Insane Criminal.

The recent, fortunately unsuccessful, attempt of Thaw to escape by the aid of the courts from the hospital where he is confined, gives added interest to a paper read last January before the New York State Bar Association by Dr. Robert B. Lamb, Medical Superintendent of the Matteawan State Hospital. In this paper the writer reviews the laws bearing upon the commitment and discharge of the criminal insane and proposes certain changes suggested by the actual operation of these laws. To anyone giving a second thought to the subject, it must be evident that a jury of laymen should not be allowed to decide regarding the mental condition of any person with a view either to his commitment to an asylum for the insane or to his discharge therefrom. As to the practical results of such a procedure, it is stated that some years ago fourteen persons were committed to one small hospital by juries in a single year, and every one of them was found to be sane and had to be discharged. Regarding discharges from Matteawan, Dr. Lamb refers to his notes of thirty-four cases in which the court ordered the discharge of the person from the hospital as being sane. Of this number fourteen found their way back to either prison or asylum; eight, after their release, showed signs of mental disturbance, and were troublesome to their families; three, unable to earn their own livelihood, were cared for by their relatives; six disappeared from view; two committed suicide, and a single one, when last heard of, was partially self-sustaining. It is especially noteworthy in this connection, the author says, that "in all cases referred to which have been submitted to juries for verdict, the finding has been uniformly in favor of the lunatic, without regard to his previous history. It is equally noteworthy that when a judge has investigated the case his finding has been in favor of the hospital." He concludes from the study of this record, and we think few will be found to disagree with him, that there should be some modification of the present law, whereby lunatics accused of serious crimes against the person, and especially those committing murder, should be dealt with by a tribunal having fixed continuous responsibility.

Radium Treatment of Filariasis.

Radium is emerging from its position as a more or less unknown quantity in the treatment of disease, and will soon perhaps take a definite place in the armamentarium of the practising physician. For some time it has been employed with generally fairly satisfactory results for certain superficial forms of carcinoma, and by Abbe for deeper growths and for sarcoma as well. In England it has been used with some success in the treatment of lupus, and more recently its efficacy was demonstrated as an application for reducing the number of vessels in nevi, so that the remedy is now being somewhat largely utilized for the extirpation of birthmarks on conspicuous parts of the body. That radium does affect the tissues to some extent, albeit its action may be unequal, is the opinion of the majority of physicians who have tested it, and in this connection a note by Dr. A. A. Warden of Paris on the treatment by radium of lymphatic obstruction, cervical, submaxillary, and axillary, in a patient suffering from filaria nocturna will be of interest. In the case under notice removal of the axillary mass by operative interference had been attempted and abandoned on account of prolonged syncope under chloroform, and further operation had been negatived by a London consultant. Filaria nocturna embryos were found in the blood when the patient returned from England, and treatment by means of radium was begun. The enlarged glands were exposed to the action of radium, but only the more penetrating rays were permitted to reach the body, the other rays being excluded by the agency of screens of lead and of other materials. No rays, indeed, but the gamma and the ultra-penetrating beta, were employed, and thus injury to the skin was avoided. The treatment entailed no discomfort or pain to the patient, and under its influence the several glandular masses rapidly diminished in size, and as the temperature also declined, it is probable that the radium had an influence on the filaria. As it was found that the tumors continued to diminish in size when treatment was suspended for ten days, and as the patient was anxious to return to England, it was decided to postpone further action till later if necessary. There is undoubtedly much yet to learn concerning the employment of radium as a remedial and curative agency, but our knowledge is increasing daily, and it is becoming more and more evident that this element will play in the future an important rôle in the field of medicine.

Psychosis Following Lightning Stroke.

The opportunity to study after-effects in persons who have been struck by lightning is not a very common experience. In more than half of the cases the result of the stroke is instant death, and in those cases that recover the amount of the current passing through the body has usually been so slight that, except for temporary shock and possibly a transient neurosis, the after-effects amount to little or nothing. Occasionally, however, the

destructive action of the bolt, though not great enough to kill, may be sufficient to produce definite anatomical and functional lesions. Blindness has been reported in a few cases, and deafness in others, while paralysis of single members, or even complete hemiplegias, have been seen. The occurrence of psychoses following lightning stroke is, however, distinctly rare, so much so that in most of the text books on psychiatry practically nothing is said about it as an etiological factor in mental diseases. In view of this a case reported by Becker in the *Münchener medizinische Wochenschrift* for July 27, 1909, is of interest. A strong, healthy woman was struck by lightning while at work, and fell to the ground unconscious, a state which lasted for some time, and was associated with a complete left-sided hemiplegia. After the return of consciousness, while the paralysis improved gradually, definite mental symptoms appeared, and a progressive psychic degeneration was evident. The patient developed fixed ideas, delusions, and perversions, especially of a sexual character. She was obscene in her language, and filthy in her habits. Her memory was poor, and grew steadily worse. The complete picture was that of progressive senile dementia. After many months, trophic ulcerations appeared on the right leg, which, though they showed variation in their extent and occasionally closed over, soon broke down again, and had but little tendency to heal. A point to which Becker draws attention is that, whereas the paralysis was of the left side, the trophic disturbances were in the right leg. From this he concludes that the former was due to cerebral injury, but the latter were the result of the local action of the fulguration upon the vasomotor nerves of the leg.

News of the Week.

Army Medical Corps Examinations.—The Surgeon General of the Army announces that the War Department has appointed a permanent board to sit at Washington, D. C., for the preliminary examination of applicants for appointment in the Medical Corps of the Army, in addition to the usual preliminary examination boards that are assembled at various army posts throughout the United States from time to time. The board at Washington will probably hold its first session about September 7, 1909, and on such other dates thereafter as may be designated by the Surgeon General. Physicians who are successful in the examinations by the Washington board will be given employment at Army posts, as their services are needed, as First Lieutenants, Medical Reserve Corps—salary $2,000 per annum—until the next session of the Army Medical School, when they will be ordered to attend the School as "student candidates." Full information concerning the examination can be procured upon application to the Surgeon General, U. S. Army, Washington, D. C. The essential requirements are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice. The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the cases of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School. Applications for permission to take the examination may be filed with the War Department at any time. Unless the statement is made that the candidate desires to appear before the Washington board at or about a certain time, arrangements will be made to have him examined before the next board assembled in his vicinity.

The Holmes Centenary.—The Medical Society of the County of New York has appointed a committee to arrange for the celebration of the one hundredth birthday of Oliver Wendell Holmes. Properly speaking the celebration should be held on August 29, but inasmuch as so many physicians are out of the city at this time, October 9 has been set instead. The speakers will be Dr. M. H. Richardson of the Harvard Medical School who will give some "Personal Reminiscences of Oliver Wendell Holmes;" Dr. E. O. Otis of Tufts Medical School who will recite "Dr. Holmes' Achievements as a Physician," and Dr. William Hanna Thomson of New York City who will choose some topic dealing with Holmes' versatility. Five members of the County Society have the arrangements in hand: Dr. Irving Wilson Voorhees, chairman; Dr. S. Adolphus Knopf; Dr. David Bovaird, Jr.; Dr. H. Seymour Houghton, and Dr. John Leshure. Hon. Oliver Wendell Holmes, Judge of the U. S. Supreme Court, has been invited to be present.

Medical Service in the Hudson-Fulton Celebration.—As noted in a previous issue, extensive preparations are being made by the National Volunteer Emergency Service to establish a number of field hospitals and first-aid stations on the Hudson River front, extending from the Battery to Spuyten Duyvil, and along the line of march during the Hudson-Fulton Celebration, which will take place from September 25 to October 9. The work is under the direction of a committee composed of Drs. James Evelyn Pilcher, F. Elbert Davis, George Morgan Muren, John C. MacEvitt, and D. R. Lucas. Physicians, pharmacists, nurses (male and female), and former hospital stewards wishing to volunteer their services for assignment may address: The Adjutant General, National Volunteer Emergency Service, 130 West Fifty-sixth street, New York City.

An Association for Clinical Research.—A call has been issued for a meeting of physicians and surgeons interested in Scientific Clinical Research to be held Wednesday, October 27, 1909, at John Ware Hall, Boston Medical Library, No. 8 Fenway, Boston, Mass. The meeting will come to order at 10 A.M., and carry its sessions through Wednesday, and, if necessary, through Thursday and Friday. The objects of the meeting are: (1) To establish an American Association of Clinical Research; (2) to establish clinical research on an incontrovertible scientific basis in hospitals; and (3) to institute a journal in which the work of members of the American Association and of others doing clinical research work in a scientific manner shall be published. The call states that the American Association of Clinical Research is not intended to disturb the present medical affiliations of its members, but is to take cognizance of the fact that the clinic requires facts and conclusive methods, and upon

these fundamental requirements, the structure and the work of the Association are to be built. "It is of the utmost scientific importance to establish conclusively all that is at present true in medicine and surgery, and only upon such proved knowledge, to base any further advancement. The clinic deals with clinical entities and not, like the laboratories, with parts as entities. Therefore, clinical research differs, and must differ, from experimental laboratory researches. Clinical research must consider clinical entities, and when considering parts, it must consider them only as parts and not as wholes. All that subserves the object of obtaining and investigating clinical facts and principles belongs to clinical research and the laboratory is a part of the means of clinical research, but only a part. . . . Conjoined critical observation and experiment, at the bedside and in the laboratory, as may be required, furnish simultaneous identical experiences, the proof proceeding on the principle that a whole can be proved only by the whole and not by dislocated parts." Communications may be addressed to James Krauss, M.D., Chairman Committee American Association for Clinical Research, 419 Boylston street, Boston, Mass.

Mosquitos in New Jersey.—Prof. John B. Smith, head of the New Jersey Entomological Experiment Station, has recently made an investigation of the counties in which most of the work of exterminating mosquitos has been carried out during the past six years, and reports that in the counties of Essex, Union, Middlesex, Monmouth, and Ocean the salt water mosquitos have been practically eliminated. The many miles of ditches which have been constructed to drain the salt marshes are open and unobstructed, and the land between, formerly swamp, is dry and firm, producing good crops of marsh hay. In all about 10,000 acres of meadow and salt marsh has been drained and reclaimed at an expense of $5 per acre.

Tuberculosis in Public School Children.—A report recently issued by the Association for Improving the Condition of the Poor states that of 728 children, 381 boys and 347 girls, at Sea Breeze, in West Coney Island, subjected to the tuberculin test, 205, or 28.1 per cent., showed a positive reaction. The investigation was undertaken at the suggestion of Superintendent Maxwell and of Dr. Brannan of the advisory board of the Sea Breeze Hospital, and was in a measure a preliminary step to determine the need of open-air schools in New York City.

Floating School for Tuberculous Children.—Kindergarten classes are being carried on, and later regular school will be opened, on the Brooklyn Floating Hospital for Tuberculosis. The hospital consists of the old ferryboat *Susquehanna,* which was obtained for the Brooklyn Tuberculous League by Miss Mary Harriman. It is supported by the Red Cross Society. The kindergarten is under the care of a graduate of the Kindergarten Department of the Pratt Institute. The hours of attendance are from 9 A.M. to 5 P.M.

Pure Water in Columbus.—The vital statistics of Columbus, Ohio, show a decided improvement in the city's health since the inauguration of a filtration plant for the city water. Last June there were 159 cases of typhoid. This year there were five cases up to the 20th of the month. Every month so far this year there has been a general decrease in the number of deaths. Last May there were 25 cases of scarlet fever and 10 in June. This year there has been none. Last year there were 3,114 cases of infectious and contagious diseases reported during the year, but if the present ratio keeps up there will be less than 1,000 this year. A movement is now under way to investigate the well water supply of the city. Every well in the city is to be examined and the results published so as to put the users on their guard. Recent examinations of the city water by the city bacteriologist showed from four to eighteen bacteria per cubic centimeter, while various samples of well water varied from 300,000 to 800,000 per cubic centimeter.

State of Chicago's Health.—According to the Bulletin of the Health Department, August 7, no summer in the history of Chicago has been healthier than the present one. The general death rate, the infant mortality rate, the death rates from the diarrheal diseases and from typhoid fever are the lowest on record. The mortality record of the week just closed is a continuation of this most gratifying condition. The general death rate of the week was 12.33 per 1,000 of population on a per annum basis, this being 15.5 per cent. lower than the usual rate of this season. The total deaths of the last week, 526, were 131 fewer than the corresponding week of last year; the child mortality under five years of age was 108 lower; the diarrheal deaths were 72 fewer, and there were 5 fewer deaths from typhoid fever.

Infantile Paralysis in St. Paul.—What appears to be a severe epidemic of anterior poliomyelitis is at present prevalent in St. Paul, Minn. Up to August 7, twenty-two cases had been reported in the city. After that the epidemic increased in severity, as on August 10 and 11 twenty new cases appeared and two deaths were reported. The Minnesota State Board of Health is taking active steps in the investigation of the epidemic.

Scarlet Fever in Milwaukee.—An epidemic of scarlet fever has been prevalent in Milwaukee this year, as is shown by a record of eighty-one deaths from the disease during the first six months of 1909 as compared to eight deaths for the same period in 1908.

New Supply of Radium.—According to reports from California a new immense supply of pitchblend, said to be enough to supply the world with radium for all time, has been discovered on the McCloud River, north of Kennetta, Cal.

The Late Dr. George M. Beard.—Miss Grace Alden Beard, 675 Flatbush avenue, Brooklyn, N. Y., would be grateful if any readers of the MEDICAL RECORD having in their possession any books, pamphlets, manuscripts, or letters, written by her father, the late Dr. George Miller Beard, would communicate with her regarding the same.

Dr. Robert Henry Wolcott, Professor of Anatomy in the University of Nebraska, has recently been appointed acting dean of the medical college of that institution.

The Universities of Tennessee and Nashville have recently formed a union of their medical departments. The combined university has adopted the entrance requirements, curriculum, and graduation requirements suggested by the association of American Medical Colleges. The building formerly used by the University of Tennessee is being converted into a hospital. Plans have been prepared for a new hospital on the grounds of the

University of Nashville. These two hospitals when completed will be used for teaching purposes.

The Sullivan County (N. H.) Medical Society was reorganized at a meeting held at Claremont, August 11, and the following officers elected: *President*, Dr. E. C. Fisher of Sunapee; *Vice-President*, Dr. Fred P. Claggett of Newport; *Secretary*, Dr. Emery M. Fitch of Claremont; *Treasurer*, Dr. D. M. Currier of Newport; *Board of Directors*, Dr. A. S. Marden of Newport, Dr. O. C. Young of Charlestown, and Dr. H. C. Sanders of Claremont.

Obituary Notes.—Dr. Casper K. La Huis of Zeeland, Mich., and formerly of Kalamazoo, died at his home, August 12, 1909, aged 40 years. He was a graduate of the University of Michigan in 1896 and was a member of the Kalamazoo County and Michigan State Medical Societies.

Dr. George Moran of Detroit, Mich., died at the Harper Hospital in that city, August 12, 1909, from an attack of ptomaine poisoning, aged 41 years. Dr. Moran was a graduate of the Iowa State University and received his medical degree from the University of Michigan in 1892. He was chief of the medical staff of the St. Vincent's Orphan Asylum, and a member of the Wayne County Medical Society, the Michigan State Medical Association, and the American Medical Association.

Dr. Daniel L. Sweeney of Newark, N. J., died at his home on August 20, 1909, aged 61 years. He was a graduate of the College of Physicians and Surgeons in New York, in 1882, and was a member of the Essex County Medical Society and the Medical Society of New Jersey.

Dr. Robert Walker Robinson of Auburn, N. Y., died at Northport, Me., on August 21, 1909, aged 49 years. Dr. Robinson was a graduate of the Long Island College Hospital Medical School in 1884, a member of the Cayuga County Medical Society, the New York State Medical Association, and the American Medical Association, and visiting physician to the City Hospital of Auburn.

Correspondence.

THE FOMITES THEORY.

To the Editor of the Medical Record:

Sir:—I have read with interest your editorial comment on Dr. A. H. Doty's article on "The Means by Which Infectious Diseases Are Transmitted." I have in mind the conservative expressions made years ago, when Lister first taught that the presence of pus in a surgical wound was a disgrace to the operator, and generally due to his negligence, and again I remember the tenacity with which many held to the idea that heredity was the cause of tuberculosis; and, yet again, the tearing of heart strings when the mephitic environment theory of the origin of malaria was attacked. A theory of reputable parentage becomes after a time well-rooted, and by the aid of apparently well-established facts becomes a part of our knowledge (?), but sooner or later careful observation, practical and unfeeling, sweeps away the cherished belief, and it is buried, after a long "wake," and is soon practically forgotten, and its memory serves only to aid in the sepulture of another theoretical delight.

After some twenty years of intimate observation of infectious disease in the service of the Department of Health of this city, I find myself in full accord with the position of Dr. Doty in his present antagonism to the fomites theory of the transmission of infectious disease. Is it not a suggestive fact that half a continent must generally separate the initial disease and the "woolly lamb" host, in view of the fact that apparently similar claims of the origin of disease, in our local experience, have proved to be fallacious? Contrast the uncertainties of these almost foreign instances with the absolute facts connected with the service of health officials who have been exposed for hours in the pesthholes of this city in times of epidemics described by Dr. Doty, and have not known of any transmission by clothing worn during official service. If this were not a generally accepted fact, based on the experience of years, do you imagine that service in the Department of Health would still be eagerly sought by physicians?

I do not believe that the handlers of filthy lucre are any more exposed to infectious disease than men of other occupations, for the reason that in my experience few of those who are victims of infectious diseases are found to have any financial responsibilities, and the possession of paper money to most of them would give a shock almost equal to that occasioned by this well-timed attack on a pet theory of sanitary science.

In the light of experience, I am of the opinion that the danger of transmission of scarlet fever, measles, and diphtheria in the schoolroom is not in the clothing worn by well children from infected families, but rather in the fact that initial symptoms of these diseases are often overlooked, and that the children supposedly well attend school when first attacked, and thus transmit disease. With reference to smallpox, it is well to remember that a single vaccination in infancy is not now considered a complete protection (hence the frequent vaccinations performed in lodging houses and eleemosynary institutions), and that a large number of persons are in error when they believe they are immune by reason of infantile inoculation. I believe that the author of the paper under discussion is upon safe ground, and that a positive service to sanitary science will be the outcome of this attack on a time-honored, but perfunctory and useless theory.

Charles S. Benedict, M.D.

New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

ECHOES FROM BELFAST—HOSPITAL SUNDAY FUND, VIVISECTION, AND SIR W. CHURCH—SMALL SPECIAL HOSPITALS—ROYAL COLLEGE OF PHYSICIANS.

London, August 6, 1909.

Visitors to Belfast began to return on Friday, when the sections were finished, though many remained over Saturday to take a share in the many excursions provided. In fact, all along the picnic element seems to have overshadowed the scientific, which is perhaps to be expected when this is divided into fifteen sections, and few could be interested beyond their own. Several of these are described to me as successful, some of them very much so.

The abounding hospitality shown seems to have stamped the meeting as almost unprecedented. Much of the success of the social functions was evidently due to the visit of the Viceroy and Lady Aberdeen, who, as I have told you, received full recognition of her splendid campaign against tuberculosis.

Sir William and Lady Whitla also displayed a lavish hospitality, which, highly appreciated by all, set some thinking that the example might possibly deter a future presidency being accepted by some one who could scarcely afford to follow. Sir William is a J. P. and has held all positions available for a physician in the city of his long residence. He defrayed the cost of building the Institute of the Ulster Medical Society, which was opened about seven years ago. He has also taken an active part in matters rather philanthropic than strictly medical. He was knighted in 1902. You will perhaps know him best for his "Materia Medica," which has passed through several editions and been translated into Chinese. But he has contributed freely to the journals and published other works.

I now pass on to add a few disjointed remarks I have gathered respecting the meeting. Those interested in sanitary works had the opportunity of studying on the spot, with the assistance of Councilor McCullagh, the sewage system which has been a sore trouble to Belfast for the last ten years, but which it is hoped has now been, or soon will be, completely overcome. The growth of the *ulva latissima* is so rapid in sewage effluents that tons of it were continually being removed from the shore, where it putrified and gave off an odor of sulphuretted hydrogen. Professor Letts found that not only ammonia, but other nitrogen compounds, were an excellent food for the ulva. After many experiments, he found that a double decomposition might be obtained by mixing two effluents, one highly nitrated, the other from the septic tank. The

result is pronounced practicable by several professors who spoke in the hygiene section and it is hoped that Belfast will soon become a model.

In the Psychological Section Dr. Dawson of Dublin had a paper criticising the report of the Royal Commission on the Care of the Feeble-minded. He found it difficult to see what good would be done by the oversight and certification recommended. To change the terms "lunatic" or "asylum" could not be of more than temporary influence. It was useless to talk of a distinction between persons of "unsound mind" and those "mentally infirm." He seemed to think classification of little use.

Dr. Maguire of Belfast urged the necessity of setting apart wards in general hospitals for border-line cases and said more institutions were needed in Ireland. Some of our London men hold similar opinions.

The tour of the Royal Victoria Hospital was a notable function, embracing a reception by the chairman, who provided at his own expense the entertainment and refreshment for 500 invited doctors and 1,000 members of the public, in order that they might see the way in which the hospital is conducted and the comfort of the patients cared for. The chairman, Mr. James Davidson, with his daughters, received the guests. The medical visitors declare the hospital one of the best equipped in the United Kingdom. The operating theater and electrical departments are specially well spoken of. In the latter *x*-ray apparatus is installed and everything, I am told, is up to date.

The noble City Hall, of which the citizens of Belfast are very proud, was the scene of a reception by the Lord Mayor and Lady Mayoress, described by one present as delightful and showing that Ireland's proverbial hospitality has "not been exaggerated and they do know how to do things." The Lord Lieutenant and Lady Aberdeen were present and when they left, after supper, dancing began. One person says there must have been nearly 3,000 guests in the vast building.

The Museum of Sanitary Science, Queen's University, was visited by many. It was established in January, 1899, at the cost of Dr. Henry O'Neill, J. P., and his wife, who have continued to defray the expenses of its maintenance.

The Pathological Museum offered another sight with its array of microscopes and preparations. Specimens of parasites were among the sections and motile bacilli were also exhibited.

The rulers of the Association have at this meeting experienced a shock at the open expression of discontent with their management, and more particularly with the *Journal*. As to this, there has for years been a number of advocates of change, or, as they would say, reform. The dissatisfaction took the form of more than one proposal in the representative meeting. Some wanted the paper to be supplied at a separate charge instead of being included in the subscription, which could thus be lowered. Others wanted the supplement to be restricted to members and not sold, as they feared "their enemies" might, through it, become acquainted with their "private affairs." So insistent were some you would think there was some dreadful secret about their doings. Another objection of a more general kind related to the advertisement department. After some years of talk outside, a resolution was actually brought in condemning the insertion of certain advertisements, and adding that the "present condition of the advertisement pages is not creditable." The resolution was freely discussed and various modifications considered, but the upshot of it was that the matter be referred to the Council.

In rather a large circle the *Journal* is spoken of as the "great unread." It is not for me to decide whether this is to imply excessive bulk or heavy reading, or both, but I may tell you a story related to me by a doctor. He says he lately went to the sale of a deceased fellow practitioner, who had been a long-standing friend, and in the top room, awaiting the auctioneer, he saw the numbers of the *Journal* for twenty years, not one of which had had the postal wrapper removed.

The annual meeting of the Council of the Hospital Sunday Fund was held on the 28th ult., when a step was taken which is causing severe criticism and indeed general condemnation in the profession. In the distribution proposed a sum of £48 15s. was recommended to be given to the Antivivisection Hospital, which, of course subsists on contributions of the fanatics for the sake of libelling the physiologists.

Sir William Church moved the adoption of the report. The Council, he said, did not approve the methods employed at that institution, but there was evidence from a number of the clergy in the district that the poor were benefited by it. He therefore proposed to double the sum recommended. This from Sir William Church, who has heretofore been regarded as a representative physician. The proposal was seconded by a lord and carried against the protest of Dr. Thomas Brown, who said the hospital was a slur on the profession and proposed no grant should be made to it. Strangely enough, no one seconded him. This is by no means the first time that the Sunday Fund has acted in a way to provoke medical criticism. In one case several years ago a deputation was, to my knowledge, positively insulted when it urged the claim of a really well-conducted small hospital. Now we see it pandering to the supporters of a little movement of hatred of science and common sense. I commend Sir William's conduct to the censors of the College of Physicians.

The establishment and carrying on of small special hospitals for which there is no need trespasses on the charitable funds of the nation. An example this week is an appeal in the Times for £35,000 for the Heart Hospital, an institution which ought never to have been established and which it would be a good thing to close. Its supporters want to remove it to a new site and ask for this £35,000 for that purpose. The house may be ill adapted for the twenty-six beds it is said to offer to sufferers from heart disease—patients readily admitted to all the large hospitals, all of which are in need of funds. Let the charitable give to them rather than to a small affair which has done nothing to entitle it to help.

Dr. Joseph A. Ormerod, M.A., M.D., Oxon. F.R.C.P., physician to St. Bartholomew's Hospital, has been appointed registrar of the Royal College of Physicians in succession to Dr. Liveing, retired.

Miss Ivy E. Woodward, M.D., Lond., has been admitted on examation to membership of the Royal College of Physicians, the first female to attain that diploma. She was a student at the Women's School and Royal Free Hospital and afterward pathologist and house physician there.

A cycle accident has caused the death of Dr. Arthur Foxwell, senior physician to the Queen's Hospital, Birmingham, and professor of therapeutics in the university. He was formerly editor of the Birmingham Medical Review and contributed articles to other journals.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

DIAGNOSIS OF HYDATID CYSTS OF THE LIVER—SPOROTRICHOSIS—EXTIRPATION OF THE SPERMATIC DUCTS IN GENITAL TUBERCULOSIS.

PARIS, July 31, 1909.

In a recent paper Chauffard shows that the diagnosis of hydatid cysts of the convexity of the liver has for a long time been difficult and uncertain. In cases of this kind the cyst develops in the direction of the least resistance, extending to the diaphragm, which is crowded upward along with the base of the lung. In the end it may fill one-half to two-thirds of the right thorax. The differential diagnosis from pleuritic effusions is very difficult to establish. Modern methods of diagnosis aid us in a marked way in this disease. If radiography shows the obscure zone limited above by a curved line convex above, and the examination of the blood shows a marked eosinophilia, and the examination for the deviation of the complement is positive, the diagnosis of hydatid cyst of the convexity of the liver is considered to be positive. But we must recognize that there are cases in which all the laboratory tests fail. To make the diagnosis more precise Chauffard demonstrates a physical sign, which, according to him, has great clinical value—it is the transthoracic wave. To obtain this sign we place the patient in the upright position, the left hand extended on the posterior wall of the thorax below the scapula. At the same time, with the index finger of the right hand light percussion is made in front over the fifth and sixth ribs and interspaces. There is felt a series of little wave-like vibrations, which give the sensation of transthoracic waves. This sign of the transthoracic wave is very special, for nothing analagous can be obtained in pleuritic effusions, small or large. Aside from the fact of fluid contained in the thorax not being encysted, the body of the lung crowded backward stops and breaks

the vibrations which might have been produced. To sum up, this sign of the transthoracic wave appears to be of a nature to render great service in the more precise diagnosis of intrathoracic collections which it is often difficult to differentiate.

At the recent meeting of the Medical Society of the Hospitals sporotrichosis was the subject of study. Sporotrichosis appears to be a disease peculiar to France, although Robert Stein has observed a typical case at Berne. It was that of a patient forty-five years of age, who presented multiple abscesses which developed without any pain during the few previous weeks, and without any general symptoms. His trade was that of a dishwasher in a hotel, where he manipulated for several hours a day in dirty water soiled by dishes and scraps of food. He burned his forearm and neglected the wound, which became transformed into an abscess; other similar abscesses formed on the limbs and on the trunk. The ulcerated masses became covered by a crust of a yellow color surrounded by a reddish violet inflammatory zone. The contents of two abscesses were cultivated on appropriate media and after eight days the culture showed a typical sporotrichosis. Pautrier and Lutembacher thought it might be possible to obtain in patients afflicted with sporotrichosis, by the introduction of the special products of sporotrichosis, a reaction analogous to that obtained in tuberculosis with tuberculin. The certain diagnosis of sporotrichosis rests to-day on the obtaining of cultures, to which it is almost always necessary to have recourse to confirm the clinical symptoms. Now these cultures require from seven to eight days to mature; sometimes they are even longer in growth and do not take on typical characteristics until the tenth to the twelfth day. It would be interesting to possess a diagnostic method at the same time more rapid and certain. These authors thought that these germs might not produce poisons analogous to those of Koch's bacillus, which give tuberculin its specific action in tuberculosis, and they began experiments starting out first with the spirotricum itself dead and sterilized, instead of with its products, and they acted as would a bacillus killed by its own endotoxines. Taking a portion of a young culture of sporotrichum, they diluted it with ten cubic centimeters of serum and sterilized it by boiling. They injected one cubic centimeter of this dilution into a patient attacked by sporotrichosis, and obtained a quick, painless reaction at the point of injection. It manifested itself by a redness of the skin with diffuse edema. In a control patient they injected the same amount of the same solution and obtained no reaction at all, general or local. Beurmann and Gougerot thought that they might be able to diagnosticate rapidly sporotrichosis by means of the intradermic reaction. After collecting portions of young cultures, they diluted them with serum and sterilized at 100°. They then injected this liquid into the thickness of the skin in the dose of one or two drops. The local reaction was marked, the general nil. In the positive cases there formed in the skin a red nodule with a rose violet areola, lost in a markedly edematous disk. The intradermic reaction seems, then, to assure the diagnosis of sporotrichosis in its earliest stages.

At the Society of Surgery Pauchet of Amiens read a paper on the "Extirpation of the Spermatic Ducts in Genital Tuberculosis." Cases of genital tuberculosis are frequent and the rational treatment of them seems to be surgically the total extirpation of the diseased tissues. Spontaneous cure of lesions of the seminal vesicles and prostate seems not to exist. The difficulty of the operation seems not to be a good reason for abstaining from it. Since we have performed perineal prostatectomy, access to the lower surface of the bladder and vesicles has become easy and the operation benign. The operative technique to be followed consists of three steps: The first inguinal, second scrotal, and third perineal. The inguinal portion consists of dividing the inguinal ring, reaching the deferent canal and separating the tissues about it; the dissection is pursued very deeply into the pelvis to the neighborhood of the bladder; section is carried out with the galvanocautery between two ligatures. The second step, the scrotal, consists of bringing the testicle into the inguinal incision; the epididymis is resected when it presents lesions. The third step, the perineal, consists of making a linear, transverse, bi-ischiatic incision; the rectum is pulled down, the prostate uncovered, and the seminal vesicle is seen and removed. Total extirpation of the spermatic ducts should enter into surgical practice as benign, easy, and often efficacious.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 12, 1909.

The Problem of Cancer Considered from the Standpoint of Immunity.—Independently of Schone, Frederick P. Gay tried about one year ago the effect of implanting tumors in animals from which the first tumor had been removed. Instead of waiting eight days, as did Schone, he reimplanted the tumor immediately after removing the first tumor, and found that whereas this second tumor failed to take in tumor animals up to the thirtieth day of growth, it took in them from that period on. This period of thirty days corresponds rather closely to the time during which no metastases are evident following inoculation of the tumor in most susceptible animals. In these susceptible animals which take the tumor in 100 per cent. of cases, metastases occur at a rather definite period following implantations of a uniform amount. This period is between thirty and forty days. He also found that if animals were given a second implantation of tumor up to the period of thirty or thirty-five days, without removal of the primary tumor, not only did the second tumor fail to take, but the first tumor actually disappeared. As a result of experiments he has found that in approximately 50 per cent. of the animals treated during the first three or four weeks of tumor growth, reimplantation of tumor will lead to a cure of the original tumor and a preventation of metastases. It would seem justifiable, as a working hypothesis, to regard the pre-metastatic period of a tumor as the period during which the animal shows reaction products to cancer tissue, and during which period the animal is also able successfully to combat a generalized infection of the cancer. In those cases in which spontaneous resorption of the tumor occurs, which are relatively frequent in animals, and have also been described in human beings, we may suppose that the resistance of the individual has succeeded in overcoming the cancer. From their experiments in animals, it would seem possible that during the pre-metastatic reaction period the resistance of the individual may be increased by reinoculation of the tumor, or possibly of products of the tumor, to such an extent that the resorption of the original tumor may be brought about.

The Importance of Active Muscular Exercise in the Restoration of Function.—C. Hermann Bucholz considers to what extent active exercise may be used in the restoration of function, and how much we may expect from it. He examines the relation of nervous and muscular function and the effect of functional treatment in lesions of joints and bones. He also considers the importance of active exercise in the diseases of the circulatory system, and some other internal diseases. The best orthopedic surgeons maintain that active exercise should never be neglected in any case of scoliosis. The special value of active exercise and its advantages in many cases over massage and passive exercise or forcible manipulation is not sufficiently recognized. The following are the special advantages of the active exercises: They are by far the best way to increase tone and strength of the muscles; they have a mechanical effect on the tendons, the function of which can be improved but never entirely restored by massage. The most important effect which active exercises produce is the restoration of normal joint action. Active movements are valuable, therefore, in restoring the function of joints, by their early use preventing much of the loss of function which results from long use of fixation methods. Among the internal organs the function of which may be restored, or at least improved, by gymnastics should be mentioned especially the lungs and pleurae. The principles of such exercises are the following: Strengthening the respiratory muscles to promote deep breathing, in order to force all parts of the lungs and pleurae to take part in the function, and also to improve the circulation in the lungs. Deep inspiration, together with resistance movements of the trunk and upper extremities, will favor the expectoration in chronic bronchitis and loosen adhesions in pleuritis. Among other diseases which are amenable to active exercise treatment may be mentioned diabetes, obesity, and constipation. In the future many conditions in which heretofore reliance has been largely placed upon drugs will be found to be satisfactorily amenable to treatment along the line of active muscular exercises. More lasting results may be expected from these methods which call into action the restorative and conservative forces within the human body itself.

New York Medical Journal, August 14, 1909.

On Some Technical Difficulties in the Distention Method for Hypospadias and Other Urethral Affections.—Carl Beck gives a retrospective view of his experience in those cases of urethral malformations, defects, and injuries which he has treated after his principle of

urethral distention. The most important of his observations is, that even in the scrotal type success was obtained by employing the method of forward dislocation. It is not advisable to leave a *cathéter à demeure* longer than five days because incrustations soon form and the caliber of the catheter becomes obstructed. The necessity of leaving a catheter *in situ* is an evil. Whenever, therefore, its use can be avoided it should be left off. It must be appreciated that just one of the great advantages of the distention method is supposed to be that the catheter can be dispensed with. It is never too early to perform the operation for hypospadias, and it is nothing less than criminal negligence to let a hypospadiac grow up to manhood without operating upon him. Constriction of the penis by an Esmarch bandage was never found necessary; temporary pressure by a small gauze compress suffices to control the hemorrhage. As far as failures of the distention method are concerned, it seems to him that they are more due to the hand than to the method itself. The most frequent mistake made is that the urethra is not sufficiently mobilized. Careful observation of the diet is imperative for the first four or five days. Large doses of potassium bromide are in order.

The Presence of Tubercle Bacilli in the Urine of Tuberculous Patients, Their Significance and Dangers.—E. J. G. Beardsley concludes that: (1) Acid and alcohol fast bacilli are frequently present in the urine of tuberculous patients. (2) Such bacilli have been proved in many instances to be capable of producing tuberculosis in animals. (3) Until it is conclusively proved that these bacilli are not virulent it is wise to consider all of them virulent. (4) It is reasonable to believe that in tuberculosis, tubercle bacilli are present, at times, in the blood of the individual. (5) Tubercle bacilli may be present in the urine without a macroscopical lesion of the genitourinary organs. (6) Although inoculation experiments are absolutely necessary to prove conclusively that a germ found in the urine is the specific bacillus of tuberculosis, nevertheless a bacillus that retains the carbol fuchsin stain after thorough decolorization with Pappenheim's solution is likely to be the tubercle bacillus. (7) Disinfection of the urine and feces of tuberculous patients is required to free them from danger of transmission of the disease to others.

The Analogy of Migraine to Rheumatism.—J. N. Cohen says that it is evident that the question of the etiology of migraine is far from settled. Some admit that it is due to an intoxication, or that there are periodic sensory discharges of the brain, or that there is a vasomotor neurosis; but even if one admits all these theories to be correct, he is still ignorant as to the direct exciting cause of these nervous disturbances, advanced as explanations of migraine attacks. If we combine any of these theories with that of a rheumatic toxemia, we have an exciting cause which will be initiative for the various nervous phenomena by which these attacks are explained. By combining all three, *i.e.* a rheumatic intoxication, a "brain storm," and a vasomotor neurosis, we have a vasomotor disturbance, caused by an intoxication acting centrally upon the brain and causing periodic discharges, and thus indirectly acting on the vasomotor system. In summarizing the various medicinal measures employed in the preventive treatment of migraine attacks, it may be stated that the various coal-tar products have been prescribed with more or less success. Cannabis indica, caffeine citrate, and ergot also have their advocates. Treat the patient exactly as you would if he were suffering from an acknowledged rheumatic affection. Salicylic acid and its preparations stand pre-eminent, and when rightly employed are a most valuable remedy.

Some Observations on Inflammation of the Veru Montanum.—John A. Hawkins says that inflammation of the veru montanum is usually due to gonorrhea affecting the deep urethra, and as probably 90 per cent. of all patients suffering with gonorrhea acquire an extension to the posterior urethra and many of them to the seminal vesicles and epididymes of necessity by way of the ejaculatory ducts, it is surprising that the veru montanum should escape as often as it does. The most common symptom of which the patients complain of is pain in the anterior two inches of the urethra; it is of a stinging or burning character. In some cases there is a frequent deside to urinate; also a marked tenesmus with the appearance of blood with the last drop of urine. The urine to-day may be full of shreds and to-morrow absolutely clear. Irritation of the sexual apparatus is usually marked. The use of silver nitrate will be followed by results if intelligently used. With a solution of 15 or 20 per cent. the swollen veru is promptly reduced in size. These solutions are readily borne and are extremely useful when properly used in the various stages of these inflammations.

Journal of the American Medical Association, August 14, 1909.

Breast Feeding.—M. Ostheimer says that it is uncommon nowadays to see any attempt made to induce the mother to nurse her child, even when the breast milk has not been examined to see whether it is abnormal or not, and asks if this is not chiefly the fault of the medical adviser. This is the case not only three or four days after birth, but later when the child is between three and six months old, breast feeding is often stopped for no apparent cause. He quotes authorities who have advocated the persistence in breast feeding and examination of the mother's milk in behalf of the infant. He says that in his experience he has found that much can be accomplished in aiding and inducing the mother to continue nursing both at the beginning and when the infant is several months old and stopping has been considered. He urges the continuance of breast feeding until the baby is at least eight or nine months old. During the last few months of pregnancy not only should the nipples receive daily attention, but the habit of drinking water should be cultivated and the woman should learn to be able to drink two or three quarts a day. Exercise in the open air, a full amount of sleep and a nap during the afternoon, correct wholesome food, and attention to the regularity of the bowels are essential. After delivery it is most important that the mother take daily several quarts of water, some with meals and a great deal between meals. Tea and coffee should be prohibited during lactation. The thin corn meal gruel recommended by Southworth is next in importance and properly flavored it can be made a very agreeable food. If the woman likes milk she should take it, but it should not be forced on her, and cocoa prepared with milk may be substituted. As before delivery, exercise, fresh air, sufficient sleep, etc., are necessary. Most medical men prefer not to allow nursing in advanced tuberculosis and there is a kind of urban, nervous woman in whom all efforts to improve her milk supply are apparently wasted. Dr. Southworth's suggestion to give the child both breasts temporarily, alternating with one or two bottles a day when the mother first begins treatment, will be of value in some serious cases. He gives his experience in treating these cases of deficient milk supply and tapering off from breast feeding. While special stress is laid on feeding, the ordinary hygiene must not be neglected, the child as well as its mother receiving due attention as regards this point. Ostheimer's object in writing this paper is to reiterate the immense importance of breast feeding and to report his experience in successfully urging its continuance and overcoming difficulties, few of which are found as real as the young mother thinks them.

Middle Milk Mixtures.—A. H. Hess says that it is some years since it was shown that when milk is allowed to stand, the bacteria are carried upward with the fat globules so that the cream layer contains a vastly greater number of microorganisms than the underlying skim milk. In a laboratory study, published about a year ago, he demonstrated that the bacteria in the cream are not uniformly distributed but are present in far the greatest number in its upper surface. He then suggested the use of these principles in infant feeding and showed how after discarding the upper two ounces of cream the proper percentages could be obtained. His suggestion, however, seems not to have found general acceptance, though it has not been criticised so far as he has noticed. He therefore again calls attention to it, after a personal experience of almost a year with this method, and points out that it is not merely an interesting laboratory suggestion, but a practical modification of top milk feeding possessing decided advantages. He gives the instructions which he has used with mothers of only average intelligence, but who readily understood them and utilized them. They were directed to remove the upper two ounces of cream and reserve it for table use, then dip off the next eight ounces of milk, which furnishes them the standard 10 per cent. cream which they are directed to dilute with water or barley water, according to the age or condition of the child. He does not urge this as a substitute for pasteurization or sterilization, but simply as a suggestion of bettering whatever milk is used.

Infantile Diarrhea.—C. G. Grulee concludes that true dysentery in infants must be relatively rare in Chicago. He says there are many reasons for believing that the

B. dysentericus is not etiologically connected with a large percentage of the diarrhea in infants. In the first place, the cases showing this organism in the stools showed no clinical differences from those in which it was absent. In the second place, the dysentery bacilli were usually few and hard to find, and, in the third place, agglutinins were by no means constantly present, as far as could be learned, and the antidysenteric serum seemed to have no effect. The dysentery bacillus has never been cultivated from the blood of these infants nor has it ever been found outside the human body, except in the laboratory animals. He therefore regards the connection of the dysentery bacillus with the summer diarrhea still, at least, an open question, with the burden of proof on those who assert its etiological relationship. Since the infectious nature of the disorder has not been proved, we must seek elsewhere for its causes. Within the past year Finkelstein has described a disorder of nutrition which he calls metabolic intoxication. The symptoms are the same as those of summer diarrhea as we encounter it. He has proved that this disorder is caused primarily by the inability of the organisms to properly assimilate sugar, a condition to which too much fat in the food predisposes. Czerny and Keller, while agreeing with Finkelstein, to a certain extent, suggest that we may have a toxicosis due to the decomposition of the food by bacteria, either before ingestion or in the gastrointestinal tract. Grulee, after discussing the condition and pathological findings, comes to the conclusion that while infection in the intestinal wall probably occurs in some cases, it is not the usual cause of a summer diarrhea in infants, but that this infection is, as a rule, due to disturbance of metabolism or to decomposition of the food. As regards treatment, it is evident that, if this is the case, the first indication is to stop the food and put the child on a low diet. This is not all. There must still be a supply of fluid for the system and this we accomplish by giving barley water or weak tea. It is occasionally impossible to give this by the mouth, and it is well to resort to a continuous enema or even to a subcutaneous administration of normal salt solution. After ten to forty-eight hours of the starvation treatment, it is time to give the patient food, the symptoms having usually disappeared. For the past two years he has usually employed skim milk as the first food for these children. He has ,as a rule, had this boiled, which kills the bacteria and seems to be more readily digested. This skim milk is given in the amount of one and a quarter to one and a half ounces to the pound weight of the child, each twenty-four hours, and diluted sufficiently to afford the proper quantity at each feeding. This is a temporary measure and, as soon as possible, milk sugar must be added and whole milk substituted for the skim milk. The condition of the child must be the guide. The greatest trouble with this method is the tendency to constipation when the skim milk is being replaced by whole milk, and the addition of malt may be useful. The vomiting may continue and require stomach washing and bismuth in extreme cases. Reduction of temperature can be accomplished usually by the measures already suggested, but hydrotherapy is often useful. The distention which occurs only in the more protracted cases can be temporarily relieved by the introduction of a tube into the rectum, the other end of which is placed in a vessel containing hot water. We may also use colonic flushings and hot external applications to the abdomen. Collapse can best be met by mustard packs, followed by saline infusion and continuous saline enema. Grulee does not favor the use of calomel in these cases and he believes it has been much abused. As for intestinal antiseptics generally, he sees no indications for them in these cases.

Calcium Salts in Epilepsy.—A. P. Ohlmacher has hitherto refrained from publishing his remarkable success following his first trial of the calcium salts in epilepsy, but now since Littlejohn (Lancet, May 15, 1909, page 1382) has reported results with the same agent, he wishes to supplement it with his case. It was a child four years and four months old, with no heredity of epilepsy, in whom the disease had begun and continued from a month after his third birthday. When first seen he was having from 34 to 73 attacks a month and his mental growth had apparently stopped. The *grand mal* attacks as seen by Ohlmacher were very severe, but never became the typical full status epilepticus. The child had frequent nosebleed following these attacks and its nurse asserted that she could detect the odor of blood on the breath during convulsions and prior to the appearance of actual hemorrhage. At the time Ohlmacher had been working on therapeutic immunization, where the problem of blood coagulability presented itself, and he had employed Wright's method of measuring the time of blood coagulation and of using calcium salts to fortify a defective coagulability. Accordingly, when his attention was called to the hemorrhages, he made a blood clotting test and, finding that it was slow in clotting, he began giving calcium lactate in doses of seven to ten grains dissolved in hot water and added to the milk three times a day. This medication has been continued from this first beginning, on June 2, 1907, with no change, except occasionally reducing to one or two doses daily, to the present time. The coagulation time was soon reduced to normal and since the cessation of the epilepsy, three months after commencing the calcium lactate, the child has had occasionally nasal hemorrhages apparently related to periods of lowered coagulability. At the time he began the medicine McCallum's observation on calcium metabolism as related to parathyroid intoxication and to tetany had not been published, nor had Carle's paper on calcium chloride in therapeutics appeared. Incomplete observations on several additional cases similarly treated tend to confirm the favorable results with the first case.

The Lancet, August 7, 1909.

A Method of Giving Ether by Means of Nasal Tubes.—H. M. Page says that this method of giving ether, which was devised by Crile of Cleveland, deserves further trial and to be better known. The apparatus consists of two India rubber tubes sufficiently large to fit closely the nares, these nasal tubes are coupled to a much larger India rubber tube by means of a Y-shaped piece of glass tubing; this large India rubber tube is connected with a large glass funnel which is covered with a single layer of thin flannel, and it is interrupted in its course by a glass trap to prevent any excess of ether running down the nasal tubes. Ether anaesthesia is induced by the open-drop method; the mouth is then opened, and the pharynx and pharyngeal aspect of the epiglottis and larynx are brushed over with a solution of cocaine, and the closely fitting nasal tubes are pushed down the nares till the lower ends are opposite the epiglottis. The pharynx is then packed with gauze. Ether anaesthesia is now maintained by the drop method on the flannel covering the glass funnel.

Pressor Bases in Normal Urine and Their Diminished Excretion in Gouty Urine; the Excretion of Chlorides in Gout.—William Bain offers the following summary: (1) Normal urine contains two bases which produce a rise of blood pressure. (2) The first of these was originally discovered by Abelous and termed by him "urohypertensine." It can be obtained as an oxalate from an ethereal extract of the urine. It is volatile with steam and is probably identical with isoamylamine, a base which is formed from leucine. (3) The second base remains behind after extraction of the first base with ether, and it can then be obtained by extracting with amylic alcohol, the urine made alkaline with sodium carbonate. Its reactions indicate that it is identical with, or allied to, *p*-hydroxyphenylethylamine, a base which is formed from tyrosine. (4) Both bases are obtained during the putrefaction of proteins. The existence of pressor basic material during the putrefaction of flesh was discovered by Abelous. The identification of the bases is the result of Rosenheim's work on putrefying placenta and of Barger and Walpole's on putrid meat. (5) Their presence in the urine is explicable on the hypothesis that they are formed by putrefactive processes in the alimentary tract; they are then absorbed and excreted in the urine. (6) In the gouty urines so far examined by the methods of Abelous and steam distillation the first base is entirely absent. By the "direct method," however, a pressor base was present, but the rise in blood pressure caused by it was much less than that produced by a similar extract from normal urine. The amount of the second base in gouty urine was smaller than in normal urine. The decrease in the elimination of these bases will possibly explain the rise in arterial blood pressure frequently observed in gouty patients. An investigation was undertaken to find out if defective elimination of the urinary chlorides was a feature of chronic gout, and also to ascertain the response of the kidney in gout to an increased amount of work. The results show that in gout the output of chlorides probably balances the intake, and that the kidneys in the two cases under consideration performed their work in a satisfactory manner; in fact, behaved as normal organs.

The Relative Toxicity of Chloroform and of Carbon Tetrachloride.—Augustus D. Waller says that chloroform is a reagent of great toxicity; according to his observations, 100 times that of ethyl alcohol. Carbon tetrachloride has a toxicity about double that of chloroform. Hair-wash, of which the principal ingredient is carbon tetrachloride, has a still greater toxicity. The carbon tetrachloride present in the wash is, in his opinion, sufficient to cause the death of a healthy person apart from any question of fatty heart or adenoids or status lymphaticus. The cloud of heavy vapor by which the head might be enveloped would necessarily be more or less abundantly inspired, and a very few inspirations of such a highly poisonous vapor would suffice to cause drowsiness or sleep, and might be expected sooner or later actually to cause death.

British Medical Journal, July 31 and August 7, 1909.

A Case of Pseudo-Diphtheria Due to the Pneumococcus.—P. Hamilton Robertson reports the case of a girl, eight years of age, who was admitted to the hospital certified as suffering from diphtheria. Her breathing was rapid and labored, she was distinctly cyanosed, and had a hoarse cough. Her temperature was 102°, and pulse 140. Both tonsils were thickly coated with a whitish membrane, and she coughed up some thick, whitish material. On inspiration there was considerable epigastric retraction, and on auscultation there was evidence of widespread bronchopneumonia in both lungs. In view of the obstruction to respiration, tracheotomy was performed. The membrane seemed softer than usual, so a smear was made which, on examination, showed a pure culture of what was morphologically the pneumococcus. The case was then diagnosed as one of bronchopneumonia, with tonsillitis and laryngitis due to the pneumococcus. The patient was desperately ill, but recovered. She was greatly relieved during the first two days by the administration of oxygen.

Inoculation for Chickenpox.—Donald Smallpeice reports that two of his children having had severe attacks of chickenpox, he decided to inoculate the third, a girl of eleven years, hoping that possibly the eruption might be modified, and the period of incubation possibly shortened. On the second day of the eruption he opened a vesicle on the back of the child, aged four, and inoculated the older child over the biceps of the left arm. Antiseptic precautions were taken, and the scratch disappeared on the third day. Eight days later the site of the inoculation became irritable; on the following day there was a slight raised papule, looking as though a small vesicle had been rubbed off. There was no fever nor constitutional disturbance. Later in the day she became violently sick and feverish. The following day her temperature was 100°, and there was a general acuminated papillary eruption, with a scarcely visible vesicle at the apex. The fever disappeared on the second day, the spots were fading, and the patient was quite well in five days' time. The interesting point is that the eruption was so modified as to show no likelihood of pitting, and the incubation period was apparently much shortened.

A Plea for a Rational Puerperium.—F. W. N. Haultain gives a fair trial to what he considered a rational management of a physiological process, and the mode of management adopted was as follows: The puerpera, if willing, was encouraged to sit up in bed to meals on the second day. As early as she felt inclined thereafter she was allowed to leave her bed and walk to the fireside, where she sat for an hour. On the following day this was repeated, morning and evening. The next day two hours, morning and evening, were spent out of bed, the patient sitting and walking a little if she so desired. The fifth day after rising was practically spent out of bed, with the exception of a few hours' rest in the afternoon, and on the tenth day the patient left the hospital. The number of patients who followed this line of treatment was 100, all of whom sat up in bed on the second day; 40 rose on the third day; 35 rose on the fourth day; 25 rose on the fifth day. Of the 100 cases, 47 were primiparæ and 53 multiparæ. The morbidity in these cases was represented by three cases. Two developed infective temperatures on the third day. In one there was considerable varicosity of the veins of the legs. All the patients examined six weeks and more after confinement showed involution to be thorough and the position of the uterus to be normal, with the exception of two, being those previously noted as having retroversion. It was most interesting to hear the uniformly eulogistic terms in which, without exception, the women described their so-called convalescence, while the favorable comparisons made by multiparæ with their former confinements was most convincing.

Two Cases of Head Nodding in Infants.—Two such cases are reported by Cameron Gibson. It was suggested that the disease might be of reflex origin, a result of dentition, but neither of these cases leans any support to that view, as their cessation was not marked by any eruption of teeth and the first case was evidently not yet entering on the period, while the second was almost at its close. Rickets has also been suggested as a causative factor, but it was certainly absent in these cases. Raudnitz and J. Thomson have contended that it is due to the dim light in which these babies are living and trying to use their eyes, and this theory fits these two cases well: the seasonal incidence, in the darkest months of the year; the environment, both these babies living during the day in dark ground-floor rooms, with one window facing east, but shut out from most of the sky by tall buildings within a few yards, and neither baby was in the open air. So far as could be found out, the two babies had never been in contact, but their homes were less than fifty yards apart.

Clonic Spasm of the Diaphragm Associated with a Cervical Rib.—G. Bertram Hunt reports the case of an anemic, undersized girl of sixteen years, markedly neurotic, who first presented herself on account of a hard lump in the left posterior triangle of the neck. There were neither pressure symptoms nor scolosis, so no operative treatment was recommended. Three weeks later she was suddenly seized with clonic spasm of the diaphragm, which persisted night and day and was practically uninfluenced by treatment. The diagnosis was a cervicle rib causing irritative pressure on the phrenic nerve. The rib was removed and the patient made a perfect recovery. The spasm of the diaphragm ceased as she passed under the influence of ether, and has never returned during the two years that have elapsed since the operation. There would appear to be two ways in which a cervical rib might cause diaphragmatic spasm: (1) By pressure on the vagus in the neck, causing a reflex contraction, much as derangement of the stomach may produce the ordinary hiccough by irritation of the terminations of the vagus in the gastric mucosa; or (2) by so exalting the normal impulse regularly passing down the phrenic nerve to produce the usual inspiratory contraction of the diaphragm by direct irritative pressure on that nerve trunk as to produce a violent spasmodic contraction of the muscle. The latter appears to him to be far the more probable explanation.

A Method of Temporarily Removing Color-Blindness.—G. Arbour Stephens contends that the cells of the retina move in one direction in response to a red stimulus, and in another in response to blue, while failure to move in any certain direction means failure to convey to the brain the result of a color stimulus. With regard to the sensation of white, he holds that color-blind persons respond to that sensation because the total or complete movement of the cells is produced by a process of contiguity, which overcomes a sluggishness of response to any individual color. Anything that would improve the movements of the cells ought to have the effect of stimulating the retinal cells to more ready response to color sensation, and as the calcium salts have that stimulating effect on the body cells, he comes to the conclusion that a big dose of calcium lactate ought to remove color-blindness, if only temporarily.

Berliner klinische Wochenschrift, July 19 and 26, 1909.

The Increased Blood Pressure in Nephritis.—Gotthelf Marcuse discusses the theories of the cause of the increased blood pressure occurring in chronic nephritis, and proposes a new theory. It has been shown that partial nephrectomy causes an increase in blood pressure, whereas unilateral or bilateral total nephrectomy does not. Furthermore, a partial clamping of the renal artery also causes an increase in pressure. The renal artery has a collateral branch which supplies the suprarenal gland. Any factor which causes an increased resistance to a flow of blood through the kidney, be it a clamping of the vessel, obliteration of a portion of the vessels by partial nephrectomy, or a chronic nephritis, causes for purely physical reasons a shunting of blood into the suprarenal branch, an increased flow of blood to the suprarenal gland, a hyperemia, and resultant hypertrophy, and hyperactivity of the gland. The result of this is an increased secretion of adrenalin into the blood, and increase of blood pressure.

A New Theory of the Cause and Treatment of Chronic Constipation.—Lipowski has noted for years that a normal person is able to retain his intestinal contents one, or even more, days longer than usual without causing marked change in its consistency, while if a person suffering from chronic constipation does so the stool very quickly becomes extremely dry and hard. This he considered must be due to an abnormal power of the colon to absorb water in these cases. He tested this by injecting 200 c.c. of physiological saline into the rectum of healthy and constipated persons, syphoning it off in fifteen minutes, and measuring

the amount returned. He found that whereas from a normal rectum 30 to 90 c.c. would be absorbed in that time, from the rectum of a constipated individual as much as 150 to 180 c.c. would be taken up. From these observations he evolved an "absorption coefficient" for his patients consisting of the fraction found by the amount of fluid absorbed divided by the amount injected. Considering chronic constipation to be due to a high absorptive power of the colon, he endeavored to find some method of reducing this. Oil injections seemed hopeful, as they would prevent water absorption by covering the intestinal wall with oil. The difficulty with this lay in the fact that while a few injections of oil are well borne, after a time the patients are unable to take it, due to the decomposition of the oil in the intestines, and the resultant irritation. In the effort to find a substitute for oil which had not this objection, the author hit upon paraffin. By mixing one part of paraffin of a melting point of 78° C. and eight parts of fluid paraffin he obtained a paraffin melting at 38° C. His procedure consists of the injection of 200 c.c of this, warmed to fluidity, through a soft rectal tube inserted 20 cm. into the rectum. The advantages of paraffin over oil are: (1) It is not necessary for the patient to remain recumbent for hours, as it is after an oil injection, as the paraffin immediately becomes of an ointment-like consistency, and remains in the bowel. (2) The paraffin does not irritate the bowel, and may be retained over night with almost no discomfort. (3) It is not decomposed, and so decomposition irritation does not occur. (4) It does not, like oil, produce flatus. (5) The action is prompter than oil. (6) Owing to its lack of irritating properties it can be used for a prolonged time. He has used paraffin in 53 cases, 46 times in the evening, and 7 times in the morning. Of the 46 cases, 44 had good spontaneous movements in the morning, and the other two following a water enema. In the seven cases treated in the morning results appeared in the afternoon.

Ulcerative Meningococcus Pharyngitis.—F. Reiche reports a case of acute pharyngitis with extensive exudation and ulceration occurring in a case of meningitis. From the exudate and the spinal fluid the meningococcus was grown, but the blood cultures were sterile. From the pharynx was also grown the streptococcus. The author suggests that possibly the meningococcus is able to produce pharyngitis only in the presence of streptococci.

The So-called Psychoreaction of Much.—Zaloziecki agrees with other observers that the Much-Holzmann reaction is not specific for dementia præcox and cyclic insanity. He finds, on the contrary, that it is dependent upon muscular activity. In men muscularly active it is present; in those quiet it is absent. In epileptics during and just following convulsions the reaction is positive; between attacks it is negative. In some it is negative in the morning, positive towards evening. He believes the reaction is due to sarcolactic acid in the blood, which in a strength of one-sixteen-hundredth normal will completely prevent the hemolysis and in one-sixty-four-hundredth normal will definitely delay it.

Münchener medizinische Wochenschrift, July 6, 20 and 27. 1909.

The Antitrypsin Content of the Blood in Gynecology.—Becker reviews the literature of the estimation of the antitryptic action of the blood and reports a series of observations on gynecological cases. In 1908 Brieger and Trebling showed that in cases of carcinoma the blood serum contained some substance which had the power of preventing the digestive action of trypsin on albumin. They showed further that, while the reaction occurred also in other illnesses in which there was much destruction of albumin, it was constantly present in carcinoma only. They used the method of Müller and Jochmann for estimation of leucocyte ferment, namely, the formation of depressions in Loeffler's blood serum plates on spots where the leucocytes had been placed. These authors had shown that while one part of normal serum mixed with four parts of a 1 per cent. trypsin solution would cause digestion of the Loeffler's blood serum plates that in using the serum of carcinomatous patients of 35 examined it required over ten parts of trypsin to one of serum in 23 cases and as low as six parts to one in only four cases. Also the antitryptic action was present in 14 cachectic but noncancerous cases. Von Bergmann and K. Meyer improved the technique by applying Fuld's method of estimation digestion, namely, the digestion of casein and using this instead of the gulley formation or Loeffler's plates. They found interference of trypsin digestion power in 90 per cent. of the cancer cases. This method was cheaper, quicker, and more accurate. It consisted in placing in each of a series of test tubes 2 c.c. of a 0.2 per cent. casein solution and 0.5 c.c. of a 2.0 per cent. serum solution, and 0.1 per cent. trypsin solution in increasing amounts from 0.1 c.c. up to 1.2 c.c. After one-half hour in the thermostat at 37° five drops of a 5 per cent. solution of acetic acid in alcohol and water was added to each tube. If a precipitate occurred, the digestion of the casein was incomplete; if the solution remained clear, it was complete. When normal serum was used all tests in which from 0.1 to 0.4 c.c. of trypsin solution was used were incomplete, and all of 0.5 c.c. and over complete. The minimal amount which would usually digest the definite amount of casein was therefore 0.5 c.c. of trypsin solution, and this amount was taken as a normal standard. If a larger amount of trypsin solution was required to digest the casein antitrypsin was considered to be present in proportion to the amount of solution required. This was essentially the method used by Becker in the present researches. In 20 cases of cancer he confirmed the Brieger-Trebing findings of an increase of antitrypsin, 0.7 c.c. of trypsin solution being the smallest amount which would digest the casein. In 14 cases it was greatly increased, 1.0 c.c. or over, and in one case 1.6 c.c. In a second series of 55 cases with various diseases, not carcinoma, 14 showed the increase of the antitryptic action to 1.0 c.c. or over. Three of these were markedly cachectic, four had extensive abscesses, and two cystitis. The third series comprised 30 pregnant women. In one-half of the cases the "index" of 0.7 or less was found, and in only one case did it reach 1.0. This patient was one of secondary anemia. The serum for the fourth series was taken at the end of labor, just after the delivery of the placenta. Of these 30 cases only four were as low as 0.7 c.c., five definitely increased, 0.8 c.c. and 0.9 c.c., and 21 markedly increased. The highest, 1.5 c.c., was in a case of eclampsia. The author summarizes his results as follows: In the blood of patients with carcinoma one finds fairly constantly a great increase of the antitryptic power. This is, however, not specific for cancer, as it occurs with other diseases (anemia, chronic septic processes, and cachexia) and immediately after childbirth. The increase of the antitryptic action may be used in diagnosis in conjunction with other clinical symptoms. It has no very great diagnostic significance, as the reaction is often positive by anatomically benign, clinically malignant tumors. With childbirth a marked increase of the antitryptic power occurs, whereas during pregnancy it is either normal or only slightly raised.

The Clinical Significance of Antitrypsin in the Blood.—L. Jacobs reports some observations on the antitryptic action of blood serum in a series of 100 cases. Fuld's method of estimation of the ferment action was used. (See above.) He designates the amount of trypsin required to digest the casein without the addition of serum, as $\frac{a}{a^1 V}$, and the amount of trypsin required when the serum was added as $a^1 V$ and calculated the antitryptic power of the serum i from the formula $i = (a^1 V - a)\frac{100}{a}$. He draws the following conclusions from his investigations: An increase of the antitryptic ferment of the blood serum occurs in a relatively large number of various diseases. It is apparently constant in marked cachexia, is especially frequent in all diseases associated with a change in the leucocytes, and finally in a number of cases in which one can determine none of these relationships. The nature of the reaction and the reason for its occurrence are too obscure and its positive appearance too common in different diseases for it to be used as an aid in diagnosis.

The Much-Holzmann Reaction.—In two papers on this subject one by Fraenkel, Kathe, and Bierotte, and the other by Beyer and Wittneben, the authors show that the Much-Holzmann, so-called psychoreaction is not specific for dementia præcox and manic depressive insanity, that it occurs in only about one-half of such cases, while it is present in a large proportion of cases which are not of these types. For example, in epilepsie in 60 per cent., and in idiocy in 74 per cent. of the cases examined.

Biocystography.—Lichtenberg, Dietlen, and Runge describe a method of taking x-ray photographs of the bladder during various stages of its contraction. By this they found that from all sides a simultaneous continuous motion occurs, which begins slowly, and increases in speed toward the end of micturition. As the longitudinal diam-

eter decreases more and quicker than the horizontal the powerful longitudinal muscles would appear to contract quicker and more strongly than the circular fibers.

The Physiology of the Milk Secretion.—Cramer says that the development of the mammæ is dependent upon the functioning of the ovaries. He reports two cases in point. The first was a case of sexual infantilism in a woman of 31 in which the breasts were entirely undeveloped. In the second case a girl of 21 years, with infantile genitalia and a history of complete amenorrhea, there was also apparent lack of mammary tissue. In this woman implantation of ovaries from another woman caused the appearance of regular menstruation and the definite development of the breasts. From this he concludes that the growth of the breasts at puberty is dependent upon some material produced in the functioning ovary. As the woman from whom the ovaries in the above transplantation were taken was pregnant at the time of the operation, and was able, after the birth of her child, to nurse it for many months, though both her ovaries had been removed, Cramer says that the puerperal enlargement of the breasts and the lacteal secretion is unrelated to the ovaries. He then considers the etiological factors of the puerperal milk secretion. He refers to cases in which, both at the time of intrauterine death and much later at the delivery of the dead fetus, milk secretion appeared, and to another in which, after an abortion at the eleventh week, the woman served for many months as a wet nurse. The discontinuance of metabolic interchange between mother and child may cause the lacteal stimulation. Starling caused breast hypertrophy in rabbits by repeated injections of emulsions of rabbit fetuses, while emulsions of ovaries, uterus, and placenta, were without effect. It is probable that the presence of a living fetus influences the growth of a gland capable of secretion, while the ending of the metabolism of pregnancy gives the stimulus for the milk secretion. The author then considers the effect of suckling. Pregnancy is not aboslutely necessary for milk secretion. Occasionally milk secretion appears in virgins at the menstrual period. Sellheim has shown that by the laying on of an infant during pregnancy the milk secretion can be produced, and Kehrer that repeated suckling of the male breast will cause it to swell and secrete a rich supply of milk. When a woman has been obliged to stop nursing for several weeks and the milk supply has dried up, the returning of the infant will often cause a renewed secretion. From these facts Cramer concludes that we must recognize a definite relation between the act of suckling and the functioning of the breast, and that the mammary gland at the end of puberty becomes definitely dissociated from the other genital organs, and that when suckling calls for it, it can take up its functions without the influence of any other stimulatus.

Deutsche medizinische Wochenschrift, July 22 and 29, 1909.

Sudden Death and Trendelenburg's Operation for Pulmonary Embolus.—Busch discusses the applicability of Trendelenburg's operation for removal of pulmonary embolus in cases of sudden death, and reports a series of such cases. Of 9,727 cases treated in the surgical side of his hospital, there were 878 deaths, 22 of which were sudden, or 2.3 per cent. In 12 of these death occurred instantaneously, so that operative interference was out of the question. In the other 10 cases the death occurred within between ten minutes and three hours. In four of these, at autopsy, there was no embolus found, and in five more it was of such a character as to make operation impossible. It is very difficult in cases of sudden death to make a diagnosis between pulmonary embolus and myocardial heart failure. It is also impossible to tell whether the embolus, if it is present, is in a situation where it can be removed or is near the periphery of the lung, and so inoperable. His conclusions are that in cases of pulmonary embolus morphine must be given first of all to control the stormy dypsnea, and then intravenous injections of digitalin. In the meantime everything must be prepared for operation, which shall be performed as soon as it is shown that other means produce no improvement. The general condition of the patient must be considered. In men with severe septicemia, marked arteriosclerosis, or extreme cachexia one would hardly attempt such a procedure.

Coxa Valga Rhachitica.—Stieda reports a case of this condition in a boy of eight, and refers extensively to the literature. He says that an important symptom is the difference in the length of the thighs without raising of the trochanters. The latter is further from the anterior superior spine on the side of the lengthening. On account of the dissimilarity in the length of the legs and the greater loss of function in the more effected side, the patient stands on the shorter leg with the longer one slightly bent at the knee. The gait is characteristic. The spastic condition seen in other coxa valga cases is wanting. The symptoms resemble congenital dislocation. There is insufficiency of the gluteus medius and minimus with definite Trendelenburg's phenomenon owing to the abnormal proximity of the points of insertion of the muscles. The therapeusis is medico-mechanical. Especial attention must be paid to strengthening the hip muscles by massage, passive resistance, and exercises in standing and hopping on one leg.

Treatment of Cardiospasm.—Makkas reports two cases of long-standing cardiospasm with marked dilatation of the esophagus. This diagnosis was confirmed by *x*-ray pictures by the use of bismuth. In treatment he used gradual dilatation of the cardiac orifice by means of Gottstein's dilator. This consists of a balloon in three layers, the inner and outer of rubber, and the middle of silk. The inner balloon is so reinforced with rubber that with slight dilation it is spindle formed, and on stronger dilation it becomes cylindrical. The balloon is passed into the cardiac opening and then, by means of a tube, attached to it, dilated with water. One case was treated for one month, the other for two months, with strikingly good results, so that the patients who had swallowed fluid only with great difficulty were able to take solid food with ease.

Treatment of Multiple Abscesses in Infants with Specific Vaccine.—Wechselmann and Michaelis treated a series of infants with furunculosis with staphylococcus vaccine and conclude that the treatement of multiple abscesses in infants with this is to a high degree specific. The estimation of the opsonic index is unnecessary. As a rule, a polyvalent staphylococcus vaccine appears to be satisfactory, and it is only in exceptional cases that the vaccine must be made from organisms from the patient.

Recurrens Paralysis in Beriberi.—Miura reports a case of a twenty-year-old man with beriberi, in whom, beside paralysis of the extremities, the facial nerve, and the internal organs, bilatteral recurrens paralysis occurred, and on microscopial examination changes were found in the N. vagus, the N. recurrens, and the laryngeal muscles.

French and Italian Journals.

Relations Between Purpura and Hematopoiesis.—G. Jone reports a case which shows the relation between progressive hemorrhage with spastic anemia, and intestinal disturbances in purpura. Most intestinal purpuras are of bacteriemic origin, and micotic embolism is demonstrable. Only degeneration of the arterioles was demonstrable in this case. The study of this case and of those reported in literature show that purpura hæmorrhagica should be considered as a derangement of two functions, the toxoinfective and the hematopoietic. These two factors may exist alone or be combined in etiological relation. Purpura acts differently according to which element predominates. In the ordinary form the infective manifestations are severe and accompanied by necrosis, but hemorrhage alone will not generally cause death. But when there is uncontrollable hemorrhage the hematopietic element is most important, and it should be sought in clinical and anatomical characteristics.—*La Riforma Medica,* June 21, 1909.

Treatment of Malignant Tumors by High-Frequency Currents.—J. A. Rivière believes that high-frequency currents applied with the Oudin apparatus or after the method of Keating-Hart should be used after every operation for malignant disease to cause the elimination of any remains of the growth. In deep growths the treatment is of no use until after operation, since it cannot reach the tumor on account of its depth. On superficial growths and especially on ulcerated surfaces it has a selective action on the malignant cells. It is of the utmost value in epitheliomas and slow-healing wounds. It causes the elimination of the malignant cells and a cicatrization that is prompt and permanent, and without deformity. The author has also used it in tuberculosis.—*Annales d'Electrobiologie et de Radiologie,* May, 1909.

Elongation of the Uterine Nerves in Woman.—Keiffer says that by movements of the uterus between the two hands we may stretch the various structures of which the uterus is composed, rendering them more supple. This is one of the most valuable methods of treatment of uterine difficulties. The entire uterus can be moved between the hands. The posterolateral borders of the organ in which are grouped in bundles the vessels, nerves, and muscles are acted upon and the nutrition is changed. The dominant characteristic of these tissues is plasticity. One of the frequent causes of pain in the genital organs is a lack of elasticity be it the result of congestion, of subinvolution after labor, or of sclerosis. The author explains carefully how the various movements intended to stretch the uterine tissue are made, giving direct to and fro movements of the uterus, and movements that cause it to twist on its access.—*La Gynecologie,* May, 1909.

Book Reviews.

TUBERCULOSIS. A Preventable and Curable Disease. Modern Methods for the Solution of the Tuberculosis Problem. By S. ADOLPHUS KNOPF, M. D., Professor of Phthisio-Therapy at the New York Post-Graduate Medical School and Hospital; Associate Director of the Clinic for Pulmonary Diseases of the Health Department of New York, etc. New York: Moffat, Yard & Co., 1909.

THIS book is intended primarily for the education of the laity, and as such is admirably adapted to its mission for more than one reason. It comes from one whose authority on the subject is so unquestioned that his unwavering optimism is like a call to victory for the race. Dr. Knopf is far from minimizing one iota of the dread details of this frightful scourge; he knows it from its insidious beginnings to its fatal end, but his whole book is written to show that it need have no beginning, or, if too late for that, that it may be balked of its end; in short, it is both "preventable and curable." In all medical works addressed to the laity it takes a steady hand and a clear head to steer accurately between the Scylla of Radicalism and the Charybdis of Conservatism, and this feat, it need not be said, Dr. Knopf is brilliantly equal to. His style is of the clearest; it would be as impossible for the plain man to misunderstand him as for the literary to fail to enjoy him. He frankly gives to the public all necessary data for both the recognition and cure of tuberculosis, and at the same time leaves no doubt as to the need of the physician at the helm. It is shown with the utmost clearness that tuberculosis is essentially a disease for self-help, but not for self-treatment, and that in all such matters as diet, exercise, and medication the sufferer needs the constant care and guidance of a physician whom he is willing to trust and obey. Dr. Knopf outlines with a vivid clarity all his own the duty of every member of the community in this crusade, and ends on a note of splendid optimism, that coming from such a source may well put heart and hope into the most fearful.

We have spoken of the work as addressed to the laity, and so it is, but it is full of sound teaching that will be of benefit to the medical man as well, not only in refreshing his memory and bringing him up to date as to the most approved methods of treatment, but also in aiding him in the tactful handling of each individual case. From the technical point of view, the chapters on the adaptation of the sanatorium treatment to the home, and the institution of open-air treatment in any climate, are especially to be commended. They offer, both in text and illustrations, one expedient after another for keeping the tuberculous patient out of doors day and night, many of them applicable to the poorest tenement dwellings and the most crowded neighborhoods. In short, it may be said that this little book, of less than 400 pages, embodies the work of the world as regards tuberculosis, and completely covers the ground of prevention, treatment, and cure, for both physicians and the laity.

THE PRACTICAL MEDICINE SERIES. Volume III. The Eye, Ear, Nose, and Throat. Edited by CASEY A. WOOD, C.M., M.D., D.C.L.; ALBERT H. ANDREWS, M.D., and GUSTAVUS P. HEAD, M.D. Chicago: The Year Book Publishers, 1909.

THIS book is a synopsis of the literature of the year 1908, dealing with diseases of the eye, ear, nose, and throat. Owing to the limited space, most of the subjects have received only brief mention. The authors have noted all the important advances made in their departments, and in no case has clearness been sacrificed to brevity. In every instance the original papers have been mentioned, so that by referring to them a more extensive study of any subject can be easily made. The book will be of help to the practitioner and student who wishes to keep informed of the advances made in the diagnosis and treatment of these specialties.

THE FAITH AND WORKS OF CHRISTIAN SCIENCE. By THE WRITER OF "CONFESSIO MEDICI." New York: The Macmillan Company, 1909.

READERS of "Confessio Medici" (and what physician has not read it?) will look forward with pleasure to reading this book; nor will they be disappointed. The author divides his work into nine chapters, as follows: Philosophy and Christian Science, The Christian Faith and Christian Science, Life and Christian Science, The Reality of Disease, The Reality of Pain, Testimonies of Healing, Opposing Testimonies, "Common Sense" and Christian Science, and Authority and Christian Science. An important part of the work is that containing two hundred consecutive "testimonies of healing" from the *Christian Science Sentinel*. Some of these show the diagnostic laxity of the Christian Scientist, some his lack of the sense of humor, many others are tragic, some are pathetic, and most make amusing reading. Samples of diagnostic acumen are "bowel trouble," "heart trouble," "nervous trouble," or some other "trouble," "dreaded fever," "organic difficulty," "minor ailments," etc. One man's wife was "sentenced to die by materia medica," but was healed by Christian Science. A man was healed of a most serious nervous disease; later, on a steamer, he was not seasick, but, he naïvely adds, he had never been seasick before. The author sums up this part by saying that Christian Science embellishes what she publishes, evades investigation, and that her claim to cure organic disease breaks down under the most elementary rules of criticism. Elsewhere we find reference to a case of pregnancy, where a Christian Scientist "conceived by thought, and no man entered into the case." But physicians and laymen should read this book and see for themselves how these self-styled scientists bully dying women and let babies die in pain; let paralytics tumble about and hurt themselves; let appendicitis go on to septic peritonitis, gastric ulcer to perforation of the stomach, nephritis to uremic convulsions, and strangulated hernia to gangrene; watch, day by day, while a man or woman slowly bleeds to death, and withhold from all cases of cancer all hope of cure. "To these works of the devil they bring their one gift, wilful and complete ignorance, and their 'nursing' would be a farce if it were not a tragedy."

SELF-CONTROL AND HOW TO SECURE IT. (L'Education de Soi-Même.) By Dr. PAUL DUBOIS, Professor of Neuropathology in the University of Berne, Author of "The Psychic Treatment of Nervous Disorders," "The Influence of the Mind on the Body," etc. Authorized Translation by HARRY HUTCHESON BOYD. New York and London: Funk & Wagnalls Company, 1909.

IN view of the fact that there is a widespread interest among the general public in the study and dilettante discussion of functional nervous disorders, we are glad to welcome a popular yet strictly scientific book, by a medical authority, dealing with the prevention of such disorders on the basis of mental control. Professor Dubois's first book, "The Psychic Treatment of Nervous Disorders," was well received and widely read in the United States, and continues to be an authority on the subject. The present volume comprises a series of brief essays, all bearing on what self-control may accomplish and how it may be secured. Among the topics thus discussed may be mentioned: The conquest of happiness; thought; conscience; education; egoism and altruism; indulgence; moderation; patience; courage; chastity; kindness; idealism. The style of the book is charmingly direct and philosophical. Numerous anecdotal illustrations and interesting cases are cited, and it is readily understood how the lack of self-control may be a very great factor in the production of nervous disorders. The author agrees with Dumas *fils*, who said: "How does it happen that while children are so intelligent, men are so stupid?" and answered his own witty question by adding: "Education must be responsible for it." The text of the author is obtainable from a quotation: "Now, judgment is just what we need in life—a clear view of things, enabling us to foresee the immediate and the future consequences of our acts." We commend the book to physicians and to the intelligent lay reader, to both of whom it will be helpful and suggestive in the prevention of what "need not have been and should no longer be possible."

GRUNDRISS DER KLINISCHEN DIAGNOSTIK. Von Dr. med. GEORG KLEMPERER, Universitätsprofessor in Berlin, Dirigierender Arzt am städt. Krankenhaus Moabit. Fünfzehnte, neubearbeitete Auflage. Mit 2 Tafeln und 53 Textfiguren. Berlin: Verlag von August Hirschwald, 1909.

THE popularity of this handy volume on clinical diagnosis is shown by the fact that fifteen editions of it have been called for since its first appearance. It contains brief but ample directions for complete examination of the patient, including rules for getting the history of his disease, for judging the physical evidences obtainable at the bedside, and, finally, for the laboratory study of the various secretions and excretions. Numerous illustrations are used by the author to elucidate the text, especially in the sections upon laboratory diagnosis. We miss, however, pictures of malarial parasites that certainly deserve to be represented more than various microorganisms, such as staphylococci, sarcinæ, etc., to which a colored plate is devoted. The book is, on the whole, most successful in fulfilling its purpose of giving the student a practical and brief guide of clinical diagnosis. It has been translated into English, Italian, Russian, and other languages, and can therefore be used as a textbook by students speaking any of these.

Society Reports.

AMERICAN ACADEMY OF MEDICINE.

Thirty-fourth Annual Meeting, Held at Atlantic City, June 5 and 7, 1909.

THE PRESIDENT, DR. HELEN C. PUTNAM OF PROVIDENCE, R. I., IN THE CHAIR.

The Value of the Nurse in the Public School.—Dr. THOMAS A. WOODRUFF of Chicago read this paper, saying that, while primarily the work of the school nurse was for the promotion of cleanliness and the prevention of disease, her services were valuable in a field of very wide scope. The results of her work showed a decrease in the spread of contagion, instruction of the parents and children in cleanliness and personal hygiene, instruction of the mother in the care of her children, and in the benefits to be derived from cleanliness, fresh air, and right living, assistance to the medical inspector in reporting conditions found in the homes. Cases of privation and disease in the home were often discovered which, uncorrected, would render useless the work of the medical inspector in the school.

The Rational System of Medical Education Will Furnish Physicians Adequate for the Entire Field of Medical Practice.—Dr. LEARTUS CONNOR of Detroit, Mich., said there was need for a system of education to train two classes of doctors, viz., the family physician and the unlimited practitioner. The only rational standard for judging a system of medical education was its fitness to supply those products that best met the needs of the entire medical field. It was suggested that the organized profession determine exactly what the family physician could be trained to do, and how much, in each simple disease and the beginnings of the complex, without interfering with like training in any other disease. A rational system called for teachers trained in the profession of teaching as well as in that of medicine, and institutions saturated with the pedagogic spirit, method, and practice. It was the clear obligation of the organized profession to promote the evolution of such rational system of medical education.

Classification of Exceptional Children as a Guide in Determining Segregation.—Dr. MAXIMILIAN P. E. GROSZMANN of Plainfield presented this paper, suggesting a tentative classification of exceptional children, a brief outline of which was: (a) Normal children: (1) Typical children; (2) pseudo-atypical; (3) atypical. (b) Subnormal children: (1) Defective children; (2) children of arrested development; (3) children of rudimentary or atavistic development. (c) Abnormal children. No classification, however, could differentiate all individuals. He thought it extremely difficult to determine a normal standard so as to preclude ambiguity. Deviations from the normal standard did not invariably imply a corresponding decrease of usefulness for human progress. In the classification the children termed "pseudo atypical" need little or no segregation, these being helped by special or ungraded classes. From the special class the pseudo-atypical might be speedily returned to the ordinary classes. Too often, he thought, a purely medical cure was considered. For example, in a case of removal of adenoids, the child might require very expert educational treatment for a considerable length of time after the medical cure. In the atypical group neurotic and neurasthenic children were said to require temporary segregation, or at least education in special schools, where their entire life could be remodelled. In the subnormal group those merely incomplete or defective were regarded as most encouraging. Children whose development was permanently checked before maturity were not considered in the symposium. It was suggested that redemption through prevention might come in the next generation, the same being true of children of rudimentary or atavistic development.

The Necessity of Expert Medical Inspection of Public Schools.—Dr. ALBERT RUFUS BAKER of Cleveland said his paper was an attempt to define exceptional children not needing segregation. The school teacher's opinion of what constituted an exceptional child he regarded as often erroneous. Frequently would the teacher credit the myopic child with more gray matter than obtained, while the bright child suffered from hyperopia, astigmatism, or adenoids, might be regarded as a dunce. Often the school teacher who assigned impossible tasks, rather than the pupil, needed medical supervision. The medical inspector should be especially trained and should devote his entire time to the work, and he should not be a recent graduate and given a few hundred dollars a year for making perfunctory visits to the schools. In Cleveland a salary of $600 annually was paid the school physician, thus attracting a better class of men. The employment of expert examiners who should devote their entire time and energy to the work offered the only solution to the author.

The Leakage in Our Educational System.—Miss MARGARET BANCROFT, President of the Training School at Haddonfield, contributed this paper, which was read by Mr. Farrington of Haddonfield. The familiar phenomenon of some children failing to advance normally was referred to. The final result was a leakage of educatable material into the streets, the jails, and the custodial schools. A close study would show that practically every case of slow advancement was due to physical disability. The work of saving these children the handicap of imperfect education or the calamity of custodial life was primarily the duty of parents and teachers. An understanding of elementary physiology, psychology, hygiene, etc., should be required of every person who assumed the responsibility of parenthood or undertook to rear and educate children. Ignorance of the elementary facts of life, growth, and education on the part of parents or teachers might result in grave injury to the children. The medical profession must bear the responsibility of a large part of this ignorance which exists. We were in the habit of speaking of the mentally defective children as if the real mind of the child were at fault. The defect would be found in the injured cortex, the undeveloped association fibers, the broken axis-cylinders, the blighted sensory organs, or the weak metabolic processes, and not in the higher faculties which composed the personality. We needed organized and systematic instruction of parents by physicians. We needed really practical courses in physiology, psychology, hygiene, etc., conducted by able physicians, in the curricula of our normal schools. We needed experimental laboratories in connection with our public school systems, in charge of fully trained persons, competent to examine children who deviated from the normal work or progress of the regular grades, and to plan and execute efficient special methods of training to correct this deviation. We needed better taught and wider read physicians. Above all, we needed a more optimistic spirit in handling the exceptional children that difficult cases might not be pronounced hopeless and packed off to custodial schools, which was little short of criminal. The people needed to be taught the truth about these things, and the opportunity to give such instruction was in the hands of the medical profession. When adequate knowledge had been imparted, the work of stopping the leakage in our educational system would be an easy task, for enlightened public opinion was all-powerful.

Care of Exceptional Children by the Children's Bureau of Philadelphia.—Dr. WALTER S. CORNELL and Mr. J. PRENTICE MURPHY contributed this paper, which was read by Mr. Murphy. It was a study of seventy cases out of 6,824 children considered by the Bureau for care during 1908. Two important underlying principles were said to be: The superiority of the private home over the institution as an environmental influence, and the basic normality rather

than abnormality of the exceptional child. The second principle was proven first from the standpoint of the physician, as those children showed no particular stigmata other than those due simply to neglect, such as squint from hyperopia, high palates from adenoids, flat chests from nasal obstruction, or poor nutrition. Active types of exceptional children, those with excess of physical energy, but no training, were said to require rather long training, which training was best given in an institution. Backward children (defective intellect plus temperamental eccentricities) were said to need bracing in institutions as a rule, but could be provided for at times in family homes direct. For morally difficult children little scientific work was being done. There was at the present time no good institution for this class of children. Those cases standing in immediate need of strict discipline were said to be best treated in private homes, but that this was attended with so much cost as to be unwise. Difficult girls presented a more serious problem than boys, and were better cared for in institutions, in most cases. Causes of exceptional children in the family were given as irregular occupations, lack of training, and ignorance, drunkenness outside the family, bad housing, inadequate and poorly adjusted school facilities, and lack of playgrounds. Of the 70 children forming the basis of the paper 49 had improved, 12 being returned to their own homes. Of the 21 not improved, 12 were sent to disciplinary institutions for further treatment and 9 are still in their own homes.

What Is Being Done for Backward and Mentally Deficient Children in the Public Schools of Philadelphia.—Miss Lydia A. Kirby, Director of Schools for Truants, Incorrigible, and Mentally Defective Children, stated that a systematic attempt to help backward and mentally deficient children was the result of efforts of Miss Margaret Bancroft of the Training School of Haddonfield, N. J., member of the Civic Club of Philadelphia, and Miss Dora Keen of the Public Education Association. In 1901 the Board of Education took hold of the movement. At present they had twenty-one classes. The sessions lasted from 9 until 2 P.M. Nature study was given prominence. Each school was provided with a shop containing twelve work benches, with tools, and some pupils who could not remember their spelling did good work with their tools. Other pupils had raffia, cardboard, chair caning, basket making, and hammock making. The training of the muscles at the dictation of the mind was one of the most valuable ways of helping these children. Sense-training exercises were used for those who were most defective, and special exercises were employed to correct defective speech. Music was a daily exercise, and physical training was given in the school yard. The school physician visited the class daily. The chief value of the teachers lay in their character and disposition. They must possess unlimited sympathy and patience. A record of the work showed conclusively that apparently hopeless cases of physical inability, moral and mental deficiency, might be partly or wholly overcome, under adverse school conditions, with the aid of devoted teachers. The study of defective children should form a part of the work of every normal school.

What May Be Done for Exceptional Children by the Training of Speech and the Development of Language.—Dr. G. Hudson Makuen said that speech bore somewhat the same relation to the mind that the hammer and saw did to the carpenter. It was the mind's most effective and most important tool, being not only the vehicle in which the products of the mind were transfered and delivered, but it was essential also to the creation of these products, to their crystallization, collection, and classification. If one trained and perfected a person's speech one would greatly improve his mentality. Defective speech was both a physical and mental sign of feeble-mindedness, but it was by no means a pathognomonic sign, and it might be a cause and not a result of the feeble-mindedness. Of 5,000 examinations of exceptional persons, observation and treatment ranged from several weeks to as many years. The examinations included individuals and ancestral histories, and mental and physical investigations. In a series of five cases reported the children were all suffering from arrested speech development, with a resulting corresponding arrest of mental development or an abnormal mental development. In the first four the patients were under treatment for more than a year, and the results had been most satisfactory. Only one of the children had made any attempt to talk, and his speech was a mere jargon. They were now all talking freely and quite intelligibly, and had, moreover, freed themselves entirely from the charge of feeble-mindedness. In the fifth case there had developed some evidence of faulty cerebration. Aside from the direct mechanical means that were employed for the restoration of hearing, treatment consisted entirely in the training of the faculties of speech. Four other cases reported illustrated what might be done for children who were exceptional on account of certain psychophysical peculiarities, one of the chief symptoms of which was defective speech, and they also illustrated the fact that speech training was probably the most direct and effective method of developing the human mind.

The President's Address.—Dr. Helen C. Putnam of Providence, R. I., delivered this address, taking as her subject: "American Characteristics and Professional Responsibility." The variations between American traits noted by Tocqueville and other critics of the 40's, and by those at the end of the century, showed many to be transitory, others more permanent or increasing. These last needed the patriot's study. The census and other statistical reports showed that we had grown from an infant among nations to a leader or rival in value of exports, suicides and insanity, inventions, murders without convictions, multimillionaires, fatalities, and other accidents of transportation and industries, national wealth, infant mortality, developed natural resources, wastefulness of timbers, waters, mines, and animal life, vastness of business combinations, increase of vice, social diseases, divorce, school population and educational institutions, vagaries in religion, psychology, economics and medicine, manufactures, wage-earning children, tramps, unemployed and unemployable, numbers and excellence of sociologic movements for social betterment. Our mistakes were chiefly due to ignorance of and indifference to life, including as a result greed and indifference to law. The medical profession was logically responsible for removing this fundamental obstacle to worthier ambitions —ignorance of biological facts, phenomena, and laws— ignorance more profound since we were so rapidly to become a nation of city dwellers. What a few public school instructors were beginning to do wisely the profession should give its utmost support to forwarding. The advance of physicians themselves depended at this stage very much more on a better preparatory foundation than it did on any alterations in medical courses, much as the latter were needed.

Division of the Fee and Commission to Physicians.—Dr. Augustus A. Eshner of Philadelphia observed that the physician's fee varied with the requirements of the individual case and with the skill and experience of the practitioner; that the service should be adequately compensated, and equally so if a second physician were summoned. He believed there could be no honorable division of the physician's fee. To make such a division, or for a medical man to pay or receive compensations, would be comprising and demoralizing both to donor and recipient and at the same time disadvantageous to the patient. Nor should commissions be accepted by physicians for articles purchased by patients from druggists, instrument makers, and other tradesmen.

Payment of Commissions by Specialists to General Practitioner.—Dr. E. Gard Edwards of La Junta, Col., contributed this paper, which was read by Dr. Henry B. Hemenway. It was claimed that from the practice of many leading surgeons the custom of fee splitting had spread to almost every specialty, even in minor referred cases, until apparently it was a general practice, even among men of high reputation, especially surgeons, and said to be more common in the West than in the East. The existence of the custom, he said, was rarely mentioned in medical literature, almost never in medical societies, and discussed among the profession with bated breath. To the "horde of embryo specialists abroad in the land, increasing the already sharp competition," he partly attributed the condition. He declared fee splitting to be justifiable when a general practitioner had charge of the case before and after operation, and then only when the patient, physician, and consultant have a full understanding as to the gross amount of the fee to be paid from beginning to end. No amount of regulating by societies, he felt, would control the evil.

A Celebrated Malpractice Suit, 1821-1826.—Dr. James A. Spalding of Portland, Me., related the lawsuit of Lowell of Lubec, Me., *vs.* Drs. Faxon and Hawkes of Lubec and Eastport, Me., saying that it had probably given rise to more discussion and literature than any other ever before the public and the medical profession of New England. Lowell had been thrown from horseback and injured by the horse falling back upon him in 1821, suffered from an alleged hip-joint dislocation, was maltreated and neglected, as he claimed, by the above physicians; consulted Dr. John Collins Warren of Boston, was operated upon by him and the staff of the Massachusetts General Hospital, and obtained from those physicians, under legal threats, affidavits inculpating the Maine physicians. After three extended trials the case was thrown out of court and for four years afterward publications concerning both sides were widely distributed. The case was unique in that long afterward a post-mortem was made, something so far undiscovered in other malpractice suits. It was also interesting that no one of the many physicians involved had made an absolutely correct diagnosis. The writer had discovered the hip-joint involved, and half-tones were shown in conjunction with the paper.

Congregational Practice.—Dr. A. L. Benedict of Buffalo thought the trouble with contract practice to be, in the ordinary sense, largely due to the fact that the premium is not calculated at an adequate rate to provide satisfactory attendance for an average incidence of cases. He felt that, from the standpoint of the laity, the service was unsatisfactory because, with few exceptions, the man who accepted contract practice at a loss would not discharge his obligations in good faith. In addition, acceptance usually implied incompetence or the disposition to self-advertisement. From the standpoint of the medical practitioner the contract physician was regarded in precisely the same light as any other worker who lowered the wage scale. While certain fallacies were obvious in the Chinese method of paying the physician to keep his patients well, the fact was recognized that the value of the physician as an educator and conserver of health would be much greater than according to the Occidental method of summoning him only in sickness.

Contract Practice.—Dr. Charles S. Sheldon of Madison classified contract practice under two general headings: (1) Contracts stipulating a certain sum per year for an indefinite amount of work; (2) contracts stipulating a specified fair remuneration for a specified amount or kind of work. In either class, if the compensation were commensurate with good service, comparing favorably with that paid in private practice, the most serious objection would be removed. The tendency of the whole system, however, was to obtain medical service at the lowest rates regardless of all else. In condemning the practice certain exceptions were suggested as with large corporations in remote and isolated mining or lumber camps. Under proper contracts there might also be excepted railroad, city, or county work, also work for hospitals and institutions and on vessels at sea. These, however, do not constitute exceptions if the contract were awarded to the lowest bidder, with little account given to skill and efficiency. The author thought that the evil could be best controlled by the expression within the profession of a public statement which shall be effective because founded on good sense and justice.

Contract Practice; Its Ethical Bearings and Relations to the Lodge and Industrial Insurance.—Dr. H. T. Partree of Eatontown, N. J., said that the only form of expressed contract to which a physician should become a party was that in which substantially his whole time was taken up in a special work concededly for the public interest, or at least one which imposed no conditions out of harmony with the general aims and high calling of his profession. The bane of contract practice was the desire to get the best of a bargain. There were many phases to the lodge problem in its relation to the physician. Merit and the public weal certainly were not given prior consideration in connection with this contract feature of the lodge. Regarding the relation of the physician to industrial insurance, he contended it was not to the dignity of the profession that its members should be expected to hustle around from pillar to post for 25 and 50 cent fees to see applicants in their own homes because they could not be counted on to walk ten rods to get the insurance. Besides, it was usually necessary to see these cases on Sunday—a most objectionable feature. His remedy was that all applicants should go to the office of the examiner or local superintendent. Once the public learned that insurance would not be so expensive if they did a little seeking, instead of letting the agent do it all, it would not take them long to find the examiner's office.

Contract Practice in Rhode Island.—Dr. George S. Mathews of Providence said that for convenience lodge practice might be classified according to (1) private clubs, (2) lodges and fraternal organizations, (3) works, or shop organizations. In discussing the subject of lodge or contract practice with a large number of medical men who engaged in it, he had found that there were but few ardent advocates of the system. In canvassing the members of the Rhode Island Medical Society it was found that nearly every one was opposed to the system. While the strongest advocate admitted that there were some evils connected with the system, the severest critic would concede that under certain conditions there might be some good in the method. The remedy the writer would suggest was that proposed tentatively by a committee of the British Medical Association several years ago: "(1) Let there be lodges or fraternal insurance companies, but have the doctor paid a fee, even in bulk, more in proportion with the work done; (2) let the membership in these organizations be limited to those whose wage is incommensurate with the needs of the family; (3) have the medical management of the lodges in the hands of the local medical society or a committee of the society; (4) have those physicians who are willing to do this work form a directory from which the individual lodge member may make his selection of his physician."

The Physician in Contract Practice with the Mutual Benevolent Societies.—Dr. A. Ravogli of Cincinnati said that contract practice for the physician offered different aspects and was not to be summarily discarded. The mutual benevolent societies usually employed young physicians, but well trained and of reputed skill. It was in their interest to have their members well attended and soon recovered, that the sick benefits might cease. If the contract called for merely a nominal remuneration, with heavy duties, this was debasing of the profession. If the condi-

tions were such as to leave freedom to the physician to treat only the members of the benevolent society, and exact payment for the other members of the family, the contract practice could not be considered injurious to the profession. If another physician entered the society, offering to do the same work for less remuneration in order to chase out the first physician, then the fault lay with the member of the profession and not with the benevolent society.

A Defense of Contract Practice.—Mr. JOHN C. MCMANEMIN of the Fraternal Order of Eagles said that, although the "contract physician" was ostracised by medical societies, the members of these same societies ofttimes entered the field of "contract practice" as assistants to other physicians as family physicians receiving a stated annual compensation, as examining physicians for insurance companies, and various like forms. Commercialism seemed to be the basic principle of opposition to "contract practice." The deprivation of fees was hidden under the shallow mask of lowering of professional ethics and cheapening of medical knowledge. The "contract physician" had a fixed income, obtained a large and varied experience from the heterogeneous practice, and enjoyed confidential relations with a large portion of the community in which he resided—a foundation upon which many a successful practice rested and to which many a physician of prominence to-day could attribute his success.

Why Not Make Contract Practice Universal?—Dr. WOODS HUTCHINSON of New York City declared the present system of medical attendance to be a makeshift and an anomaly. "Born in an emergency and tinkered up at odd times," it had never been properly planned out or thought through. It combined the maximum of expense to the patient and of loss by all sorts of accident to the doctor, with the minimum of health production and of prevention. He asked, Why not take advantage of the law of averages, both of mortality and morbidity, arrange a definite scale of fees for yearly attendance per patient and per family, and devote the best of the energies of the physician to keeping the patients well, instead of patching them up after they had fallen sick? Said yearly fee, which could be carefully and accurately worked out by a conference of all parties concerned—laymen on the one side, and physicians, surgeons, and operatists on the other—and adjusted accurately and fairly to the locality, income, and social position of the patient, as well as to the age and length of practice and consequent experience of the medical adviser, should be made to include a thorough physical examination of every member of the family at least twice a year, whether they felt out of health or not, and sanitary inspection at regular intervals of the house, water supply, drainage, and sewage, and conditions of places of work or study of each individual.

Report of the Committee to Draft a Medical Practice Act.—Dr. CHARLES MCINTIRE of Easton, Pa., presented this report, the substance of which was that the essential ideas to be kept in mind in framing a medical practice act were: (1) That the law was for the protection of the people; (2) that it should provide but one executive body to supervise the law; (3) that it should present an accurate definition of the practice of medicine; (4) that it should specify the educational qualifications, both general and professional for the applicant; (5) that the board should have the power to test the applicant to see if he had made proper use of his educational advantages; (6) liberal provision should be made for the representatives of all shades of opinion on the board, not of right, but of policy; mixed boards did not weaken the efficiency of the board; (7) the law should supervise those who had been licensed, revoke the licenses of those who ceased to be safe practitioners, and should have the power to seek out and to punish those who attempted to practise without legal right; (8) it was desirable that a different test should be provided for those who had been in practice than for those just in practice; provision should be made whereby a license could issue after an examination of the record and previous licensure in another State to an applicant without a formal examination of the applicant himself; (9) the members of the board being employed by the State to exercise police duty should be sufficiently remunerated by the State independent of the license fees; these should be put into the State treasury as part of its income; (10) the principles upon which the restrictions of the act were based should be stated with care and exactness, but in such a manner as to give the board the greatest liberty in the execution of them that it might be able to adapt itself to contingencies arising under a rearrangement of conditions; (11) in view of the persistent claims of the osteopath, it may be well to have provisions for a limited license for those desiring to practice only in part.

Report of the Delegate to the Annual Meeting of the Association of American Medical Colleges.—Dr. CHARLES MCINTIRE read this report. Judging from the part of the meeting that he was able to attend, it must have been one of the most successful and profitable of the meetings held under the auspices of the association. The representatives of the various colleges seemed to be sincere and in earnest, and when they differed they differed frankly. With this spirit there was a field for increasing usefulness on the part of the association. It needed the support of some of the stronger institutions, many of which were formerly affiliated with it, although of more rigid requirements than those of the association. The requirements now were such that there should be the helping co-operation of all worthy medical schools. The speaker hoped the Academy would accept the invitation already extended to send a delegate to the next meeting, which was to be held in Baltimore in March, 1910.

Report of the Committee to Arrange a Conference with Educators.—The committee recommended: (1) That the attention of the medical profession be called to the desirability of permitting medical schools to receive properly qualified students into advanced standing for the studies included in the first two years of the medical course, and that they be urged to secure a modification of the law permitting medical colleges to certify to the student's completion of the studies of the first two years, independent of the length of time and residence in a medical college, and that this recommendation be sent especially to the State societies and the boards of medical examiners. (2) That the Council of Education of the American Medical Association be requested to formulate the preliminary and graduation requirements of the medical course in terms of work done after due consultation with educators and others interested, as suggested by the paper of Dr. Jackson. (3) That the Academy record as its opinion that there was great danger to the college of arts in our country from the prevailing idea that it was not a place for earnest effort on the part of the student. Unless there was a change in the purpose of those pursuing the college course there was danger of the impairment of the usefulness of the college for all but the idler. (4) That the Academy appoint a committee to formulate the requirements of admission, preserving the principles underlying the present wording, but adapting them to the educational procedure of the day.

Election of Officers.—*President*, Dr. James H. MacBride of Pasadena, Cal.; *Vice-Presidents*, Dr. Philip Zenner of Cincinnati, O.; Dr. W. Blair Stewart of Atlantic City, N. J.; Dr. Ruth Webster Lathrop of Philadelphia, Pa.; Dr. H. W. Loeb of St. Louis, Mo.; *Secretary and Treasurer*, Dr. Charles McIntire of Easton, Pa.; *Assistant Secretary*, Dr. Alex. R. Craig of Philadelphia.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting Held at Philadelphia, June 3, 4, and 5, 1909.

THE PRESIDENT, DR. C. B. G. DE NANCREDE OF ANN ARBOR, IN THE CHAIR.

(*Concluded from page 335.*)

Suprapubic Prostatectomy.—Dr. ARTHUR DEAN BEVAN of Chicago said splendid results had been obtained by performing both the suprapubic and perineal operations, and, considering the ages of the patients upon whom these operations had been done, the mortality was low. Suprapubic enucleation of the prostate had the widest field of usefulness. All things considered, the cure was more complete by the suprapubic than by the perineal route. The suprapubic was less dangerous and less formidable than extensive perineal dissection. There was no injury done to the musculature or perineum by the suprapubic route; there was very little danger of injuring the rectum, and little probability of stricture or fistula following.

Dr. A. J. OCHSNER of Chicago said that he who had done prostatectomy both perineally and suprapubically a number of times must be impressed with the great ease with which the prostate can be enucleated from above. He had removed a large number of prostates by the perineal route, and quite a number by the suprapubic, and had been impressed with the simplicity and ease with which the operation could be done suprapubically.

Dr. ALEXANDER HUGH FERGUSON of Chicago said his first twenty-five cases of prostatectomy were operated on by the suprapubic route. Of this number he lost eight. He disliked to return to that method, and now resorted to the perineal route. One could operate on almost any enlarged prostate successfully through the perineum. If accurate statistics were collected it would be found that the mortality was twice as high by the suprapubic as by the perineal route.

Dr. JOSEPH RANSOHOFF of Cincinnati said the mortality from the suprapubic operation could be greatly reduced if we made perineal drainage by means of a puncture from above.

Dr. MAURICE H. RICHARDSON of Boston had seen a good many surgeons operate for the removal of prostates, but never saw one who could see what he was doing to the urethra. Speaking as an anatomist, he had never been able to tell whether he was tearing the urethra to pieces or not when operating perineally or suprapubically. Other surgeons had told him the same thing. The mortality came from the advanced age of patients, and not from the operation *per se*.

Dr. S. STILLMAN of San Francisco had a decided preference for the suprapubic operation, where the urine was healthy and where it could not be rendered healthy the mortality from the suprapubic or perineal operation could be overcome by following a suggestion which had been made by Sir William Macewan.

Dr. A. PRIMROSE of Toronto said his experience had been confined principally to the suprapubic route. Infection of the pelvic cellular tissue was the cause of mortality in some cases in which the suprapubic route had been resorted to. It seemed feasible to remove the prostate by the transperitoneal route in some cases, and, if necessary, establish perineal drainage.

Dr. JOHN B. MURPHY of Chicago had operated on the prostate first by the perineal route, and then the suprapubic. Finally, from an experience of 123 cases he found he could take out the small, firm, hard prostate more easily and safely from below; while the large, thick, juicy prostate he could remove easier and with greater safety to the patient from above.

Dr. LEONARD FREEMAN of Denver suggested a method of controlling hemorrhage in cases of suprapubic operation.

Dr. MOORE, in closing on his part, said that he expected in five years from now to hear Dr. Bevan read a paper on the complications and sequels of suprapubic prostatectomy. Dr. Murphy stood on solid ground, in that he fitted the operation to the case in hand, and did not try to make every case fit one particular operation.

Dr. BEVAN, in closing, said the evidence was quite conclusive in favor of the suprapubic operation from the standpoint of completeness of the cure and the freedom from complications.

A Study of One Hundred and Thirty-One Consecutive Cases of Fibroid Tumors of the Uterus Demanding Operation.—Dr. ARCHIBALD MACLAREN of St. Paul, Minn., said that a fibroid tumor of the uterus should be operated upon when it commenced to increase in size or to cause symptoms. He agreed with Richardson that the same rule should be followed as in ovarian cysts or in appendicitis in the interval, but that a small subperitoneal tumor need not be removed if it was not increasing in size. It was not always possible to be sure that a certain tumor was uterine and not ovarian in origin; the usual error was to diagnose a small ovarian tumor as a fibroid, on account of its smooth, hard, solid feel. The subject of this paper was the last one hundred consecutive hysterectomies for fibroid disease and also the myomectomies, thirty-one in number, which had been performed during the same period of time. The question of first importance was the age of the patient. A young woman should always have myomectomy, if possible. After a myomectomy the tumor might reform, or other small growths, which were too deeply buried in the uterine wall, or too small to be palpated, might increase in size, cause a return of the symptoms and necessitate a second operation. This had only occurred three times in his total experience of over sixty myomectomies. Myomectomy had been done during pregnancy four times, with one miscarriage. He would not advise the removal of a uterine tumor producing no symptoms in a pregnant uterus. In regard to the mortality, there had been five deaths in the 131 cases, or 3.8 per cent.; 3 per cent. in the series of one hundred hysterectomies, and two deaths in the myomectomies, making 6 per cent. This looked like an unjustifiable mortality for myomectomy, but as both were accidental deaths in no way due to the myomectomy they ought not to be charged to this operation. The first was due to the giving way of the catgut pursestring suture about the stump of the appendix, which had just been removed. The second death was probably due to the leaking of a gall bladder which had been opened and drained through a stab wound, several gallstones having been found at the time of the operation for the removal of a fibroid tumor. One of the principal dangers of myomectomy, as well as hysterectomy, was post-operative hemorrhage. The gradual formation of a hematocele, which occasionally followed either operation, should be watched for carefully. He had been in the habit of putting in vaginal drainage at the time of the operation when there was any difficulty in preventing oozing. And twice after myomectomy he had made a vaginal section on the third day, opening up and draining such hematomata, with the most gratifying results. In his earlier work he lost two cases where the puddle of pus in the cul-de-sac was due to the infected, brokendown blood clot which had caused the fatal septic peritonitis, discovered at the autopsy. To the recognition and drainage of these accumulations of blood more than to any other one thing did he ascribe his improved results over a few years ago, when he used to find them at the post-mortem examination. The danger of a fibroid tumor producing a suppurative pelvic peritonitis was considerable. In the 100 hysterectomies three came to him with pelvic abscesses complicating the tumor, due either to a perforative appendicitis, to necrosis of the tumor, or to compression of diseased appendages.

In regard to the method of performing hysterectomy, supravaginal amputation had been the operation of choice, and only in malignant disease or a suspected malignancy had he reverted to complete removal of the uterus. This was for two reasons: (1) Because it was a less dangerous operation in his hands, and (2) because he had never seen a fibroid tumor grow in the stump of the cervix after a supravaginal amputation. Large-sized catgut for the vessels, No. 3 or 4, or No. 2 doubled, was the best ligature material. It was awkward for tying the uterine arteries deep in the pelvis, and much greater force had to be used than would be necessary on the surface, so the ligature must be larger and stronger. It was always wiser to cut the uterine arteries beside the cervix before picking them up, for they lay very close to the ureter. The only time that he had ever injured the ureter was in one of his earlier operations, when the uterine artery was ligated *en masse* before cutting the artery.

Dr. Maurice H. Richardson of Boston had had a large experience in operating for the removal of fibroid tumors of the uterus, and felt there was a greater danger attending myomectomy for the removal of multiple tumors than hysterectomy. If you were going to give a patient a most safe procedure in a case of multiple fibroids of the uterus, it was better to do supravaginal amputation. This opinion was based on personal experience after many years of operating on these growths.

Treatment of Tetanus.—Dr. Willard Hunter Hutchings of Detroit, Mich., directed attention to an experimental study of the various methods of treatment of recognized tetanus, and from the results obtained by these experiments he had become convinced that chloretone was the best agent or substance that had been employed thus far with which to control the muscular manifestations of the disease. He had treated six cases that were referred to him with chloretone, with five recoveries. A detailed account of each case was given in the paper. Chloretone had no effect on the toxin circulating in the blood, nor did it break up the combination between the nerve cells and toxin. Its use was harmless. There had been no fatality following its use. It lowered temperature, and had a slight diuretic action.

Dr. Theodore A. McGraw of Detroit said that in one of the cases related by Dr. Hutchings, in which tetanus developed, extreme care was used in thoroughly disinfecting the wound, and when the wound was opened as a matter of precaution against tetanus everything was found aseptic, yet tetanus developed.

Dr. Wm. H. Carmalt of New Haven asked the chemical composition of chloretone.

Dr. John B. Roberts of Philadelphia said that we had all realized for many years in our hospital experience that chloral would cure tetanus, but now, with the addition of antitetanic serum, we had a good combination. He would like to know whether chloretone had any relation to chloral, or whether it was similar in its composition.

Dr. Thomas W. Huntington of San Francisco had used chloral to the limit in three cases of tetanus, and all three patients died.

Dr. A. T. Bristow of Brooklyn emphasized the absolute necessity of putting patients with tetanus in a room by themselves, absolutely quiet and free from noise or irritation of any kind, and recommended the use of chloral and bromides in large doses.

Dr. De Forest Willard said that the only case of tetanus he remembered saving was one in which he kept the patient under chloral for twenty-eight days.

Dr. C. B. G. De Nancrede of Ann Arbor said they had a great deal of tetanus in their section of the country. He had saved the lives of a few patients who had tetanus with chloral. He had never seen any effect from antitoxin after the disease had started.

Dr. Nathan Jacobson of Syracuse, N. Y., said as to the possibility of controlling tetanus by amputation, a review of the literature taught that it had little or no effect. As to the manner of introduction of the antitoxin or serum, whether it was introduced intracerebrally, intraspinally, intraneurally, or intravenously, there was practically no difference in the results.

Dr. John E. Owens of Chicago said the use of antitetanic serum must be considered in the light of a prophylactic. During the constructive period of the World's Columbian Exposition they had several hundred cases of nail wounds of the hands and feet, and in not a single instance did tetanus develop. Their treatment consisted in opening the wounds freely, curetting them, more or less, then applying 95 per cent. carbolic acid, and covering the wound with ordinary surgical dressing.

Dr. J. Ewing Mears of Philadelphia said that in a hospital at Ceylon, at the time he visited there, tetanus of puerperal origin was treated successfully with injections of antitoxin.

Dr. Hutchings, in closing, said that regarding the composition of chloretone, when he began using it he did not know what it was, but was impressed with its beneficial action. He asked a chemist how chloretone was made, and he said: "If you will take equal parts of chloroform and equal parts of acetone, and put them in a test-tube, and boil for a minute or two, then add sodium hydroxide, which precipitates the chloretone—that, when purified, is chloretone." What the chemical composition of it was, he did not know. It was very important to isolate patients with tetanus. Mere amputation, without any other treatment, had no effect whatever on tetanus.

Dr. J. M. T. Finney of Baltimore presented a paper in which he spoke of transporting skin flaps from remote parts of the body from one individual to another. He believed that the application of this principle was feasible.

Surgery of the Large Intestine.—Dr. William J. Mayo of Rochester, Minn., in a paper on this subject, said that anatomically the large intestine was a connected whole, but embryologically and physiologically it could readily be divided at the splenic flexure into two well-defined parts. The proximal half was derived from the midgut and was an important part of the nutritive system, as it absorbed about half of the fluids and 10 per cent. of the solids. The descending colon and the sigmoid were derived from the hindgut, had an antiperistaltic motion, and acted as a fecal storehouse. In the large intestine lymph drainage followed the arterial supply, but the lymphatics were not numerous, and in the sigmoid were very sparse. Mobilization of the large intestine for operation was most important, and could be readily accomplished by cutting the outer peritoneal fold, which did not contain important structures, where it was reflected to the abdominal wall and lifted the gut from its bed. In this way the large intestine could be drawn outside the abdominal incision and the cut ends approximated easily after extensive resections. The inner leaf of the mesentery was very long, extending practically to the midline, and contained the arteries, nerves, and lymphatics. After mobilization the arteries should be tied and divided at their origin, and the entire mesentery with the fat and gland cleanly dissected from the deep structures. The right inferior angle of the duodenum must be identified and separated in operations about the ascending colon and hepatic flexure. The ureters were attached to the peritoneum after crossing the common iliac arteries, and must be isolated, especially on the left side, to prevent injury. If a neighboring organ, such as the small intestine, stomach, bladder, or uterus, was adherent, it should be coincidentally resected, providing the disease was still local. In cancer of any part of the cecum, ascending colon, or hepatic

flexure, all of the large intestine proximal to the disease should be removed with at least six inches of the ileum, and an ileocolostomy performed between the proximal ileum and transverse colon. In cancer of the transverse colon, splenic flexure, descending colon, and sigmoid, union must be made between the two segments of the large intestine, a procedure not so safe as a union between the ileum and colon. It could be made end to end if sufficiently covered by peritoneum, otherwise end to side, or lateral, where the peritoneum was sound. If obstruction was marked, the three stage operation of Mikulicz-Paul was advisable. In low sigmoid cancers the combined abdominal and perineal operation was best. In fleshy males the posterior, and in debilitated females the Quenu-Tuttle operations gave good results in low sigmoid tumors. He reviewed 100 resections, with 12 deaths; for cancer, 61 times, with 8 deaths. Twenty-four were carcinoma of the cecum and ascending colon, with 3 deaths; the transverse colon, including the hepatic and splenic flexures, was removed for carcinoma 7 times, with 1 death; the descending colon and sigmoid were excised for carcinoma 30 times, with 4 deaths. For benign disease, 39 times, including inflammatory disease, tuberculosis, diverticulitis, etc., with 4 deaths.

Resection of the Sciatic Nerve.—Dr. Kenneth A. J. MacKenzie of Portland, Ore., exhibited a patient with molloscum fibrosum, who developed, first, a tumor of the ulnar nerve, which was removed by another surgeon. Subsequently the patient developed a tumor of the sciatic nerve, which grew slowly at first, but more rapidly after traumatism. Severe pain was transmitted to the foot from the pressure caused by the tumor. Operation consisted in removing the sciatic nerve *in toto*, with good result. Patient walked well, considering that the nerve was entirely removed and the nerve supply cut off from the groups of muscles that were involved.

Operative Treatment of Fractures.—Dr. John B. Walker of New York reported six cases on which he operated for the relief of deformity following fractures, with good results.

Dr. William B. Coley of New York reported a case of strangulated retroperitoneal hernia of the intersigmoid fossa, and one very rare (probably unique) case of interparietal ventral hernia at McBurney's point.

Suggestions for the Operative Correction of Syphilitic and Other Deformities of the Nose.—Dr. John B. Roberts of Philadelphia called attention to the importance of the reconstructive surgery of the external nose. He stated that the cosmetic improvements possible were not fully appreciated by medical men or by the public at large. The inherent difficulty in these operations was in obtaining and maintaining sufficient projection of the reconstructed organ and in preventing cicatricial closure of the nostrils. The early recognition of syphilitic lesions of the nasal bones and cartilages and the prompt institution of efficient antisyphilitic treatment would prevent the occurrence of many conspicuous disfigurements. Blows upon the nose in childhood often caused dislocation of the nasal cartilages and bones. These lesions were untreated because of negligence in examination immediately after the injury. The frontal method was probably the best for total rhinoplasty. Brachial flaps might sometimes be used with advantage. Portions of cartilage or periosteum from other regions of the body might be used to give rigidity to the tissues transferred to the nasal region. Paraffin injections into the subcutaneous tissues were sometimes used as an adjunct. Loss of the cartilaginous extenral nose below the nasal bones was probably best repaired by Keegan's frontal method. Nelaton's frontal method, which consisted in incorporating a portion of costal cartilage in the frontal flap, was valuable when the bony nasal bridge was missing. The author's method of repairing the sunken nose of syphilis with flaps from the cheeks and mid-frontal region was described as a successful operation. Suggestions for repairing irregular deformities of various kinds were made in the paper.

A Method of Combining Exploration and Decompression for Cerebral Tumors Which Prove to Be Inoperable.—Dr. Harvey Cushing of Baltimore said that the usual osteoplastic method of exploration of the cerebral hemispheres for a tumor, which, after exposure, proved to be inoperable, was usually transformed into a palliative or decompressive measure by the removal of the osseous layer of the resected flap. This frequently led to undesirable consequences, owing to the unnecessarily extensive protrusion which might occur when the brain under tension was protected by scalp alone. In these cases the bone flap might be preserved and a sufficient hernia, under the protection of the temporal muscle, be provided for, through the removal, while the flap was temporarily resected, of the area of bone which underlay the temporal muscle. Thus the advantage of the usual subtemporal decompression could be combined with the more extensive cortical exploration permitted by a temporary osteoplastic resection.

Unusual Case of Gunshot Wound of the Brain.—Dr. Joseph Ransohoff of Cincinnati in this paper reported a case of gunshot wound of the brain from a 32 caliber rifle. The patient was shot in the right temple in May, 1899. The immediate left-sided hemiplegia which followed the injury disappeared within a year. Three years later general convulsions supervened, the attacks coming on every three or four months, without any focal point of origin being in evidence. The *x*-ray showed the bullet split into three parts, one evidently in the zygomatic fossa, one in the temporal fossa, and the largest fragment just within the skull, on a level with the cribriform plate, and probably in or near the cavernous sinus. Later, left-sided paralysis supervened gradually, but he did not see the case again while alive. Death ensued with coma in twelve hours after the onset of the acute symptoms, nearly ten years after the injury. The autopsy revealed an abscess in the right temporosphenoidal lobe, with a small piece of the bullet firmly encapsulated in the abscess wall. The largest fragment shown in the *x*-ray picture had become innocuous and was found to be embedded in the cavernous sinus.

The following papers were also read: **"The History and Microscopical Study of Fifty Consecutive Cases of Excision of the Thyroid,"** by Dr. Francis J. Shepherd and Dr. Charles E. Duval of Montreal, Canada; **"Sudden Death: A Study of Certain Cases Occurring During Physical Exertion or Psychic Shock,"** by Dr. John B. Blake of Boston; **"Observations on the Inequalities of the Right and Left Femora,"** by Dr. A. T. Bristow of Brooklyn, N. Y.: **"Vesico-Intestinal Fistulæ,"** by Dr. F. W. Parham of New Orleans.

Owing to lack of time, several other papers were read by title, although the authors were present. A rising vote of thanks, which was extended to the local members of the association for their hospitality, brought the proceedings to a close.

Officers.—The following officers were elected: *President,* Dr. Rudolph Matas of New Orleans, La.; *Vice-Presidents,* Drs. J. M. T. Finney of Baltimore and George H. Monks of Boston; *Secretary,* Dr. Robert G. LeConte of Philadelphia, reelected; *Recorder,* Dr. Richard H. Harte of Philadelphia, reelected; *Treasurer,* Dr. Chas. A. Powers of Denver, reelected; *Member of the Council,* Dr. C. B. G. DeNancrede of Ann Arbor, Mich. Washington, D. C., was chosen as the place of the next meeting, in conjunction with the Congress of American Physicians and Surgeons.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF HEALTH OF MISSISSIPPI.

May 12 and 13, 1909.

ANATOMY.

1. Through what arteries is the collateral circulation carried on after ligation of the femoral below Scarpa's triangle?
2. In amputation of the forearm three inches above the wrist, what arteries will it be necessary to tie, and of what are they branches?
3. Name the ganglia connected with the fifth pair of cranial nerves.
4. Name the muscles that move the humerus (*a*) forward, (*b*) backward, (*c*) inward.
5. Describe the diaphragm, its principal openings, and its nerve supply.
6. What bones make up the pelvis? Describe each.
7. Locate and describe the bladder.
8. Name the bones of the ankle joint and give their relations.

PHYSIOLOGY.

1. What are the causes of the apex beat of the heart?
2. Mention the muscles brought into play during the act of deglutition.
3. Describe the function of the ileocecal valve.
4. What effect have strong alcoholic stimulants on the gastric juice?
5. How are the vocal sounds produced?
6. How does the impairment of the function of the kidneys affect that of the skin and lungs?
7. What is the function of the glossopharyngeal nerve?
8. What are the uses of perspiration?

MATERIA MEDICA.

1. Give two derivatives of morphine used in medicine, with dose of each.
2. What are the sources of salicylic acid?
3. What is the source of carbo ligni, and what are its therapeutic uses?
4. Give the composition of (*a*) black wash, (*b*) Dover's powders.
5. Name six drugs containing large quantities of tannic acid.
6. Name and describe three antiseptics useful for internal administration.
7. Name three animal oils, three vegetable oils, and source of each.
8. Give dose and physiological action of tincture of the chloride of iron.

CHEMISTRY.

1. How many elements are there?
2. Describe two experiments showing difference between chemical and mechanical action.
3. Explain difference between metals and non-metals.
4. What are chlorides, bromides, and iodides? Give an example of each.
5. Name and describe an allotropic form of oxygen, and give the symbol.
6. Give the molecular weight, atomic and molecular volume, and density of oxygen.
7. What percentage of CO_2 exists normally in the atmosphere, and what percentage is dangerous to life?
8. What is chloroform chemically, and how is it made?

HYGIENE.

1. Mention six desirable factors in the location of a resort for consumptives.
2. What deleterious gases accumulate in an improperly ventilated sleeping room?
3. How do nitrites and nitrates get into water, and will their presence condemn it for drinking purposes?
4. What physical conditions would render the taking of a Turkish bath dangerous?
5. What gases are most efficient as disinfectants, and how would you prepare the room?
6. What abnormal condition of the eyes is most common in school children, and what habits tend to produce it?
7. What are toxins, antitoxins, and how are antitoxins obtained?
8. What is meant by natural, and acquired immunity? Give an example of each.

PATHOLOGY.

1. What histological changes occur in acute simple inflammation?
2. What are the joint changes in arthritis deformans?
3. How do typhoid and tuberculous ulcers of the intestines differ?
4. What conditions predispose to cerebral hemorrhage?
5. Name the diseases in which you would expect to find spleen enlargement.
6. Differentiate hematuria and hemoglobinuria, and give the cause of each.
7. Give the pathology of acute anterior poliomyelitis.
8. What inflammatory conditions result in enlargement of the lymphatic glands?

OBSTETRICS.

1. Describe the fully developed ovum.
2. What is the composition of the liquor amnii? Give its uses.
3. Describe the development of the placenta.
4. What changes occur in the uterus during pregnancy?
5. Give cause and treatment of vomiting of pregnancy.
6. When and how would you induce premature labor?
7. What complications of pregnancy justify an abdominal section?
8. Name the various conditions which retard or obstruct labor.

SURGERY.

1. Give indication for ligation of an artery in its continuity.
2. What symptoms follow division of the radial nerve?
3. Mention the possible obstacles to the reduction of a dislocation.
4. Give principles of treatment of compound dislocation.
5. Give cause and treatment of delayed union in fracture.
6. Classify wounds.
7. What are the symptoms of cholecystitis?
8. What is a tumor?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF HEALTH OF MISSISSIPPI.

May 12 and 13, 1909.

ANATOMY.

1. The collateral circulation after ligature of the femoral artery below Scarpa's triangle, in Hunter's canal: (1) The external circumflex; with the lower muscular branches of the femoral, anastomotica magna, superior articular of the popliteal, and anterior tibial recurrent. (2) The perforating and terminating branches of the profunda; with muscular branches of the femoral, and muscular and superior articular branches of the popliteal. (3) The comes nervi ischiadici; with the perforating branches of the profunda, and the articular branch of the popliteal.

2. In amputation of the forearm three inches above the wrist, the radial, ulnar, anterior interosseous, and posterior interosseous arteries should be tied. The radial and ulnar are branches of the brachial; the anterior and posterior interosseous are branches of the interosseous (which is a branch of the ulnar).

3. The *ganglia connected with the fifth pair of cranial nerves:* Gasserian, lenticular, Meckel's, submaxillary, and otic.

4. The humerus is moved (*a*) *forward* by Pectoralis major, anterior fibers of Deltoid, Coracobrachialis, and Biceps when forearm is flexed. (*b*) *Backward*, by Latissimus dorsi, Teres major, posterior fibers of the Deltoid, and Triceps when forearm is extended. (*c*) *Inward*, by Subscapularis, Latissimus dorsi, Teres major, and Pectoralis major.

5. The diaphragm is a musculofibrous septum which divides the thoracic from the abdominal cavity; it is fan-shaped; the broad, eliptical portion is horizontal, and the crura are vertical. It is attached to the ensiform, to the internal surfaces of the lower six costal cartilages, to bodies and intervertebral substances of first, second, and third lumbar vertebræ.

The *openings in the diaphragm* are: The aortic, the esophageal, for the inferior vena cava, right crural, and left crural.

The *nerves which supply the diaphragm* are: The phrenics, the lower intercostals, and the phrenic plexus of the sympathetic.

6. The pelvis is made up of: Sacrum, Coccyx, and two ossa innominata (each of which consists of Ilium, Ischium, and Pubis)

8. The bones forming the ankle joint are: Above the lower ends of the *tibia* and *fibula*, with the two malleoli

(the external from the fibula and the internal from the tibia); the above form a mortise to receive the upper convex surface of the *astragalus*.

PHYSIOLOGY.

1. The apex beat of the heart is caused by the sudden hardening of the left ventricle during its systole, and by the heart twisting slightly upon its axis, the apex being brought more forward at the same time.

2. The muscles brought into play during the act of deglutition are: The hyoglossi, styloglossi, palatoglossi, palatopharyngei, azygos uvulæ, tensores palati, levatores palati, stylopharyngei, stylohyoids, geniohyoids, mylohyoids, thyrohyoids, digastrics, constrictors of the pharynx, and the muscles of the tongue.

3. The function of the ileocecal valve is to prevent the contents of the large intestine from passing back again into the small intestine; it is also a barrier against the passage upward of the bacteria which are normally found in the large intestine.

4. Alcohol "promotes the absorption of accompanying substances (sugar, peptone, potassium iodide), and stimulates the flow of the gastric juice. In this matter it acts as do other condiments (salt, pepper, mustard, peppermint), but if there be too great an irritation of the mucous membrane there is less activity (dyspepsia). The rapid absorption gives to alcohol its quick recuperative effect after collapse, and its value in administering drugs, especially antidotes. Alcoholic beverages combining alcohol and flavor promote gastric digestion and absorption, but often stimulate the appetite in excess of normal requirements. Alcohol is burned in the body, but may also be found in the breath, perspiration, urine, and milk."—(*American Text-Book of Physiology.*)

Excessive use of alcohol causes an increase in the acidity, quantity, and total solids of the gastric juice; pepsin is precipitated, albumin is coagulated, and proteid digestion is retarded or inhibited; the movements of the alimentary canal are accelerated; vomiting and diarrhea may be produced.

5. The *vocal sounds are produced* by an expiratory blast of air being forced through the narrow chink between the true vocal cords. The current of air sets these vocal cords in vibration, and these vibrations are communicated to the air in the upper air passages. The pitch of the sound produced depends upon the rapidity with which the vocal cords vibrate.

6. Impairment of the function of the kidneys throws more work upon the skin, which it can only partially perform; some of the work must also be performed by the lungs. If severe or long continued, death ensues from autointoxication.

7. The *function of the glossopharyngeal nerve* is: (1) Taste, to posterior part of tongue and palate: (2) sensation to mucous membrane of pharynx, fauces, and tonsil; it is also claimed that it is (3) motor to the constrictors of the pharynx.

8. The *uses of perspiration* are: Excretion of water, carbon dioxide, and urea; cooling of surface of body, and regulator of heat of body.

MATERIA MEDICA.

1. *Two derivatives of morphine:* (1) Codeine, dose, gr. 1/2. (2) Apomorphine hydrochloride, dose, gr. 1/10 (emetic).

2. *Sources of salicylic acid:* (1) Oil of wintergreen; (2) salicin; (3) synthetically, from sodium phenate and carbon dioxide.

3. The *source* of CARBO LIGNI is soft wood, charred without access of air. Its *therapeutic uses* are: For flatulence, as a mild laxative, deodorant, and absorbent.

4. (*a*) *Black wash* is made of calomel 5j to one pint of lime water. (*b*) *Dover's powder* is a mixture of ten parts of powdered opium, ten parts of ipecac, and eighty parts of sugar of milk.

5. *Six drugs containing tannic acid in large quantities:* Gambir, krameria, hæmatoxylon, hamamelis, geranium, and chimaphila.

6. *Three antiseptics for internal administration:* (1) *Urotropin:* colorless, odorless, crystalline; soluble in about equal parts of water; it inhibits the growth of microorganisms by reason of the formaldehyde which it yields up in the body in the urine; part of it is excreted unchanged and part as formaldehyde. (2) *Salol:* a white crystalline powder, very soluble in hot alcohol, but almost insoluble in water; it is decomposed into carbolic acid and salicylic acid. (3) *Naphthalene:* characteristic odor, aromatic taste, colorless, insoluble in water.

7. *Three Animal oils:* (1) Cod liver oil, from the liver of the cod; (2) Lard oil, from lard (from internal fat of the hog); (3) Neat's-foot oil, from the feet of neat cattle.

Three Vegetable oils: (1) Castor oil, from Ricinus communis; (2) croton oil, from croton tiglium; (3) olive oil, from ripe fruit of olea europœa.

8. *Tincture of the chloride of iron: Dose,* eight minims. *Physiological action:* astringent, hemostatic, gastrointestinal irritant, hæmatinic, and tonic.

CHEMISTRY.

1. There are eighty elements.

2. "A bar of soft iron may be made to emit light when heated, or sound when caused to vibrate, or magnetism when under the influence of an electric current. Under the influence of these *physical forces* the iron suffers no change in composition, and, on cessation of the action of the inciting force, the iron returns to its original condition. But if the iron be heated in an atmosphere of oxygen, both the iron and a part of the oxygen disappear, and a new substance, a new chemical species, is produced, having properties of its own, different from those of either the iron or the oxygen. In this case there has been *chemical action*, causing change of composition, as the new substance contains both iron and oxygen. The result of such action is, moreover, permanent, and the new product continues to exist, until modified by some new manifestation of chemical action."—(Witthaus' *Manual of Chemistry.*)

3. The *metals* are all solid (except mercury), opaque, have metallic luster, are good conductors of heat and electricity, and will replace the hydrogen of acids to form salts.

Nonmetals do not have the above properties, some are gases, and their properties differ widely among the different elements.

4. Chlorides, bromides, and iodides are binary compounds of chlorine, bromine, and iodine, respectively. *Example:* Sodium chloride, NaCl; potassium bromide, KBr; potassium iodide, KI.

5. Allotropic form of oxygen is ozone. When pure, it is a dark blue liquid, almost opaque, it is a strong oxidizing agent; it oxidizes nearly all metals in the presence of moisture; it decolorizes organic pigments. *Symbol* is O_3.

6. OXYGEN. Molecular weight, 32; atomic volume is the atomic weight divided by the specific gravity; molecular volume, 22.4; density, 32.

7. In air there is 0.04 per cent. of carbon dioxide. The percentage dangerous to life depends upon the amount of oxygen present; probably 10 per cent. in the atmosphere would prove fatal.

8. Chloroform is a substitution product of methane. Three of the four hydrogen atoms of methane are replaced by three atoms of chlorine; hence the formula is $CHCl_3$, and the proper name would be Trichlormethane.

Chloroform can be obtained by heating chloral hydrate with an alkali:

$$C_2HCl_3(OH)_2 + KHO = CHCl_3 + HCOOK + H_2O$$

It is *prepared on a large scale* by the action of bleaching powder upon acetone:

$$2CO(CH_3)_2 + 6CaCl(OCl) = 2CHCl_3 + 2Ca(OH)_2 + Ca(CH.COO)_2 + 3CaCl_2.$$

HYGIENE.

1. *Six desirable factors in the location of a resort for consumptives:* (1) Pure and dry air, free from dust; (2) equable temperature; (3) protection from high winds; (4) dry soil; (5) high altitude; and (6) plenty of sunlight.

2. *Deleterious gases which accumulate in an improperly ventilated sleeping room:* Carbon dioxide, carbon monoxide, methane, sulphur dioxide, hydrogen sulphide, ammonium sulphide, ammonia, and organic vapors from decomposing animal matter.

3. *Nitrates* are generally due to the oxidation of organic matter of animal origin.

Nitrites generally indicate sewage contamination. The presence of nitrites should condemn the water; so should a marked amount of nitrates.

4. Organic heart disease, obesity, cirrhosis of kidney or liver, and arterio-sclerosis.

5. *The most efficient gaseous disinfectants* are: Formaldehyde, sulphur dioxide, and chlorine.

All apertures or crevices must be carefully closed, so that the gas used may remain as concentrated as possible.

6. Myopia is the most common abnormal condition of the eye in school children.

Habits tending to produce it are: Reading of fine or indistinct print, reading in poor illumination, improper positions in reading or writing, using the eyes when tired, and excessive study.

7. *Toxins* are harmful or poisonous products of bacteria.

Antitoxins are substances formed in the body, of a protective character, and capable of rendering inert the poisonous products of bacteria.

8. "The methods used *in the production of antitoxins* were introduced by Behring, who found that by injecting susceptible animals with increasing amounts of extracellular toxin he produced in the blood-serum of the injected animal certain changes which made the serum capable of counteracting the same toxin when injected into other animals. . . . In practice, the bacilli are cultivated in bouillon. The cultures are freed from all living bacilli by filtration. The liquid filtrate contains the toxin. This filtrate is injected into healthy susceptible animals, in increasing doses. Usually the horse is used, since large quantities of blood can be drawn from this animal on account of its size, and, moreover, the horse is very susceptible. . . . Eventually enormous doses of toxin are given, and the animal acquires a high degree of immunity. The blood of the animal is withdrawn, taking care to avoid contamination, and the serum allowed to separate in the refrigerator. The serum of the blood is drawn off and constitutes the antitoxin."—(Williams' *Bacteriology.*)

8. *Immunity* is the power of resistance of cells and tissues to the action of pathogenic microorganisms. Immunity may be either natural or acquired.

Natural immunity is that power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired immunity is this resistance acquired (1) by a previous attack of the disease, or (2) by the person being made artificially insusceptible. The conditions which give immunity are: (1) a previous attack of the disease; (2) inoculation with the specific microorganisms in small numbers or of diminished virulence, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

Examples.—The rat is *naturally immune* to anthrax; the white mouse is *naturally immune* to infection with bacillus mallei. *Acquired immunity* is seen in the immunity from smallpox after vaccination, or after having suffered from an attack of the disease.

PATHOLOGY.

1. The phenomena of inflammation are dilatation of the arterioles, capillaries, and small veins. At first the blood current is quickened, then retardation occurs, and may progress to stasis and thrombosis. During this time exudation of plasma and white corpuscles from the small veins, and perhaps the capillaries, is going on. The fate of the white cell may be either to break up and set free prothrombin, or to act as food for connective tissue cells, or to act as a phagocyte and be transformed into a pus corpuscle. Red corpuscles may be exuded and broken up, setting free their coloring matter. The prothrombin of the white cells unites with the calcium chloride of the plasma, and forms thrombin, or fibrin ferment, which acts upon the fibrinogen of plasma to form fibrin.

The tissues are thus invaded with numbers of leucocytes. In bacterial inflammation a varying portion of the tissues is killed by the toxins produced, and is either replaced by a mass of small round cells, or liquefied into pus. In the latter case it is surrounded by a ring of small round cells. The connective tissue cells absorb the leucoeytes, and new vessels are formed, thus constituting repair. In nonbacterial inflammation, exudation may separate layers of cells to a large extent and form blebs. In chronic inflammation the formation of new fibrous tissue is the chief part of the process.—(From *Aids to Surgery.*)

2. *The joint changes in arthritis deformans* are: Proliferation of the cartilage cells, the edges of the cartilage become fibrillated and wear away; the underlying bone becomes hard and polished, and later atrophies in parts, part of the bone becomes absorbed; ossification may also occur, with locking of the joint; the synovial membrane may either atrophy or hypertrophy.

3. *In the typhoid ulcer:* (1) The main axis of the ulcer lies parallel with that of the intestine; (2) it lies opposite to the mesenteric attachment; (3) it has smooth floor and undermined edges; (4) it commonly leads to perforation.

In tubercular ulcer: (1) The long axis of the ulcer lies at right angles to that of the intestine; (2) it is not necessarily situated opposite the mesenteric attachment; (3) its floor is not smooth nor are its edges undermined.

4. *The conditions which predispose to cerebral hemorrhage* are: Advanced age, rheumatism, gout, syphilis, alcoholic excesses, Bright's disease, prolonged muscular exertion, chronic lead poisoning, severe physical or mental excitement.

5. *Spleen enlargement may be found in:* Typhoid fever, malaria, leukemia, pernicious anemia, cirrhosis of liver, and many of the infectious diseases (diphtheria, scarlet fever, erysipelas, pneumonia) and septic processes (septicemia and pyemia)

6. *Hematuria* is blood in the urine.

Hemoglobinuria is blood pigment in the urine.

In *hematuria* a microscopical examination will show numerous red blood corpuscles in the urine; in the other condition red cells are either absent or are very scanty.

The *principal causes of hematuria* are: (1) Conditions in which the blood is affected, as in the infectious diseases, in scurvy, pernicious anemia, and purpura; (2) traumatism or inflammations in any part of the urinary tract; (3) congestion of the kidneys secondary to disease of the lungs, heart, or liver.

The *principal causes of hemoglobinuria* are: Poisons, such as arsenic, potassium chlorate, carbolic acid, carbon monoxide; jaundice, malaria, syphilis, Raynaud's disease, scurvy, purpura.

7. In *acute anterior poliomyelitis:* Congestion and then destruction of the ganglion cells in the anterior horns of the spinal cord; there is an infiltration of leucocytes; and an overgrowth of connective tissue replaces the cells in the anterior horns. The fibers of the anterior roots show degeneration; the posterior roots are not affected.

8. *Inflammatory conditions which may result in enlargement of the lymphatic gland:* Tonsillitis, gonorrhea, chancroid, syphilis, septic infections.

OBSTETRICS.

1. The ovum when fully developed is a single cell, spherical, about 1/125 inch in diameter; it is composed of a yolk, with nucleus, nucleolus, and two enveloping membranes.

2. The *liquor amnii* is the fluid contained in the amniotic sac; it is alkaline in reaction, has a specific gravity of about 1.001 to 1.008, its quantity is variable, but is generally about two pints. It consists chiefly of water, but contains small amounts of albumin, epithelial cells, urea, phosphates, chlorides, etc. Its source is unsettled.

Functions: (*a*) *During Pregnancy:* (1) As a protection to the fetus against pressure and shocks from without. (2) As a protection to the uterus from excessive fetal movements. (3) It distends the uterus, and thus allows for the growth and movements of the fetus. (4) It receives the excretions of the fetus. (5) It surrounds the fetus with a medium of equable temperature, and serves to prevent loss of heat. (6) It prevents the formation of adhesions between the fetus and the walls of the amniotic sac. (7) It has been supposed, by some, to afford some slight nutrition to the fetus.

(*b*) *During Labor:* It acts as a fluid wedge, and dilates the os uteri and the cervix; it also slightly lubricates the parts.

5. *Causes of vomiting in pregnancy* are: (1) Reflex disturbance, due to rapid growth and excessive distention of the uterus; (2) disease or displacement of uterus, tubes, and ovaries; (3) disease of pelvis or gastrointestinal tract; (4) excessive sexual intercourse; (5) renal disease or disturbance.

6. *Conditions warranting the induction of premature labor:* (1) Certain pelvic deformities, (2) placenta prævia, (3) pernicious anemia, (4) toxemia of pregnancy, (5) habitual death of the fetus toward the end of pregnancy, (6) hydatidiform mole, (7) habitually large fetal head.

The methods that may be employed are: Partial dilatation of the cervix and the introduction within the cervix (and vagina) of a tamponade of sterile gauze; (2) dilatation of the cervix; (3) puncturing the membranes; (4) introduction of a soft rubber bougie into the uterus; (5) intrauterine injection of glycerin, water, or some other fluid.

7. The *absolute indications of cesarean section* are: Extreme pelvic contraction or deformity in which delivery by forceps or version or symphyseotomy is impossible, and in which craniotomy is either impossible or would be more dangerous to the mother; the presence of extreme atresia of the vagina; rupture of the uterus; sudden maternal death.

8. *Conditions which retard or obstruct labor:* Rigidity, edema, atresia, or displacement of the os or cervix; fibrous bands, or atresia of vagina; persistent hymen; unyielding perineum; tumors; distended bladder or rectum; hernia; edema of labia; pelvic deformities; malpositions or malpresentations of the fetus; prolapse of limbs; short cord; large fetus; dead fetus; twins or monstrosities; uterine inertia; rupture of uterus

SURGERY.

1. *The indications for ligation of an artery in its continuity* are: To check hemorrhage, to promote the cure of an aneurysm, to diminish the rate of growth of a tumor, to cause atrophy of an organ by diminishing its blood supply, as a preliminary to removing some vascular structure (such as the tongue).

2. *Division of the radial nerve* would be followed by: Loss or impairment of sensation in the dorsal aspect of

thumb, index finger, and radial side of middle finger as far as the second phalanx.

3. *The possible obstacles to reduction of a dislocation* are: Torn capsule embracing the neck of the bone, muscular contraction, interlocking of bony points; inflammatory swelling of the soft parts, and tendons or muscles catching around the neck of the displaced bone.

4. *Principles of treatment in compound dislocations:* Open up the wound if there is any chance of its being infected, remove destroyed tissue, irrigate thoroughly, reduce the dislocation, pack with gauze, drain, and immobilize.

5. *Delayed union in fracture is caused by:* Ill health, want of approximation of the end of the bone, want of blood supply in the bone, defective innervation of the bone, disease of the bone, lack of rest, and immobility.

Treatment: "When delayed union exists, seek and remove cause treating constitutionally if required, and thoroughly immobilizing the parts by plaster. Orthopedic splints may be of value. Use of the limb while splinted, percussion over the fracture, and rubbing the fragments together, thus in each case producing irritation, have all been recommended. Blistering the skin with iodine or firing it has been employed. If the case be very long delayed, forcibly separate the fragments and put up in plaster as a fresh break. If these means fail, irritate by subcutaneous drilling or scraping, or, better, by laying open the parts and then drilling and scraping at many places." (Da Costa.)

6. *Wounds are classified* as: (1) Contused and open. (2) Open wounds may be: Incised, lacerated, contused, punctured, gunshot, or poisoned; also penetrating and perforating. (3) Aseptic and septic.

7. *Symptoms of cholecystitis:* Pain and tenderness in region of gall-bladder; fever, rapid pulse, vomiting, rigid abdominal muscles, jaundice may be present.

8. A *tumor* is a pathological new growth which tends to persist independently of the tissues in which it is found, and which serves no physiological purpose.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. —
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 4
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Oct. 12
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	Aug. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Oct. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 9
Delaware	J. H. Wilson, Dover	Dover	Dec. 14
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Oct. 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 10
Georgia	E. R. Anthony, Griffin	Atlanta	Oct. 12
Idaho*	W. F. Howard, Pocatello	Boise	Oct. —
Illinois	J. A. Egan, Springfield	Chicago	Oct. 20
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 11
Iowa	Louis A. Thomas, Des Moines	DesMoines	Sept. —
Kansas	F. P. Hatfield, Olathe	Kansas City	Oct. 12
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct. 1
Maine	Wm. J. Maybury, Saco	Augusta	Nov. —
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 14
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept. 14
Michigan	D. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 12
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 5
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 12
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Sept. 20
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 5
Nebraska	C. A. Carr, Lincoln	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	Nov. 1
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 4
New Jersey	E. L. B. Godfrey, Camden	Trenton	Oct. 19
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct. 11
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Sept. 21
N. Carolina	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grank Forks	Grand Forks	Oct. 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 14
Oklahoma*	F. P. Davis, Enid	Guthrie	Oct. 12
Oregon*	B. E. Miller, Portland	Portland	Jan. 4
Pennsylvania.*	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. 14
Rhode Island*	G. T. Swarts, Providence	Providence	Oct. 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	Jan. 12
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Greenville	Nov. 9
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Oct. 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 11
Virginia	R. S. Martin Stuart	Richmond	Dec. 15
Washington*	T. C. McFadden, Seattle	Spokane	Jan. 4
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg	Nov. 9
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan. 11
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 20

* No reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular state.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of August 21, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	565	137
Diphtheria	141	10
Measles	149	12
Scarlet Fever	68	4
Smallpox	—	—
Varicella	6	—
Typhoid Fever	74	15
Whooping Cough	25	8
Cerebrospinal Meningitis	8	11
Malarial Fever	.	..
Totals	1,036	197

Histological Alterations of the Organs in Croup.—Antonio Ghiotti has examined the internal organs in ten cases dying from diphtheria. He finds hepatization with emphysema in the lungs, peribronchitis in one case, false membrane in the bronchi in two cases, hyaline degeneration of the walls of the vessels, and dry pleurisy in three cases. In the liver fatty degeneration of the periphery of the acini, with cirrhosis, hyaline degeneration of the vessel walls, and hypertrophy of the intima of the hepatic arteries. In the spleen a septic condition, with degeneration of the vessels and hemorrhage into the spleen substance. In the kidneys inflammatory reaction of hemorrhagic type. Endocarditis and pericarditis were very evident.—*Giornale Internazionale delle Scienze Mediche.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending August 20, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Louisiana, New Orleans	July 31–Aug. 7	1	..
Montana, Butte	July 31–Aug. 7	3	..
Oklahoma, Oklahoma City	July 31–Aug. 7	1	..

SMALLPOX—FOREIGN.

Brazil, Bahia	June 11–25	6	1
Rio de Janeiro	June 25–July 11	8	2
China, Amoy	July 3–10	..	1
Shanghai	June 19–26	1	
Egypt, Cairo	June 24–July	.	1
Suez	June 18–24	2	
	July 1–8	2	
France, Paris	May 28–June 5	7	
	July 17–24	2	
India, Bombay	June 29–July 6	..	4
Calcutta	June 19–26		8
Madras	June 26–July 2	..	1
Italy, general	July 18–25	12	
Naples	July 18–25	39	5
Mexico, Mexico City	July 3–10		11
Monterey	July 25–Aug. 1		1
Portugal, Lisbon	July 24–31	7	
Russia, Libau	July 18–25	1	
Riga	July 11–24	7	.
St. Petersburg	July 3–10	16	3
Warsaw	June 5–12		2
Siam, Bangkok	June 1–30	1	
Siberia, Vladivostok	May 27–June 3	2	1
Spain, Vigo	July 18–24	1	

YELLOW FEVER.

Brazil, Bahia	June 11–23	9	5
British Guiana, Suddie	July 23	1	1

CHOLERA—INSULAR.

Philippine Islands, Manila	June 19–26	76	50

CHOLERA—FOREIGN.

China, Amoy	July 3–10	..	25
India, Bombay	June 29–July 6	.	12
Calcutta	June 19–26		55
Rangoon	June 19–26		2
Russia, general exclusive of St. Petersburg	July 23–30	346	136
St. Petersburg	July 23–30	390	165

PLAGUE.

Brazil, Bahia	June 11–25	8	5
Rio de Janeiro	July 4–11	1	..
China, Amoy	July 3–10	.	79
Hongkong	June 19–July 3	7	7
Ecuador, Quayaquil	June–July 10	..	3
India, general	June 25–July 3	553	478
Bombay	June 29–July 6	..	23
Calcutta	June 19–26	.	48
Rangoon	June 19–26	.	33
Japan, Kobe	July 10–17	3	2
Siam, Bangkok	June 1–30	12	12
Venezuela, Caracas	July 17–31	3	..

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Original Articles.

ADDRESS ON CANCER IN MAN AND ANIMALS.*

BY E. F. BASHFORD, M.D.,

LONDON,

DIRECTOR IMPERIAL CANCER RESEARCH FUND.

A COMPLETE change has been effected in many aspects of the cancer problem during the past seven years, and I propose to give you some account of the share the Imperial Cancer Research has had in effecting it. The extent of the ground I shall have to cover must be my excuse for the imperfect references I shall make to the valuable work of investigators in other centers of active investigation of cancer.† Reasoning can no longer commence with the postulate that the disease is limited to white man, and in consequence of his transmitting it to races living under the circumstances peculiar to his particular form of civilization, and to his domesticated animals. On the contrary, the liability to cancer of all races of mankind, and of all vertebrates, even when living in natural conditions, has been established as a fact from which all attempts to explain the disease must start. Whilst all claims to have transferred cancer experimentally previous to 1900 had either broken down before the criticism that the lesions adduced to substantiate the claim were not the lesions of cancer, or had been received with scepticism from lack of confirmation, as in the case of Hanau and Morau, the experimetal reproduction, at will, of the lesions of carcinoma and sarcoma has to-day become a matter of mere laboratory routine. I shall attempt to show you that these two achievements have established the investigation of cancer upon a sound comparative biological and experimental basis; further, that they have done away with the stagnation of thought and with the pessimism pervading the minds of the scientific public at the close of the nineteenth century. Under their auspices rapid progress has been made in defining more narrowly both the nature of the disease, and the direction in which its ultimate explanation will be found.

Although the immediate consequence has been the possibility of conducting a multiplicity of highly specialized investigations, and although no revolutionary generalization on the etiology, or on the prevention and treatment of cancer is yet possible, still that steady advance in knowledge which the successful application of the experimental method has always foreshadowed in other paths of human endeavor, may be anticipated also in the case of cancer. So much is certain. Whether a chance observation appreciated and followed up with genius, may lead to a sudden and unexpected relief of human anxiety and suffering, it is impossible to foresee, but the ever increasing army of investigators augurs well for so important a chance opportunity not being missed, should it present itself.

Incidence of Cancer in Vertebrates.—The experimental studies of the Imperial Cancer Research differ from similar investigations in that they have been co-ordinated from their inception in September, 1902, with the study of the natural incidence of the disease in all races of mankind and throughout the vertebrate kingdom. I illustrate the occurrence of congenital malignant new growths in savage races of man, remote from the influences of civilization, by a portrait of a mother and child from West Africa, which child died from a glio-sarcoma of the orbit. Where the disease was said to be rare, *e. g.* in Japan, excellent statistics exist of which Europeans were previously ignorant, showing over 25,000 deaths from cancer annually, and, therefore, proving cancer among the Japanese to be probably as frequent as among Englishmen or Germans. Taking another example, certain forms of cancer very common in London hospitals, *e. g.* carcinoma of the lip, tongue, cheek, breast, uterus, are probably not less common in hospitals throughout Hindustan.

When every possible weight is given to the reservations with which comparisons may be made between hospital figures obtained in London and in Hindustan, the figures from Indian hospitals present a very striking result. While cancer of the testis and penis is nearly ten times as frequent as in English hospitals, cancer of the lip, tongue, cheek, etc., contributes nearly the same proportion. Among females the same correspondence is found, cancer of the uterus being slightly more frequent than in English hospitals, and cancer of the breast equalling more than three-fifths of the English hospital figures. Cancer of the lip, tongue, cheek, etc., is, on the contrary, more than six times as frequent in female Indian hospital patients as in the corresponding English group. The slight differences between the frequency of cancer of the breast and uterus revealed by comparing the figures for English and Indian hospitals, make it at least possible that the mortality in India from cancer of these organs may be not markedly different from that in England. Exceptional opportunities are afforded in India for the study of the incidence of cancer in vegetarians and flesh-eaters, since the diet is strictly ordained by the customs of the different native castes. In India the disease occurs irrespective of vegetarian or meat diet just as it occurs in herbivorous and carnivorous mammals. In Egypt, also, cancer is far from rare

*Address delivered before a general meeting of the Sixteenth International Medical Congress, Budapest, August 29-September 4, 1909.

†Full references to the work of others will be found in the publications of the Imperial Cancer Research, *e. g.* in the Third Scientific Report, 1908. Taylor & Francis, Red Lion Court, Fleet street, London, E. C.

In the case of most aboriginal races there are insurmountable difficulties in the way of even thus roughly estimating the frequency of cancer among them. Therefore, it is idle to affirm or to deny that it may be more common in some races than in others. The fact of moment is that the disease occurs in savage races, as I illustrate, for a carcinoma mammae in a native woman of the Sudan, and for an epithelioma of the jaw in a Dinka of the White Nile, as well as for an osteochondro-sarcoma in a native of Northern Nigeria. Therefore, foci from which the disease could spread are present in the most uncivilized of races; nevertheless, no indication of the endemic or epidemic occurrence of malignant new growths in savage races has been found, nor has it been possible to establish any relation between the frequency with which cancer is recorded in aboriginal races and the degree of exposure to contact with Europeans. There is nothing comparable to the aggravated and fatal epidemics following the introduction of infective disease into such races.

Carcinoma and sarcoma occur not only throughout the human race, but also throughout the other vertebrates. The similarities of the lesions characteristic of malignant new growths are well demonstrated by comparing the series of figures I show you of carcinomata of the skin in man, other mammals, bird, frog, fish, *i. e.* throughout the vertebrates down to marine fish living in a state of nature. Malignant new growths occur not only on the surface of the body but also in the internal organs of the lower vertebrates, as illustrated by slides of an adenocarcinoma of the kidney in a frog, an adenocarcinoma of the liver in a trout, and an adenocarcinoma from the abdomen of a marine fish, viz., a gurnard. The trout is peculiarly liable, under certain conditions, to a general hyperplasia of the thyroid. We have records of 2,000 cases, in many of which true carcinomata have supervened, such as shown on the slide.

Our earliest contributions to the experimental study of cancer were made with the knowledge that the disease occurred throughout the vertebrates. The negative criticism and active opposition accorded to the results of Jensen, Borrel and ourselves from 1903 onwards, and also later to those of Ehrlich and Apolant, by pathologists of recognized authority in England and Germany appeared to us both inexplicable and unjustified. In the light of our comparative experience it would have been strange indeed if the mouse had proved to be exempt from cancer. Orth has recently written "there occur in mice tumors which, although not identical in every respect with human carcinomata, nevertheless exhibit so many points of similarity with the latter, that it appears correct to designate them as carcinomata of the mouse, and to apply the observations made on them to human pathology with the precaution necessary in all experimental and comparative pathological investigations." This statement by Orth, conceding all we have ever contended for, marks the end of any serious opposition to the experimental study of cancer.

It has been too often wrongly asserted that the mouse suffers only from carcinoma of the mamma. I illustrate the liability of the mouse to other forms of malignant new growths by a selection of slides from specimens in our collection, of carcinoma of the stomach, small intestine, pancreas, ovary, liver, lung, skin, sebaceous gland, preputial glands, also of sarcoma of the kidney, osteo-chondro-sarcoma, melanoma, lymphosarcoma. Borrel and Haaland have described squamous celled carcinoma of the floor of the mouth, and lymphosarcoma; Haaland has described squamous celled carcinoma of the vulva, and adenocarcinoma of the lung, as well as chondrosarcoma of the vertebral column; Ehrlich has described a chondroma probably of congenital origin; carcinoma of the uterus has been recorded from Buffalo; Tyzzer has described papillary cystadenoma of the lung, cystadenoma of the kidney, and lymphosarcoma; Jobling has recorded spindle-cell sarcoma on the chest wall (? mamma) and papillary cystadenoma of the ovary. The great liability of the female mouse to cancer of the mamma is merely an idiosyncrasy shared with the human female and female dog.

I show you some histological pictures of typical adenocarcinoma and alveolar carcinoma of the mamma of the mouse, and exhibit several figures of mice showing primary growths and their metastases in the lungs and lymph glands. The clinical course, the results of surgical or other treatment, the pathological findings and relation to general metabolism have been carefully recorded in our laboratory for over 300 mice suffering from malignant new growths of the mamma. On a lantern slide has been grouped the clinical course of a few cases of carcinoma of the mamma, illustrating well their liability to recur after complete surgical removal has been attempted, and the fatal termination in consequence of dissemination or terminal cachexia. The observations agree with medical, surgical, and pathological experience in the human subject, and demonstrate how secure is the basis they afford for attempts to apply the results obtained by studying the disease in mice to the disease as it occurs in man. The main danger of the disease lies in the difficulty of diagnosing it in a stage permitting complete removal, and still more in anticipating dissemination throughout the body. The prolonged relief surgery can give is shown by the absence of recurrence or of metastases for months after removal of the primary growth. That the period of relief may equal one-third of the total life of the mouse justifies, and experimentally demonstrates the value of the surgical treatment of the disease in man, so long as there remains no alternative to it. Convenience and questions of expense have led to the experimental investigation of cancer being developed on the basis of experience gained, for the most part, on mice, although the rat, dog, and other larger mammals have been employed by us to a less extent.

Experimental Reproduction of the Lesions of Cancer.—For two years it looked as if the experimental study of cancer was going to break down once more in face of the criticism that the lesions of the disease, as it occurs naturally, were not reproduced experimentally. However, the weaknesses in the chain of evidence were due merely to the technique of experimentation not having been properly mastered, and early in 1905 we were able to demonstrate that a mammary carcinoma when inoculated into normal animals produced metastases in the lungs, where, rupturing the pulmonary artery, they infiltrated the lung tissue and broke into the bronchi; we also demonstrated invasion of the intestinal wall from the peritoneum by way of the lymphatics, and pointed to the close resemblance the resulting lesion showed to a spontaneous carcinoma of the intestine of a mouse. We concluded that there was complete identity in all the phenomena due to growth, between the sporadic tumors of man and animals, and also that the

phenomena were perfectly reproduced in artificially propagated tumors of the mouse. In short, all the clinical and pathological features of cancer including the terminal cachexia were the consequences of cell proliferation confined in the first place to a few cells in a very circumscribed area. At the same time Haaland working with Borrel in the Institut Pasteur independently showed the frequent occurrence of microscopical metastases in the pulmonary artery in the case of a mammary carcinoma, and at a later date he also demonstrated with great completeness the phenomena of dissemination in the case of sarcoma. With the lapse of time the material accumulated in our laboratory has made the demonstration of the reproduction of the anatomical lesions and clinical features more and more perfect, and to-day it lacks nothing in completeness either from carcinoma or sarcoma, as the slides I show of the experimental reproduction of infiltrative and expansive growth, of pulmonary and lymphatic metastases, as well as the close correspondence between a spontaneous carcinoma of the intestine of a mouse, and the lesions produced experimentally in the intestine amply demonstrate. Dissemination may be so widespread that metastases are present in the lungs, kidneys, liver, and intestine, etc., of one single animal, as shown on another slide. These lesions have resulted, in every case, from the growth of a minute particle of cancer tissue introduced into a normal mouse by means of a hypodermic needle. Jensen's great service in advancing the knowledge of cancer consists in the fact that, unlike his predecessors—Morau and Hanau who to-day we recognize as having successfully transferred cancer from one animal to another of the same species—he did not restrict himself to producing at the site of inoculation a tumor with the histological structure of the original growth. Jensen proved in 1903 by carefully following the processes at the site of inoculation, step by step, that the new tumor was due to the continued growth of the cells of the original or parent tumor, parts of which he had introduced. The fact that metastases did not occur in his experiments detracts nothing from their value. Jensen's work was followed almost immediately by that of Borrel, and also by that of Murray and myself in the same year. We confirmed Jensen's observations and extended them to a large number of other malignant new growths of mice. One of the most instructive being a squamous-celled carcinoma, of which I show slides of preparations made from the first and from the ninth subtransplantation. The typical structure of the skin is beautifully reproduced in the ninth subtransplantation, as is shown under both low and high magnification.

After some preliminary controversy it is now agreed that infection plays no part in the experimental transference of cancer, which is a true transplantation of living cells. The introduction of a particle of living tissue by means of a hypodermic needle does not reproduce the anatomical relations obtaining when normal cells become cancerous, and there would have been nothing to cause surprise had the cancer cells continued to grow only at the site of inoculation; indeed, notwithstanding the demonstration already given in 1905 and alluded to above, so little surprise was aroused in the minds of some experimenters at their failure to reproduce the lesions of dissemination, that Ehrlich in 1906, in setting up the doctrine of atrepsy, relied to a large extent on the assumption that their absence was of fundamental moment, and due to the tumor at the site of inoculation so withdrawing the food supply as to prevent its off-shoots from establishing themselves in distant organs. The absence of metastases is due, for the most part, to technical details in the procedure of inoculation and to the duration of the growth of the resulting tumor. The reproduction of the lesions has become in our experience, a commonplace of laboratory routine. A survey of the facts on the experimental reproduction of the lesions of cancer affords a demonstration of the adequacy of Ribbert's view, that all the lesions of the disease, as it is exhibited in man, may be the consequence of the continued growth of cells which primarily were confined within a small circumscribed area.

The "Age-Incidence" of Cancer and the Experimental Distinctions Between Young and Old Mice.—The investigations of the Imperial Cancer Research have settled once and for all that cancer is a disease common to mankind throughout the world, and to vertebrates. The illustrations I have shown you demonstrate clearly how closely the primary lesions of the disease resemble one another, even when occurring in animals so remote as man and fish. There is, however, another common and even more striking feature of the disease. Its peculiar association with certain periods of life in man, known as the "age-incidence" of cancer, reveals a law applicable to all vertebrates. A demonstration of its validity for the mouse is given by the following table showing the liability of the female mouse to carcinoma of the mamma at difference age-periods:

Age	6–9 Months	12 Months	15 Months	18 Months	21 Months	24 Months and Over
Total	135	110	94	21	6	..
Cancer	3	4	7	3	2	.....
Per cent	2.2	3.5	7.4	14.2	33.3	.....

The progressive increase shown in the table presents a remarkable parallel with the age-incidence of cancer of the mamma in the human female shown in the next table, and also adds a statistical confirmation to the results of our comparative histological and biological studies, which have shown the close parallel, amounting in many particulars to complete identity, between malignant new growths in man and other vertebrates. The above table demonstrates that the law of the age-incidence of the disease holds for the shortest lived mammals as it holds for man. Since the less perfect data for other vertebrates are in complete accord with the facts established for mankind and for mice, the general application of the law of age-incidence is probable and, therefore, any explanation of the etiology of cancer must accord with the circumstance that when considered *statistically* cancer is a function of age, and when considered *biologically* a function of senescence. The main condition for discovering a considerable number of cases in civilized and in savage man, in mammals, and in vertebrates generally, is the examination of a sufficiently large number of adult and aged individuals* The law of the age-incidence of cancer is of fundamental etiological and general biological importance. It applies both collectively and indi-

*The time of onset of cancer in developmental anomalies is probably a manifestation of the validity of the law of age-incidence for abnormal organisms and organs.

vidually to the organisms of a species, as well as to their individual organs and tissues, as shown for man by the following curve (Fig. 1) of the age-distribution of cancer in hospitals, all cases being

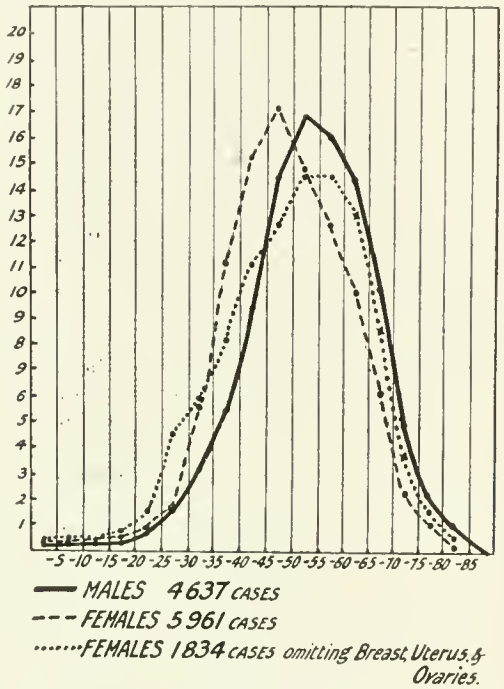

FIG. 1.—Percentage distribution of cases of cancer from hospitals, in 18 five-yearly age-periods.

examined microscopically, and by the table giving an analysis of the age-incidence of cancer for different organs in the general population.

TABLE OF CANCER DEATHS PER 1,000,000 LIVING IN ENGLAND AND WALES AT EACH OF THE AGE-PERIODS GIVEN. AVERAGE FOR THE YEARS 1901 TO 1904. ILLUSTRATING THE DIFFERENT AGE-PERIODS AT WHICH CANCER OF CERTAIN ORGANS BEGINS TO INCREASE RAPIDLY IN FREQUENCY.

MALES

	Skin	Stomach	Rectum	Tongue	Brain	Kidney and Adrenal
Under 5	0.79		0.13		3.30	7.93
5–10	0.28				3.38	1.69
10–15	0.46		0.46		2.49	0.73
15–20	0.61	0.15	0.91	0.15	2.90	0.46
20–25	1.00	2.33	4.83		3.33	1.17
25–35	2.37	15.08	10.94	1.58	6.31	1.77
35–45	10.53	89.69	35.90	21.82	10.66	5.71
45–55	36.34	325.62	142.54	114.10	16.50	16.68
55–65	103.39	875.64	393.57	224.59	20.25	33.17
65–75	278.49	1530.94	718.54	278.73	13.34	45.65
75–85	734.23	1490.71	826.19	305.56	2.97	54.88
85 and upward	1650.20	736.45	668.26	1772.94		13.64

FEMALES

	Skin	Stomach	Rectum	Uterus	Breast	Tongue	Brain	Kidney and Adrenal
Under 5	0.53	0.13		0.26		0.13	1.32	8.16
5–10	0.14						2.10	1.54
10–15	0.15	0.15			0.15		1.76	0.59
15–20	0.15	0.15	1.49	0.45	0.15		1.64	0.60
20–25	0.30	1.04	2.23	3.30	0.74	0.15	2.97	0.59
25–35	1.06	12.38	11.05	61.99	20.16	2.21	4.33	1.33
35–45	4.39	79.27	36.31	337.25	168.86	3.68	9.85	5.70
45–55	15.29	278.78	122.80	746.34	460.28	7.64	11.55	16.92
55–65	32.65	678.29	271.13	967.16	699.11	17.98	13.49	28.39
65–75	97.87	1195.33	441.44	1012.29	966.42	42.18	10.65	43.41
75–85	267.48	1255.77	552.15	910.94	1407.23	49.41	6.45	54.79
85 and upward	553.62	834.43	312.91	730.13	3013.88	24.07		24.07

Many aged persons escape cancer, which it must be distinctly pointed out is not caused by old age, and senescence whether constitutional or confined to circumscribed areas of tissues is only an endogenous predisposing factor.

At the commencement of the experimental study of cancer it was quite natural that old animals should be selected for inoculation purposes. We speedily found, however, that they are much less suited for the transplantation and growth of cancer than are young animals, as the following two charts show. The first chart (Fig. 2) illustrates the

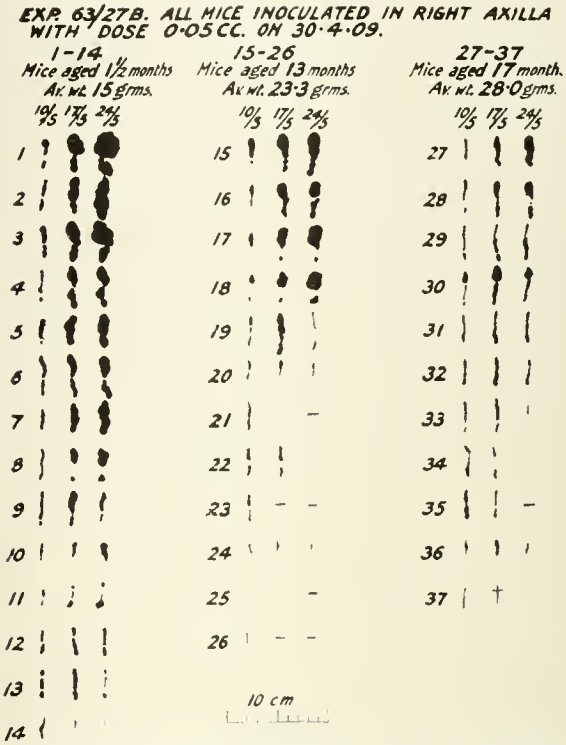
EXP. 63/27B. ALL MICE INOCULATED IN RIGHT AXILLA WITH DOSE 0·05 CC. ON 30·4·09.
1–14
Mice aged 1½ months
Av. wt. 15 grms.
15–26
Mice aged 13 months
Av. wt. 23·3 grms.
27–37
Mice aged 17 month.
Av. wt. 28·0 grms.
10/5 17/5 24/5
1 2 3 4 5 6 7 8 9 10 11 12 13 14
15 16 17 18 19 20 21 22 23 24 25 26
27 28 29 30 31 32 33 34 35 36 37
10 cm

FIG. 2.—Comparison of suitability for growth of transplanted carcinoma (Tumor 63) of mice of different ages; 1½ months (1-14), 13 months (15-26), and 17 months (27-37), respectively.

EXP. 32/51A. ALL MICE INOCULATED IN RIGHT AXILLA WITH DOSE 0·025 CC ON 3·5·09.
1–10
Mice aged 4½ months
Av. wt. 21 grms.
11–22
Mice aged 12 months
Av. wt. 24 grms.
23–34
Mice aged 17 months
Av. wt. 29 grms.
13/5 20/5 27/5
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20 21 22
23 24 25 26 27 28 29 30 31 32 33 34
10 cm

FIG. 3.—Comparison of suitability for growth of transplanted squamous celled carcinoma (Tumor 32) of mice of different ages; 4½ months (1-10), 12 months (11-22), and 17 months (23-34), respectively.

growth of our tumor "63" in three groups of mice, young, middle-aged, and old. You will notice a progressive diminution in the number of tumors

developing as well as in their respective rates of growth. Tumor "63" shows itself less susceptible to differences due to age than are other tumors, as illustrated in the second chart (Fig. 3) for tumor "32," where you will notice the same progressive diminution in the number of tumors and in their rates of growth, according as inoculation was made into young, middle-aged, or old mice. Indeed, progressive growth did not take place in a single old mouse. At the end of four weeks all the old mice had cured themselves of the tumors "32." Such observations enabled Murray and myself to analyze some of the relations obtaining between the origin and the growth of cancer. In the first place they agree with the more rapid growth observed in the human subject, when cancer develops in young people. They also demonstrate that, while senescence is intimately associated with the inception of cancer, it is not necessary for its continued growth, and, therefore, the origin and the growth of cancer may be considered separately. I shall have to revert later to the respective parts played by the localized tissue changes and the constitutional conditions associated with the natural development and the growth of cancer. What is studied in the transplantation of cancer is the ability of tumor cells to establish themselves in new hosts and their powers of continued growth. In order to obtain uniform results great care must be taken to secure animals of uniform age. Old age of itself suffices to render mice absolutely resistant to the inoculation of cancer. As the second chart shows with clearness, the fact that the cells are able to establish themselves does not necessarily mean that they will be able to continue to proliferate, and, later on, I shall demonstrate to you that growth is frequently terminated by the immunity which the tumors induce against themselves. The difference between inoculating tumors into young and into old mice is of great technical moment in the interpretation of experiments on immunity, as is evident from the charts I have just exhibited. No conclusion can be drawn from experiments bearing on the artificial induction of immunity, or resistance, to the inoculation and growth of cancer, if this factor alone, or together with others to be mentioned later on, has been neglected or not adequately allowed for. This is, unfortunately, the case in all experiments except those conducted in our laboratory. I shall have to refer to this fact again when discussing whether the resistance which can be induced by tumor-tissue and by normal tissue is specific or general in its nature.

The Alleged Increase of Cancer.—It follows from what has been said above on the statistical importance of the age-incidence of cancer, that very full attention must be given to the relative numbers of the population in different age periods, whenever any attempt is made to appraise the frequency of cancer. The problem of the relative frequency of cancer in this or that population and area, overlaps the much discussed question of its alleged increase. Savage races are unsuited for the study of both these problems and also for the investigation of the relative liability of different sites of the body. By the time the natives of Central Africa have so organized their communal life that reliable vital statistics are forthcoming, the conditions of life among them will no longer be what they are today, and no doubt they will be interested in what to them may be a new problem, "the alleged increase of cancer." We have seen this stage reached at successive intervals in different countries with the progressive improvement of their national statistics, and, since the work of the Imperial Cancer Research was started, Europeans have passed from the belief that cancer was rare or did not occur, *e. g.* in Japan, India, and Egypt, to the minor questions of its relative frequency, or its real or apparent increase in those countries.

It may be added that, when our investigations were commenced and the determination come to in September, 1902, to study cancer in animals, doubts were expressed by some as to whether the difficulty of finding a sufficient number of cases would not prove insurmountable. The large number of cases of cancer, over 1,000, which have been observed in mice, by various investigators during the past six years, does not mean an increased liability of mice to cancer, but simply that it has been looked for with care in sufficiently large numbers of adult and aged animals, and found. The increase in the number of cases recorded throughout the vertebrates has the same significance.

The number of deaths assigned to cancer has increased from year to year in practically all countries. This increase is made to appear most alarming when it is taken up as a national problem, *e.g.* in England, Germany, or the United States, without due regard to the universality of the phenomenon. When due regard is paid to its universality in man and in animals, to the varying value of the data used for statistical purposes in different countries, and in the same country at different times, as well as to the varying accuracy of the statistical methods employed, I very much question if those persons who have made exaggerated statements to the effect that the recorded increase of cancer represents a true and relatively increased liability to it, have any excuse whatsoever for enhancing the reasonable anxiety of the lay public.

Without digressing into a discussion of the statistics of cancer, I would point out that the number of deaths assigned to it as a cause of death increases from one country to another parallel with the increasing accuracy of the vital statistics of the several countries, as the following table from the Report of the Registrar-General shows:

CANCER—DEATH RATES PER 1,000 PERSONS LIVING 1881–1907

COUNTRIES (Arranged in Order of rates in 1901–1905)	QUINQUENNIAL PERIODS					YEARS	
	1881–1885	1886–1890	1891–1895	1896–1900	1901–1905	1906	1907
Switzerland	1 03	1.14	1 22	1.27	1.30	1.32	.
The Netherlands	0 60	0 70	0.81	0.92	0 97	1.01	1.02
England and Wales	0 55	0.63	0.71	0.80	0.86	0.92	0 91
Scotland	0.54	0 62	0.69	0.77	0.84	0.94	
Austria	0 44	0.50	0.59	0.69	0.74	.	
Victoria	0 45	0 53	0 62	0.69	0 74	0.75	0.80
Ireland	0 38	0.43	0 49	0.58	0.69	0.79	0 76
New Zealand	0 30	0.42	0.52	0.59	0.67	0.70	0 73
South Australia	0 32	0.39	0 48	0 56	0.67	0 74	0 70
Prussia	0 34	0.41	0 50	0 57	0 65	0 70	0.73
New South Wales	0 27	0 36	0 43	0.54	0 64	0.68	0 70
Belgium					0.58†	0.58	. .
Queensland	0 25	0.27	0.34	0 44	0 57	0 55	0.65
Tasmania		0 49	0 49	0 55	0 56	0 52	0.63
Italy		0.43*	0.44	0 51	0 55	0 62	0 61
Ontario, Province of	0 21	0 29	?	0 44*	0 52	0.64	
Spain					0 44	0 48	0.47
Western Australia	0 33	0 41	0.31	0 31	0 45	0 59	0.50
Hungary				0 30*	0.39	0 40	0 42
Servia			0 06*	0 08	0 10	0.11	

*Four years †Three years.

The recognizable sources of fallacy in the data on which the above table is compiled, and in the institution of comparisons between the cancer death-rates in different countries, carry more weight with accurate statisticians than the differences ex-

isting between the figures for different countries. The differences between different countries, which the table shows, reproduce also the various stages through which the statistics of single countries have passed in the course of their development, and the same reasoning makes obvious their dubious value as evidence that the differences in the statistics of the same country at different times reveal real differences. Passing over statistical method, I would point out that out of 10,532 cases of cancer treated in hospital, *i. e.* under the most favorable circumstances for diagnosis, 1801 were not diagnosed as cancer from clinical evidence alone. Out of 9488 cases treated as cancer, 757 were not suffering from the disease. The following table illustrates the relative proportions in which the disease was diagnosed in different sites of the body according to their accessibility to complete physical examination:

Analysis of the Cases of New Growths Reported by the Hospital Authorities. 1904–9 All Ages. Microscopical Examination has been Made in all Cases.

	Malignant New Growths.		
	Correctly Diagnosed	Not Diagnosed	Wrongly Diagnosed as Cancer
Accessible	5854	567	438
Inaccessible	1555	945	159
Intermediate	1322	289	160
Total	8731	1801	757
Accessible	91.1%	8.9%	
Inaccessible	62.2%	37.8%	
Intermediate	82.0%	18.0%	
Accessible	93.0%		7.0%
Inaccessible	90.7%		9.3%
Intermediate	89.2%		10.8%

The errors of diagnosis in general practice are probably not less than in hospitals, although, of course, no direct comparison is possible between hospital patients and the general population. I need not enlarge upon the possibilities of improving the diagnosis of cancer in savage races and in animals, but it may be well to point out that the opportunities for their reaching cancer-ages in large numbers are absent in many instances. The greater frequency of cancer in domesticated as compared with wild animals, appears to be due, as we pointed out in 1903, not to contact with man, but to the fact that man so provides for, and protects them, that higher proportions live long enough to attain to their respective cancer ages.

In recent years the attempt has been made to advance the statistical study of cancer, not by enumerating the numbers of those *dead* from it, but by making a census of persons *suffering* from it. The difficulties are greater in telling if a person is suffering from cancer than in determining if he died of it. The method is as fallacious statistically as is reliance on hospital statistics in order to adduce evidence of the increase of cancer. The collection of the clinical and pathological data from hospitals, given in the above table, has demonstrated that the taking of a census of cancer patients in the general population is an absolutely worthless tabulation of data vitiated by an exaggeration of all the fallacies inseparable from data of mortality. An improvement in the value of the statistical investigation of cancer is to be expected only from an improvement in mortality statistics as a whole, *i. e.* by an increase in the accuracy of all the data on which vital statistics are necessarily based. The necessity for greater completeness, uniformity, and accuracy of the data of mortality, and of those relating to the age-constitutions of populations, applies still more urgently if comparisons are to be made between the statistics of cancer of different countries. Comparisons between different countries will be made profitable only by an all-round raising of the standards of accuracy and completeness of vital and mortality statistics. For these and other reasons a cancer-census has not been made in England. Where one has been made, *e. g.* in Germany, Holland, Hungary, and Spain, it has left all the problems of cancer just as they were. For these reasons we also consider the attempt to compile uniform international cancer statistics a counsel of perfection, and a utopian scheme diverting both energy and money from other and more profitable lines of investigation.

There is no doubt that an absolute increase of the number of cases of cancer *recorded* from year to year is taking place not only in practically all races of mankind, but also in vertebrate animals. Nevertheless, to alarm the public by proclaiming this as "an increase of cancer" in the sense that there is an increase disproportionate to the numbers and age-constitution of the populations examined is pure sophistry. Much of this increase can be referred with certainty to the larger number of individuals attaining to the "cancer age;" another considerable proportion can be referred with equal certainty to greater care in searching for the disease, as demonstrated for many native races and for animals. The universal endeavor to improve vital statistics in all countries is also in part responsible. Reviewing the whole circumstances, one must concede that these factors have been potent ever since statistics of any kind were available, and, although it is impossible to deny that a relatively greater proportion of the population may die of cancer than previously was the case, nevertheless, a real increase cannot be proved, and what has been made a cause of public anxiety appears to have little or no existence in fact.

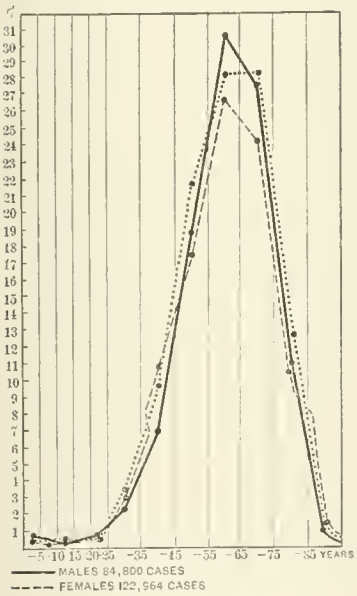
5 10 15 20-25 -35 -45 -55 -65 -75 -85 YEARS
MALES 84,800 CASES
FEMALES 122,964 CASES
FEMALES 72,552 CASES OMITING BREAST, UTERUS AND OVARIES

Fig. 4.—Percentage distribution of deaths from malignant disease in England and Wales, 1901-1907.

The Incidence of Cancer on Different Parts of the Body.—In considering the etiology of cancer regard must be paid to the sites of predilection. According to the national mortality statistics of England and Wales, among males the organ most frequently invaded is the stomach; it is the seat of the disease in nearly 22 per cent. of the fatal cases, the liver and gall bladder are invaded in nearly 13 per cent. of the whole, the rectum in 10 per cent., and the intestine in 8 per cent. Taken together the parts here specified are attacked in more than two-fifths of the total cases, recorded in

the national mortality statistics. Among females the generative and mammary organs are affected in more than two-fifths of the total fatal cases: while a further two-fifths are contributed by the stomach, liver, intestines, and rectum, taken together. It is well known that cancer is more fatal to women than to men, and that this fact is accounted for by the greater frequency with which the generative and mammary organs are attacked in women, is shown by the accompanying two curves (Figs. 4 and 5) illustrating the general similarity, but also the important differences, which obtain between the general population and a hospital population. In the latter all cases have been examined microscopically. One important difference is of interest, the maximum for the fatal cases in the general population occurs between 55 and 65, or ten years later than in hospital patients. This difference is partly accounted for by the duration of the disease from the time it is observed till the fatal issue, but is also to some extent an expression of the beneficial effects of surgical treatment by postponing death till the patients fall under the next decennial age-period. I need not do more than allude to sources of fallacy if any attempt be made to magnify the importance of the differing maxima.

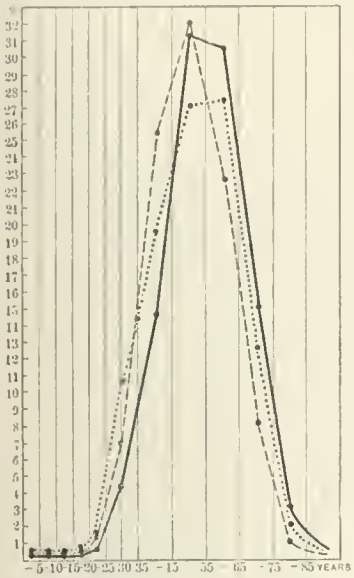

Fig. 5.—Percentage distribution of cases of cancer in hospitals, for comparison with Fig. 4.

In England and Wales in the seven years ending with 1907 the recorded deaths of males from malignant disease other than that of the generative and mammary organs were equal to a rate of 730 per million; whilst the deaths of females with the same reservation did not exceed 594 per million, the total deaths from all forms of cancer being 84,300 males, and 122,964 females. Therefore, when other individual organs are considered, there is an opposite contrast between the two sexes, *e. g.* cancer of the lip, tongue, œsophagus, stomach, and rectum, is much more common in men than in women, but in women cancer of the gall bladder and liver is perhaps more common than in men. On the whole, the liability of males, both generally and for individual organs—excluding the generative and mammary organs—is greater than that of females, and it appears possible that the difference is due not merely, if at all, to constitutional conditions determined by sex, but also to local circumstances peculiar to the organ attacked, perhaps by the customs of the two sexes, in the same way as the difference in the customs of women in India and in Europe determine their respective liability to and exemption from carcinoma of the mouth. I shall have to refer later to the enhanced importance thrown by comparative and experimental studies on the association of cancer of the skin with chronic iritation, and I may allude here to its possible importance also in connection with cancer of the alimentary tract. The difference in the proportionate incidence of cancer on the upper and lower halves of the alimentary canal in males and females, respectively, is brought out diagrammatically by curves for the population generally (Fig. 6), and for hospital patients (Fig. 7). The details lacking for different sites for the general population are available for hospital patients and may be cautiously employed to elucidate the mortality statistics. The curves of liability for the two sexes cross at the stomach in both, so that for males a higher proportion of cases of cancer of the alimentary canal occur above the stomach than below it, the opposite relation obtaining for the female sex. This relationship may be brought into connection with the different habits of the two sexes in consequence of which the upper part of the alimentary canal is more exposed to chronic irritants in males, and the lower part in females.

The predilection for some sites rather than for others in mankind, and even the preponderance of certain forms of cancer in a single organ, *e. g.* scirrhus carcinoma of the breast in the human female, must be considered from another standpoint than that of chronic irritation. These sites of predilection reveal the existence of endogenous factors associated with cancer, when considered in the light of comparative investigation. In surveying the incidence of cancer in the vertebrate kingdom, one has been struck by the fact that certain forms appear to preponderate in different classes, *e. g.* carcinoma of the thyroid in the trout. In the mammalia some species are very liable to forms of cancer of the mamma from which others, even nearly allied, are relatively or altogether exempt. Cancer of the mamma is extremely rare in the cow, common in the human female, the dog, and the mouse. In the animals liable to cancer of the mamma, the disease exhibits specific characters in the relation between the epithelial and connective tissues, *e. g.* scirrhus in the human female, delicate

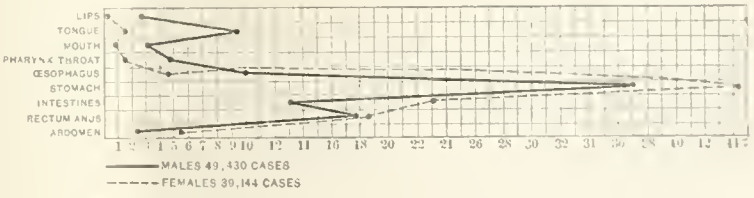

Fig. 6.—Deaths from malignant diseases of the alimentary canal (England and Wales, 1901-1907), classified according to sex and part affected.

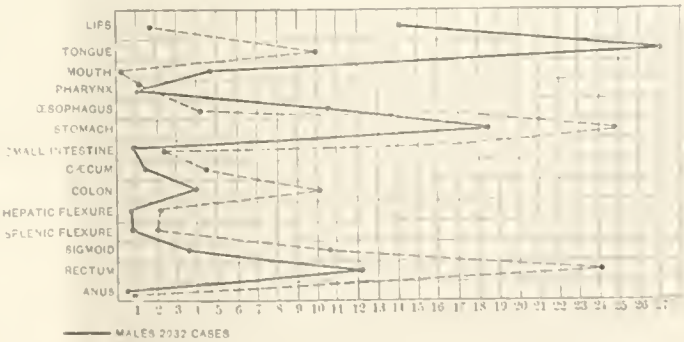

Fig. 7.—Incidence of carcinoma of the alimentary canal (hospital cases) classified according to sex and part affected.

stroma and great tendency to dilated blood-sinuses and to hemorrhages in the mouse, in the dog tendency of the connective tissue scaffolding to the formation of cartilage and bone, in the rat to the formation of dense sclerotic tissue as in the human female. When fuller facts are available, it will probably be found that the sites of election do really vary from one class or even nearly related species of animal to another. Since external conditions, *e. g.* chronic irritation, and modes of life cannot be made entirely responsible for the differences they can be referred with some certainty to innate peculiarities of the several different mammalian organisms, predisposing certain organs to, or exempting them from cancer, and determining even the type of growth preponderating in an organ, *e.g.* the mamma. It seems difficult to escape concluding that these differences justify the assumption that distinctive interrelations exist between malignant new growths of the same organ in different species, *e. g.* the mamma, and the entire organism. We are thus brought face to face with local and constitutional conditions associated with cancer, and when we come to prepare differences in the incident of cancer in individuals of the same variety of a species, we are tempted to assume an innate, or an acquired local or constitutional predisposition in one case and exemption in another.

Chronic Irritation and Cancer.—Since no race of mankind is exempt, the association of cancer with forms of chronic irritation* having nothing in common beyond their liability to produce chronic ulceration, chronic inflammation, or prolonged attempts at repair, is a fact of more moment than any futile discussion of the relative liability of different races of mankind. Carcinoma of the skin of the abdomen is practically unknown in Europe, yet it is most extraordinarily frequent in Kashmir, because the natives there wear next to the skin an oven containing burning charcoal. I show photos of this charcoal oven, of Kashmiris wearing and using it, and also of the typical squamous-celled carcinoma with metastases resulting from the native practice. Carcinoma of the floor of the mouth is rare in European women, although not uncommon in men; but in Ceylon and India generally the women suffer to a high degree from carcinoma of the inside of the mouth. This is due to the chewing of betel-nut and the practice of sleeping with the plug in the mouth; in the course of time carcinoma develops at the site so irritated. Without elaborating instances it may be stated, in short, that the incident of cancer on the surface of the body in different races of mankind is influenced, on the whole, not so much by innate racial peculiarities, or differences in climate, soil, and diet, as determined by external irritants. The results of the study of the comparative incidence of cancer in man are of fundamental importance. They enhance the significance of two conclusions from histological and pathological investigation in Europeans; first, that cancer can arise locally in a circumscribed area, and second, that any part of the normal covering of the body may acquire cancerous properties. Hence it is also probable that more than one focus of origin, or even foci of different age, may be contained in a circumscribed area. Therefore, although the inception of malignant new growths is confined to a circumscribed area, and continued growth proceeds only from the resources of the tumor-cells comprised in it, successive augmentations in the extent of the primary area by apposition cannot be excluded in all cases.

I must point out emphatically that I do not feel justified at present in assigning anything more than an indirect or mediate etiological significance to chronic irritation and to other exogenous factors. The significance of chronic irritation is qualified by the fact of its not occasioning cancer in all individuals who subject, with equal intensity, identical parts of the body to its influence. An active prolonged or an intermittent process of regeneration and repair is intercalated before the development of cancer in tissues subject to chronic irritation. Observations which I shall have to refer to later, have shown that there is an immense variety of carcinoma cells, all descended from normal cells, some of which pass into one another while others do not, and are able to maintain their characteristics for prolonged periods during the artificial propagation of tumors. The same holds for sarcoma cells. It is not inconceivable that under the influences of chronic irritation the cells in a tissue undergoing a prolonged or intermittent process of regeneration and repair exhibit similar variations, some ultimately capable of advancing to malignant cells and others not. The end result is possibly determined by a combination of these factors with constitutional conditions. In this way it becomes intelligible why the irritants themselves have so little in common. Haaland's observations in the laboratory of the Imperial Cancer Research Fund appear to have thrown much light on this subject. His studies on our tumor "37" concerning the experimental development of sarcoma—a phenomenon first recorded by Ehrlich and Apolant—have yielded evidence that repeated transplantation in some cases aids the process. At the time when carcinoma sarcomatodes was obtained by this means, no progress had taken place in the mouse yielding the mother material. From a review of the whole circumstances Haaland's observations point to the sarcomatous change arising in the transformation of a few, perhaps isolated, normal connective tissue cells. Whether the process consists in a succession of small variations whereby they become transplantable and ultimately progress into sarcoma cells, or is a sudden acquisition of sarcomatous properties is not definitely settled. It would appear that the repeated transplantation was of moment, in some cases, in effecting the transformation, partly by maintaining the cells in a continued or intermittent state of regeneration, partly by affording a means of selecting and perpetuating variations more capable of growth. This conclusion is put forward tentatively, for our studies on tumor "37" are still continuing, and a comparison will have to be made with another of our tumors "100" which Russell has found leads to the development of sarcoma. The behavior of these two tumors as regards the development of sarcoma does not at present appear to be identical in all details, differing most prominently in that, whereas repeated transplantation aids the process for tumor "37," it hinders its advance in the case of tumor "100". Sarcoma development can be obtained constantly

*For example, *physical injury*, as in fracture of bone or in "brand" cancer," or the "horn core" of cattle, where squamous cell carcinoma develops at the root of the right horn to which a wagon is attached in India; *chemical*, as in paraffin, petroleum, arsenic, aniline, etc.; *radiant or actinic*, as in short clay pipe, the Kangri, x-ray, or where the skin over the shin-bones of locomotive drivers has been exposed for years to the direct action of heat; *infective*, as in bilharzia of the bladder, tubercle in old lupus scars; *Trepynema pallidum* in keratosis linguæ; tapeworms as recorded by Borrel; chronic inflammation and ulceration of all kinds, etc.

for tumor "100" provided growth is maintained for some 50 days in a single animal. Pure carcinomatous strains of both tumor "37" and tumor "100" have been maintained in propagation, so that it will be possible to harmonize their behavior, or to discover the nature of the differences if any really exist. I illustrate the experimental development of sarcoma in the course of the propagation of carcinoma by a series of slides, for tumors "37" and "100."

Hereditary, Congenital, and Infective Hypotheses of Cancer.—The question of the hereditary transmission of cancer has not been settled either one way or the other for man. The short duration of life in the mouse and the rapidity with which generation follows generation make it an ideal animal for the study of problems of heredity. For years we have devoted attention to breeding experiments with mice of cancerous stock. The starting points have been mice suffering naturally from the disease and relieved of their tumors by operation. In the first 400 mice, so bred, which lived over six months 30 cases of cancer appeared; the incidence of the disease continuing, however, to obey the law of age-incidence, without as yet giving any indication of in-born predisposition playing a part in determining either a local or a constitutional liability to the disease, or even so much as an enhanced suitability for inoculation. Therefore, it would appear that the disease, or the local and general predispositions which apparently exist, are always acquired, and, if so, may ultimately be found to be avoidable.

The pessimistic views entertained in regard to cancer are due largely to the wide dissemination of the ill-defined idea that malignant new growths, as a whole, being of "congenital origin" must inevitably compass the doom of many. This idea arises in the first place from a generalization of the fact that certain forms of cancer are undoubtedly associated with congenital abnormalities, and from neglect of the equally important fact, that the acquisition of malignant properties by their component tissues is just as much a problem as the development of cancer in adult issue. In the second place, it is due to seeking an analogy for the powers of growth of cancer in embryonic tissue. In the third place, it is founded on the assumption that the absence of histological differentiation in many cancers proved a biological resemblance to embryonic tissues previous to their differentiation, proved indeed a reversion to embryonic conditions.

The absence of any evidence of hereditary influences detracts much from hypotheses asserting a congenital origin for cancer. Other facts are even more emphatically opposed to them. The study of the incidence of cancer as determined by irritants in man, demonstrates that the generalization of the idea of a congenital or embryonic origin is incorrect. Neglecting cancer in animals—although generalizations to carry any weight at all must be extended to them—and to refer to but three examples in the case of man: Cancer of the skin of the abdomen is practically unknown in Europe, yet it is most extraordinarily frequent in Kashmir; this is not due to a distribution of congenital "germs" in the skin of the abdomen of Europeans and natives of India other than that in Kashmiris, but to the fact that the latter irritate the abdominal wall by wearing a charcoal oven round the waist and the former do not. Cancer of the floor of the mouth is rare in European women, although not uncommon in men; but in Ceylon and India generally, the women suffer to a high degree from cancer of the inside of the mouth. Again, this is not due to developmental differences between women in England and those in India, but to the fact that Indian women chew betel-nut and sleep with the plug in the cheek at the exact spot where cancer starts. In needle-women melanotic sarcoma often develops in the fingers at the site of frequent puncturing by the sewing-needle. If all forms of cancer are to be explained by the intervention of congenital germs then it must also be assumed that such germs are as uniformly distributed, *e. g.* over the surface of the body of all vertebrates as the skin is itself, and thus the explanation becomes no explanation at all.

The growth of cancer is essentially different from the growth of embryonic tissue, analogies with which were natural so long as the growth of cancer was put an end to by the death of individuals. Experiment has revealed that the growth of cancer is, however, a unique biological phenomenon, disobeying all the laws of growth of embryonic tissue in accordance with which organisms and organs attain to their specific dimensions. The growth of cancer also differs in that in many instances it is accompanied by cyclical alterations between phases of more pronounced histological differentiation and phases in which all histological differentiation is absent. Any progressive histological change in the growth of cancer is in the direction of a disappearance of these alterations of histological structure so that the histological differentiations exhibited at an earlier date are not manifested later.

When a carcinoma is transplanted, the blood-vessels and supporting connective tissue scaffolding are supplied afresh as a reaction elicited by the chemiotactic influences of the parenchyma cells. The stroma of all transplanted tumors should be uniform if their characteristic elements possessed primary undifferentiated embryonic properties. On the contrary, tumors without any apparent histological differentiation elicit distinctive new vascular and connective tissue scaffoldings. The peculiarities of the stroma of different tumors remain constant during propagation. The fact indicates that the cells of malignant new growths, even when showing little or no indication of histological differentiation in the direction of any fully formed tissue, still possess permanent characters of a less obvious kind, and these characters are of the nature of specializations or differentiations analogous to those which we recognize as histological differentiations. Of over sixty propagable carcinomata growing in our laboratory it can be said that no single one is an exact duplicate of another. The cancer cells are, therefore, specialized and not undifferentiated cells. In the phenomena of induced resistance to the inoculation of cancer, especially in the specificities of immunity following the absorption of normal or cancer tissues, there is much that is opposed to the assumption that tumor cells are embryonic. Alternations in the rate of growth occur unlike anything known in the growth of embryos. In short, the interpretation of the absence of morphological differentiation as indicating a biological similarity of tumor cells to embryonic cells was due to the limitations of histological methods, which were insufficient to reveal the fundamentally different biological properties of cancer cells indistinguishable by their aid.

If pathological anatomists have in the past often

pointed out the difficulties in the way of drawing analogies between cancer and infective diseases, the comparative and experimental work of the past seven years has demonstrated that cancer has no analogy with *any known form* of infective disease. The force of this demonstration has appealed even to the staunchest supporters of a parasitic etiology for cancer, and has obliged them so to modify their opinions that I do not propose to discuss in detail the *petitio principii* into which they have been coerced, except with regard to the alleged occurrence of epidemics of cancer in rats, mice, and trout. Many tens of thousands of mice suffering from cancer have been under the most stringent observation in our laboratory. If cancer were communicable, animals housed along with those naturally suffering from or inoculated with cancer would be the first to suffer. In an experience extending over more than six years, *i. e.* more than three times the average length of a mouse's life, exhaustive investigation during which some 200,000 mice have been inoculated, has shown that this risk does not exist. Those handling the animals incur still less risk in passing many hours daily dealing with cancerous animals in a room in which 10,000 of such mice and rats are usually housed at one time. If such a "cancer-house" as never before existed has no dangers to human beings who spend their days in it, *a fortiori* other persons have no ground for apprehension that the ubiquity of cancer implies its transmission either directly or indirectly from animals to man, or *vice versa*. In corresponding observations on mice suffering from spontaneous cancer no case of transference from mouse to mouse has occurred. Cancer is ubiquitous, yet there are the most striking limitations to its conveyance from one individual to another, continued growth taking place after inoculation into animals of the same species only. Inoculation is only successful by the implantation of living cells, but experiments show that this risk is negligible if it exists at all in nature.

Epidemics of cancer have been alleged to occur in the establishments of breeders of rats and mice, notwithstanding that investigations made under the much more satisfactory conditions obtaining for man, have not given any statistical evidence of the epidemic or endemic occurrence of the disease. Our experience of such alleged epidemics may be illustrated by the proportions of cases of cancer to total numbers of mice supplied to us by four breeding establishments from January 1, 1906, to October 21, 1907.

Breeding Establishments	A	B	C	D
Tumor mice	10	6	35	18
Total mice	1302	1547	9698	11842

The number of tumors occurring in these stocks of mice has been determined solely by the number of mice of "cancer-age" under observation. This is brought out particularly clearly in the difference between the age-constitution of the stock of Mr. C. and Mr. D., since the stock of the latter contains constantly a much higher proportion of young animals, and he supplied us with most of our young mice. Further, if we note the dates on which tumors are sent to us and arrange them in columns we find that the crops of tumors coincide with the ageing of groups of mice. Thus, those aggregations of cases, loosely called "epidemics" by too enthusiastic advocates of a parasitic origin for cancer are really evidence of the importance of knowing the age-constitution of the mouse population in which the cases occurred, as pointed out earlier when speaking of the age-incidence of cancer.

Metabolism, and Vita Propria of Tumor Cells.—We have often pointed out from 1903 onwards, that the artificial propagation of cancer gave ideal facilities for studying the problems of its apparently continuous growth, particularly because the same parenchyma could be studied over any requisite length of time, and under different experimental conditions. These advantages apply with even greater force to the study of metabolism, and the relations of tumors to their hosts when living under varying experimental conditions. The relation of propagated tumors to the animals bearing them has been shown by Cramer to be analogous to that obtaining between the fetus in utero and the mother, only still greater quantities of tissue are built up. There is no evidence of toxic products injurious to the hosts; on the contrary, there is a compensatorily enhanced activity on their part, as revealed by Cramer's and Copeman and Hake's study of the gastric secretion, and by Cramer's investigations on the gaseous metabolism. In the end, however, compensation breaks down, and, finally, the tumors live at the expense of the host. When this stage is reached the animals speedily die. It appears that a definite ratio obtains between the weight of tumor and the weight of the animal supporting it without disturbance of health. If the weight of tumor exceeds this relationship the animal quickly suffers and succumbs. Compensation may be upset much more rapidly by taking advantage of the fact that the rate of increase of some tumors is proportional to the dose of tumor material inoculated. In this way it can be shown that the terminal result is due to the greater number of cells demanding food, and not to a greater avidity for it, and that death is not due to poisons.

When very young animals are made to bear rapidly growing tumors they remain dwarfs, the whole increase in weight the animals should show by a given age being made up of tumor. Medigreceanu's analysis of the relations of the different organs to tumor growth shows that, when the animal remains a dwarf, individual organs, *e. g.* the heart, liver, kidneys, lungs, attain to adult size, so that they are hypertrophied as regards the mouse. The mouse, in short, is turned into an assimilative and excretory apparatus for the tumor. Murray has shown that, when rapidly growing propagable tumors are inoculated into mice with spontaneous tumors which, as is well known, are rarely able to establish themselves in normal mice, the spontaneous tumor of the mouse herself outstrips the propagable tumor. Mice which have cured themselves of rapidly growing tumors, transplantable with ease, have, on the one hand, developed spontaneous tumors of their own, and the latter, on the other hand, could be transplanted into normal mice only with difficulty, or not at all. Therefore, transplantability is not determined solely by the rate of growth or the degree of avidity for food. I may merely allude to other detailed investigations which are being conducted by Cramer into the general metabolism and its relation to the chemistry of the cancer cell, and to the fact that the cells of certain of our rapidly growing mouse tumors have been found by Abderhalden, in conjunction with Medigreceanu, to split up some synthetised polypeptides

more rapidly than normal tissues do. As yet we have not got much beyond defining, that the cancer cell has many of the properties of rapidly growing tissue, without containing anything extraneous, and without secreting anything directly deleterious to the organism. In these ways, and in a variety of others, our knowledge of the nature of cancer growth and cancer metabolism is being advanced with so great exactness that the old vague conceptions of disturbance of cell equilibrium, put forward to explain the apparently continuous growth of cancer, will ultimately be replaced by precise conceptions of the process, as the following additional facts on tumor growth already promise. In 1905 we described cyclical alternations in the energy of growth of Jensen's tumor. Since then we have been able to confirm these observations on practically every one of the 60 propagable mouse tumors now growing in the laboratory. The later investigation of the phenomena of the alternation of positive and negative phases of growth, has shown that cyclical changes in the cancer-cell are revealed in a variety of ways as follows: (1) rise and fall in the percentage of successful inoculations; (2) rapid and slow growth of the tumors in different series, and in the individual tumors of a single series; (3) transitory cessation of growth; (4) alternating susceptibility of the tumor cells to dosage, and particularly to the greater or less degree of simultaneous immunisation depending upon the latter; (5) Murray has drawn attention to cyclical alternations in the histological structure from alveolar to acinous and *vice versa*. I exhibit a series of slides illustrating these points in the *vita propria* of tumor cells. It is clear that, by these alternating properties of the tumor cells, an explanation is afforded of the varied histological picture different parts of the same tumor often exhibit, as well as of the erratic clinical course of cancer in man. In the human subject there are corresponding fluctuations in the growth of cancer. In one part of a tumor growth is proceeding rapidly, in another part slowly. Periods of exacerbation alternate with periods of melioration. Further, secondary nodules of growth are known to disappear while others are growing, and occasionally primary growths have disappeared. The observations made on mice emphasize the importance of those clinical features, largely discredited in the human subject, since it was impossible to resolve them into the orderly sequence which the prolonged observation of the growth and structure of propagable tumors has permitted. These studies on the *vita propria* of the cancer-cell makes it apparent that its secrets are being penetrated gradually. I have already pointed out that, of our 60 mammary tumors capable of continuous propagation under uniform experimental conditions, not one is a duplicate of another; nevertheless, they all appear to have one feature in common, for the biological properties of their cells alternate in the ways I have enumerated, and, therefore, something fundamental is revealed by the cyclical fluctuations in their general biological behavior, structure, and rate of growth. The cyclical alternations in the percentage of successful inoculations, and in the negative and positive phases of the rates of growth of the resulting tumors, are most impressive. I venture to suggest as an incentive to further investigation the solution of the problem: Are tumor-cells, in recovering the enhanced powers of proliferation they exhibit in the positive phase of growth, but imitating the process by which normal cells passed into cancer cells?

Tumor-Cells as Indicators of the Nature of the "Soil" Offered Them.—In order to penetrate to the finer relations existing between tumors and their hosts, we are obliged to rely upon the behavior of living tumor-cells after placing them under varying experimental conditions. The experimental conditions I propose to consider are those that living animals offer. The living cancer-cell indicates the condition of the "soil" into which it is implanted; in other words, the cancer-cell is the reagent, or "indicator," and the living mouse is the test-tube, containing something to be tested. In all experiments of this kind it is well to bear in mind the distinctions which may, and usually do, obtain between reactions *in vitro* and *in vivo*. The glass test-tube is, or ought to be, indifferent; breaking off a piece and casting it into the contents should not alter the conditions. In the *in vivo* experiments, which are alone possible in the case of cancer, the mouse is the living test-tube, and it is not indifferent; removing a piece and, so to say, incorporating it with the contents is not only not an indifferent procedure, but, as Woglom has shown, is one of the most efficacious ways of demonstrating certain of the reactions revealed by using the living cancer cell as an "indicator."

I have alluded to the varying qualities of tumor cells even under uniform conditions, and it may seem strange to emphasize their experimental importance, when appraising the significance of the results of attempts to modify experimentally, the behavior of a tumor, by changing the condition of the "soil" offered them for growth. Nevertheless, together with many other technicalities of the methods of experimentation, they have been almost universally ignored in the race for priority of publishing evidence of immunity against cancer. Much of what has been written on immunity, or resistance of mice to the inoculation of cancer, would not have been published had the authors studied sufficiently the varying qualities of tumor cells and the influences of other uncontrollable and controllable factors, as an investigation necessarily preliminary to claiming that they had immunized mice against inoculation, had vaccinated them against its attack, or had actually cured them of it. We spent three years studying the fluctuating growth and other varying qualities of the tumor cells, the influences of dose of tumor, age and weight of mice, time intervals, and the effect of injuring or actually grinding down tumor and normal tissue, in order that our attempts to modify tumor growth should be conducted with the precautions necessary to avoid experimental fallacies. In this way we cleared up the contradictions we had recorded between observations made *in vitro* and *in vivo* with immune sera, as well as accounted for the apparent curative results obtained by injecting immune sera into animals with tumors, before we devoted any communication exclusively to the subject of immunity. When we published definite statements in 1906 Clowes had already claimed (1905) to have demonstrated antibodies directed against the cancer-cell, and Ehrlich had set up (1906) the doctrines of atreptic immunity and pan-immunity. Our observations are opposed both to Clowes' and to Ehrlich's interpretations of their experiments. We were able to show at once that immunity to the inoculation of mouse cancer could be produced by both the absorption of cancer tissue and of normal tissue of the

mouse, but not by cancer tissue or normal tissue of strange species. We also showed that the resistance which tumor mice show to a secondary inoculation was actively induced, and that resistance was specific for different tumors, even when of the same organ. These results were arrived at by using exact quantitative methods, and by employing the other precautions already mentioned. Haaland came independently to the conclusion that the resistance was specific for different tumors, and Borrel and Bridré have arrived at the same conclusion.

Apparent contradictions still exist between some of our conclusions and those of other workers, but I believe they are mainly if not wholly explicable by neglect of some of the precautions we have so often emphasized. Two of these precautions may be alluded to in more detail. The differences obtaining between young and old mice in their suitability for inoculation and growth are very important. You can easily appreciate how if a tumor is sent from one country to another and there transplanted into old mice, a negative result may be obtained which it would be wrong to assign to differences in race of mice. I have a chart of such an experiment where some of the difference in the growth of an English tumor in German mice is seen to be certainly due to the higher age of the latter. The effect is not so great as to lead to an entirely negative result because the tumor cells were in the positive phase of growth, but on the next slide they are shown on the negative phase of the growth and not a single tumor developed in the strange soil. Differences in the mice of different countries exist, however, but whether these differences in the mice of different countries are racial differences or are less permanent and due to diet and environment is not yet definitely settled. They do not exist for all tumors, as the slide I show of the growth of Borrel's tumor "B" demonstrates. This French tumor grew at once in 100 per cent when inoculated into English mice and as the slide shows, yielded large rapidly growing tumors. It is a general property of all tumors that they grow not so well or not at all in old mice. You can easily appreciate that if the middle aged and old mice which were negative to a first inoculation had been reinoculated, they would have proved resistant again to any tumor. The resistance would appear to be general, for its specific nature would be concealed. The same appearance of general immunity can be obtained after inoculating the tumors or tissues of strange species of animals into sufficiently aged mice.

We have often pointed out the importance of the dose of tumor material inoculated. Together with the consideration of age it merits equally emphatic mention if the results of other investigators are to be harmonized with our own: this applies both to doses used to induce immunity and to doses used to test for its existence. Any dose of tumor will not suffice to produce a new tumor at the site of inoculation. The dose may be too large, so that only transitory growths develop, or, it may be too small, so that no growth is evident. When a tumor develops, the dose from which it started is not a matter of indifference if a later inoculation is to be made into the same series of animals. A chart I show demonstrates a diminution in the success of inoculation with diminishing doses, and a corresponding diminution in the degree of resistance of the mice to a second inoculation. The phenomena can be explained only by the primary inoculation having induced an active immunity concomitant with the establishment and the growth of the tumors. This concomitant autoimmunisation may be very perfect as is shown in a chart taken from Haaland's experiments with our tumor 206. In the case of this tumor it is so complete that every mouse cures itself of its growth. The resistance induced against a reinoculation of the same tumor is more complete than against other tumors. The resistance in this sense is specific, and the conditions of growth are also specific, since a tumor of different nature, although of the same origin will grow in mice which are completely protected against a reinoculation of the tumor first inoculated. The lesser degree of protection which one kind of mouse tumor induces against other kinds is due probably not to cancer-tissue as such, but to its properties *quâ* mouse tissue.

A sarcoma of a cat or rat vaccinated into a mouse, lacks the power of protecting it against subsequent inoculation of mouse sarcoma. I have a chart illustrating the absence of immunity when rats have been previously inoculated, with cat and with mouse sarcoma. The same holds for corresponding experiments with carcinoma. In short, animals can be rendered unsuitable for the inoculation and growth of cancer only by treating them with malignant new growths, or with normal tissues of their own species. In the latter case the degree of resistance corresponds closely to the relationship between the normal tissue vaccinated and the tumor subsequently inoculated. The skin protests best against skin cancer, and the figures of the site of inoculation in a control and in an immune mouse demonstrate the efficiency of the protection. These facts refer us back again to the transplantation of cancer being limited to animals of their own species, and together with them demonstrate the retention by malignant new growths of the tissue characters of a species. The malignant new growths of different species of animal resemble one another just as much, and differ just as much, as their respective organs and tissues do, *e. g.*, as the liver and lungs of man resemble and differ from those organs of the mouse. The power of normal tissues to induce protection is not restricted to those obtained from other individuals. Woglom has shown that the absorption of a mouse's own tissues, *e. g.* of the spleen, effectively induces protection against subsequent inoculation.

The parallel between cancerous and normal tissue extends much further. Immunity or resistance is induced only by the inoculation of living tumor cells or of living normal cells. Haaland has made very elaborate investigations on this subject. He has found that cancer tissues and normal tissues are deprived entirely of their powers of inducing resistance if they are frozen and effectively crushed. I illustrate this parallel by a chart showing the protective power of living normal skin and its loss of power to induce protection after being disintegrated in this way. Immunity therefore does not appear to be induced by the chemical contents of the cells.

Another chart is of particular interest. It illustrates the action of radium upon normal and cancerous tissues without causing their disintegration. After exposure to radium for an interval within which no structural alteration can be observed in the tissues, either with the naked eye or microscopically, they may be completely deprived of their powers of growing and immunising. The abolition of these vital properties is here achieved with retention of the histological structure of the tissues

and of intactness of the cells, and the experiments demonstrate that the power to elicit these biological reactions is intimately bound up with, and dependent upon, the vital activities of the cells themselves.

Not only does no immunity follow the inoculation of effectively disintegrated material, but on the contrary the mice may thereby be made more suited for the growth of tumors. This hypersensitiveness is, however, not so specifically induced as resistance. It can be induced both by tumor and by normal tissue of strange species, and since resistance may follow the absorption of a mouse's own living tissues, it is also probable that hypersensitiveness may be induced by her own tissues when properly disintegrated.

The nature of the immunity to cancer is not yet fully elucidated. It has no analogy with anything known for the infective diseases. The hopes of obtaining an anticancer serum cautiously expressed by Jensen in 1903 have not yet been fulfilled. Further investigation of the action of the serum of immune animals both *in vitro* and *in vivo* has justified the cautious references we also made to the same subject in 1904 and 1905. Clowes' evidence of the presence of a specific antibody in the serum able to exercise a curative effect *in vivo*, and a lethal effect on the tumor cells *in vitro* stands alone. We have never ascribed to the action of antibodies, the beneficial effects which Jensen, Clowes, and we ourselves sometimes noted after the injection of the serum of immune animals. The action of immune serum *in vitro* has been found both by Flexner and ourselves to be just as injurious, but not more so, to the cancer-cell as is normal serum. It can be now stated with some confidence that animals which are absolutely protected against inoculation do not yield a serum which, when introduced into new animals, has a power of protecting them against inoculation; still less is there any evidence of immune sera having a power to cure animals of tumors already growing. Highly immune mothers apparently do not transfer immunity to their offspring as do animals immune to diphtheria or other poison of infective disease.

At present artificial resistance can be made efficacious mainly against the inoculation of grafts which speedily die in immunised animals. I show you a picture of the manner in which a normal mouse responds with a new connective tissue scaffolding, and the contrast that obtains in an immune animal which does not respond in this way. The most evident cause of the death of the grafts is that they cannot grow into an organized tissue and nourish themselves. We have explained the absence of the specific stroma reaction, necessary for a graft to develop into a tumor, by assuming that the chemiotactic properties of the cancer-cells are paralysed, so that they are no longer able to elicit the specific response on the part of the host. Russell has been able to demonstrate that this is the nature of the process. Working in our laboratory Da Fano has carried Russell's investigations further, and besides confirming that the specific connective tissue and vascular scaffolding supplied by a normal is not supplied by an immune animal, Da Fano has shown that the entire connective-tissue system of the animal responds during the processes both of spontaneous healing and of immunisation. Any subsequent inoculation fails to elicit the response necessary for continued growth. It is not intended to deny that changes in the blood-plasma accompany the acquirement of resistance or immunity, but while it is difficult to conceive of so complete a constitutional change occurring without this intervention, the constitutional changes throughout the connective tissues prove that changes in the blood-plasma are not solely responsible, and that the immunity is not purely of a humoral nature but to a large extent cellular. An explanation is thus afforded of the negative results which have hitherto attended all Borrel's, Ehrlich's, Flexner's, Jensen's, and our own attempts to obtain an anticancerous serum. I would merely point out that the connective-tissue changes observed in mice during the absorption of tumor tissue are parallel to what has been described for spontaneous healing in man, for example, by Orth.

Conclusion.—From a survey of cancer in man and animals the following conclusions stand out. The first confirms that at which Waldeyer arrived in 1867 from his studies on man; the cells of vertebrates, *e. g.* of the skin, possess or acquire some property or properties in common, in virtue of which they may be transformed into cancer cells under what appear to be very different circumstances. The second is the application of the law of age-incidence to vertebrates generally, irrespective of the absolute duration of life. Third, the disease originates in a circumscribed area. Fourth, when all due weight is given to this origin in cells within a circumscribed area, the relation between these cells and the organism as a whole is of moment. To these conclusions the experimental reproduction of all the lesions of cancer has enabled us to add the many others, I have related to you.

At this early date it is sufficient to have thrown a little light on four aspects of the etiology of cancer. First on the constitutional conditions favorable and unfavorable for the growth of cancer-cells. Second, on how cancer-cells after having passed into a phase of low proliferative energy may reacquire high powers of proliferation and of resistance to changes in their environment. Third, on the possible nature of the indirect association irritants have to the disease. Fourth, the cancer cells, even when of the same organ have been resolved into a larger number of varieties able to maintain their individuality than was previously conceivable. These varieties are of the nature of specialisations or differentiations unrecognizable by histological methods. Experiment has put many older explanations out of court. No evidence has been obtained in favor of an hereditary, congenital, or embryonic explanation of etiology, nor has any analogy been discovered with known forms of infective disease. I have illustrated how experiment is resolving the contradictions in the clinical behavior and in the results of surgical treatment of cancer into orderly sequence. If experiment has not solved many of the old problems, it has replaced them by new ones, which is a fair proof that progress is being made.

In the survey I have given of the progress of the experimental study of cancer I have had occasion to draw attention to the bearing of many of the results on purely biological matters, and it is well to conclude by emphasizing the comparative biological importance of cancer investigation. Seven years ago no one conceived it possible that portions of the mammalian organism could be kept growing for a period four times the length of life of the whole animal. But to-day the number of different kinds of tissues now being propagated separately, make it theoretically possible that the majority of

the tissues once they have acquired cancerous properties, may be so grown and segregated. In other words, a living animal can be analyzed into many of its living component tissues. The finer relations of various kinds of tissues to one another have been revealed by the application of the new methods. The biological alterations which living mammalian cells may undergo suddenly, as well as gradually, under the influence of experimental conditions, can be now studied. These and many other achievements in the field of general biology are the most important practical fruits which have accrued from the experimental study of cancer, upon which they have only indirect bearings. Ultimately they are bound to be of far-reaching general biological importance, although to-day they are merely the weapons that have been forged to attack cancer. Their further development, and their utilization for the solution of purely biological problems, will probably precede the solution of many of the problems surrounding the nature and causes of cancer. Having put before you a claim for the value of comparative and experimental investigation with the confidence that it is based on a sure foundation, and evidence that it is advancing our knowledge of the etiology and pathogeny of cancer, I crave your indulgence till time will enable these methods finally to clear up the cellular problems it has helped us to define so much more precisely than ever before.

YELLOW FEVER PROPHYLAXIS IN CUBA.*

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As the title of this paper suggests, it is not my aim or desire to enter upon a discussion of the usual prophylactic measures as they have been generally applied in the various campaigns against yellow fever epidemics, but to limit its scope within certain boundaries, referring principally to conditions which, because of their peculiarity, have demanded a different course of action from that followed elsewhere. It is also my purpose to bring out before this Congress in an unmistakable manner, how much better we are prepared than any of the other nations of the American continents to encounter and defeat yellow fever, since from a sanitary point of view we have been the cynosure of all eyes and our reputation in this respect has been maligned upon more than one occasion.

The topography of the island, no less than its geographical position, to say nothing of its international commercial activity and its proportionately large nonimmune population, renders our territory, if not less vulnerable to yellow fever invasion, certainly more favorable to its extinction than that of other countries of similar extent and ethnological conditions.

When you have kindly considered the actual sanitary measures here noted, which have been not only implanted but rigidly enforced and strictly and persistently maintained, you will not think it boastful on my part if I express the conviction that we shall have no more yellow fever epidemics in Cuba, provided, as I firmly believe will be the case, that the political conditions remain as favorable as they have been inaugurated by the present government.

In 1901 yellow fever infection disappeared from the island as the result of a campaign based solely upon the doctrine of mosquito transmission, carried out under the direction of Major W. C. Gorgas of the U. S. Army.

Until the fall of 1905 no more cases of yellow fever were seen in Cuba, except those introduced from Mexico or South America, which were so carefully taken care of, that no secondary cases ever developed from any of them. During this period (from February, 1901, to October, 1905) the Republic was inaugurated (May, 1902) under the best auspices; the flow of immigration, particularly from Spain (83 per cent.), increased tenfold and the new Central Railroad brought one end of the island into close communication with the other, stimulating industrial enterprises, developing new towns and sugar plantations, establishing commercial intercourse and new routes of travel between parts of the island which formerly, for want of this great advance in its civilization, were as foreign to each other as distant islands in a great sea could have been, or as portions of territory separated by inaccessible mountains.

The first event served to give us an unwarranted sense of security, derived mainly from the natural enthusiasm caused by the achievement of national independence; the second proportionately increased our nonimmune population, already augmented by the birth of susceptible material, and the third very efficiently spread stegomyia from the longer coast towns to the interior and to the new centers of population, where formerly none were to be found.

The epidemic of yellow fever which developed in New Orleans in the summer of 1905 crept into our territory in October of the same year, so that from that date until December 24, 1908, 405 cases occurred. The accompanying maps show the number

FIG. 1.—Number and distribution of yellow fever cases during 1905, October to December, inclusive (77 cases).

*Paper read before the Sixteenth International Medical Congress, Budapest, August 29-September 4, 1909.

and distribution of the cases (Figs. 1, 2, 3, and 4).

No case of yellow fever has occurred in 1909.

In the presence of these facts and in order to make my subject clearer, I shall divide it into two parts: firstly, prophylactic measures of a general or indirect character, and, secondly, those which have been directly employed against the occurrence or in the presence of yellow fever cases.

Indirect Measures.

A National Health Department.—Until August, 1907, the sanitary organization of the Republic consisted of two divisions, a maritime or quarantine and a terrestrial sanitary department, each under a different chief and in more than one respect independent the one from the other. Besides this, there were local health boards which controlled the sanitary affairs of each municipality according to the means provided by the same.

The numerous difficulties which this system continually presented in the improvement of the sanitary service were fortunately done away with by the decree which united all the sanitary authorities under one head, abolishing the local boards and appointing one local health officer to take their place in each municipality. The results were most satisfactory from the administrative standpoint, and the conflict of authority which previously so frequently interfered with the carrying out of urgent sanitary measures was permanently removed.

But this was only the first step taken in the direction of establishing a National Health Department, which under the new Organic Law of the Executive power was created; its chief is the Secretary of Public Health and Charities, a member of the Cabinet, thus placing under one head all the sanitary administration of the Republic.

As a prophylactic measure this innovation has been of the greatest importance, since the sanitary work of every city and town in the Island is now under the control of a central power; the methods have become uniform and the officials are all trained in the same direction.

Any case, in any part of the Island, remotely suspicious of any of the quarantinable diseases is immediately reported to the Director of Health, who orders the preventive measures which may not have been implanted and either goes himself or sends a commissioner (generally one specially trained in the diagnosis and prophylaxis of the disease in question), to carry out all sanitary work until the danger of the disease becoming epidemic has passed. This was done in Cienfuegos (1907), where only 75 cases developed in a nonimmune population of more than 4,000; also at Daiquiri, Oriente (1908), where only twenty cases occurred in a nonimmune mining population of more than 3,000 men. These were the largest epidemic foci since the reorganization, and they show what excellent results can be obtained by immediate concerted action on the part of the sanitary authorities.

Fig. 2.—Number and distribution of yellow fever cases during 1906 (112 cases).

Fig. 3.—Number and distribution of yellow fever cases during 1907 (167 cases).

The Establishing of Quarantine.—I believe that quarantine can be of but comparative worth against yellow fever infection so long as any value is placed upon the certificates of immunity presented by passengers. In the majority of instances, cases in the incubation period have entered the various countries by means of certificates of immunity obtained in some fraudulent manner. If every country, like Cuba, kept a strict record of the cases of yellow

fever, then we could put some real value upon the certificates that they issued.

In 1905 a close quarantine was established against southern ports of the United States, and yet the infection which was then waning in New Orleans invaded our territory in October of that year, and has been the source of great expense and worry to our government. An absolutely closed quarantine against infected ports, of course, is quite effective, and if no passengers coming therefrom are allowed to go at large before six days after arriving, and the vessel is not permitted to approach within 200 meters of the shore, no danger can be expected from them; but such measures cannot be applied except in accordance with laws prescribed in sanitary treaties, and even so are sure to cause great inconvenience to commerce and travel.

Isolation of Suspected Cases.—In yellow fever, isolation means not only segregation but also absolute defense against mosquitos. More than thirty cases (33) have been imported from Mexico and South American ports without a single secondary case developing. They were all taken ashore and carried to Las Animas Hospital, each being protected by a mosquito bar all the way from the ship to the hospital. Every febrile case in a nonimmune arriving from an infected port is treated in the same way; no danger is courted by attempting to establish the diagnosis before taking all precautions to avoid possibility of further infection.

At the hospital the conditions to insure absolute safety could hardly be improved upon. Every room is there separated by wire screen doors from the contiguous rooms and all the windows are similarly protected; outside doors are vestibuled and the premises are disinfected at regular intervals to destroy all kinds of insect life which they may harbor.

In the other cities and towns all suspicious cases are immediately taken into properly screened rooms until the definite diagnosis is made. Every hospital in the Island, public or private, has one or more rooms thus prepared for the isolation of malarial or yellow fever cases.

Registration of Nonimmunes.—About 60,000 men, nonimmunes mostly, are registered as members of the various Spanish clubs or societies in the city of Havana, for the medical attention of which there are five private hospitals, equipped with the latest and best that can be obtained in the way of apparatus, surgical instruments, electrical appliances and hospital supplies of all kinds. Each hospital was expressly built for the purpose in an unexcelled locality and is attended by a medical staff drawn from the best talent that the country affords.

These 60,000 men are in an indirect manner under the control of the Sanitary Department, for whenever a case of fever occurs among them the patient is taken into a specially screened department of the hospital or santorium to which he belongs, and is there seen at once by a sanitary inspector who daily visits the institution for the purpose of selecting all cases which in his opinion may be even remotely suspicious of yellow fever. All cases of icterus or albuminuria are particularly investigated and all are referred to the Infectious Diseases Commission for further study and final diagnosis.

Since the last census has demonstated the presence of 74,000 white foreigners in Havana, it may be readily understood what great aid is rendered by these societies, which register about 60,000 members, in providing sanitary control over a large proportion of the nonimmune population.

I may add that in all the cities and larger towns of the Island there are societies or clubs analogous to the above mentioned, constituted mainly by Spanish business men and their clerks. They each have a sanatorium, more or less generously equipped, but from a sanitary standpoint all are equally efficient

Fig. 4.—Number and distribution of yellow fever cases during 1908 (48 cases).

in helping to discover cases of yellow fever or those that may be suspicious of yellow fever.

The Havana institutions have extended their field of action to the neighboring towns, and enroll members from the country, covering considerable territory. Spanish immigrants rarely fail to inscribe their names in one or other of these societies immediately they arrive, and it is needless to say that the government encourages this in all cases.

The Work of Special Commissioners.—The Sanitary Department has in its service men whose scientific reputation and peculiar ability in connection with the prophylaxis of yellow fever are well recognized. Whenever a case is reported from any part of the Island, one of these men hurries to the spot and, in the capacity of special commissioner, assumes charge of all sanitary measures, establishes quarantine if necessary, and in every manner essays to extinguish the focus of infection. If the history of the case and the symptoms are obscure, he studies the subject thoroughly until every vestige of suspicion disappears.

It is not my place to eulogize the work of these men, but there is no doubt in the mind of the Cuban sanitary authorities that it was mainly through their personal effort, their enthusiasm, and their thor-

oughness, that the late foci of infection were eradicated.

Direct Measures.

Destruction of Mosquito Larvæ.—A house to house inspection, with reinspections every ten days by men who have acquired remarkable ability in this line of work, insures the discovery of mosquito-breeding places wherever they may develop. The most unlikely places are sometimes found to contain deposits of water in which the stegomyia mosquitos may breed; now and then it is found that mosquitos have laid eggs in them and the larvæ thus developed are destroyed.

Besides this constant inspection, we have several brigades of men whose duty is to collect all tin cans, bottles, and broken glass which may become a breeding-place of larvæ by holding water for a sufficient period of time. These brigades carry out their work in the fields around the city and in the empty lots where the above-mentioned articles are often thrown by careless or indifferent neighbors.

A fine is imposed upon every tenant in whose house larvæ are found, careful instructions to avoid this having been previously widely circulated in the form of leaflets and published broadcast in the daily press.

The necessary water tanks or barrels, where water for household purposes cannot be provided in any other way, are compelled to be kept closed or covered with metallic gauze of 16 mesh to the inch. This procedure is well enough in the case of water tanks on the roof of houses or such single deposits of water, but in rural districts, where every house must have two or more barrels for the purpose, the expense of covering all deposits reaches a considerable sum, as the metallic gauze, through constant handling, soon becomes torn and therefore absolutely useless. A very good expedient was resorted to in these cases. I refer to the introduction of fresh water fish into the barrels, the local sanitary office undertaking to distribute the fish free of charge and to renew the supply as often as it becomes necessary. No larvæ can develop in water containing these fish, and in the localities where they are thus employed, the inspectors in their periodic visits see that every water barrel or tank contains a number of them.

Upon a large scale the anti-larvæ campaign is carried out by pouring crude petroleum into pools and natural deposits of water or depressions of the soil which may become so, and by filling them up or leveling them, as the case may be.

Destruction of Mosquitos.—The destruction of mosquitos is undertaken as soon as notice is received of a case of yellow fever; it is often carried out whenever a definite diagnosis cannot be arrived at within twenty-four hours after knowledge of the case is obtained.

The methods employed by our sanitary authorities have been gradually perfected through constant training, extended over several years, and the men engaged in the work have acquired such dexterity in the handling of minute details that uniform and satisfactory results are regularly obtained.

There are many conditions peculiar in themselves that we have to deal with, depending upon the construction of the houses, the habits and customs of the people, etc. In the rural districts and among the poorer farmers, fumigation to be effective must embrace the whole house *en masse;* the hut or shack, which is usually of cheap material, full of holes and crevices, must be put under tarpaulin to prevent the diffusion of the insecticide gas. Figs. 5 and 6 give an idea of the kind of building which we often have to fumigate, and the way this is generally done.

Fig. 5.—Type of rural buildings to be fumigated.

Regarding the methods employed, I could do no better than to quote here part of an article published in the official bulletin of the Department of Public Health and Charities.

"The work of fumigation may be divided into two stages; first, the preparation of the building, and, second, the process of fumigation, properly speaking.

"(1) *Preparation of the Building for Fumigation.*—The first thing to be done on beginning the disinfection of a house is to close all the doors and windows which communicate with the outside, leaving only one door for the men to go in and out the building. If the house has porches, these are covered with canvas. When this has been done, paper is then pasted over all the crevices and fissures, first around the exterior doors and windows, afterwards around the interior ones. The house should be divided into different isolated rooms or compartments

for the purpose of fumigation. After this has been done, the apparatus necessary for the fumigation is introduced into the building and placed at the most convenient spots; all the drawers, presses, trunks, etc., should then be opened and the furniture separated about one foot from the walls of the different apartments. Following this, the fumigators are gradually lighted and the operator retreats in the direction of the one door of exit, taking care to cover all crevices around the doors of the different compartments as the fumigation proceeds. After having sealed the door of exit, the fumigation of the covered porches is started, taking care that the tarpaulin which surrounds them is hermetically closed.

"Metallic gauze cages containing mosquitos are often placed in different parts of the house to test the efficacy of the fumigation.

When for some reason it is not possible to leave the drawers, presses, etc., open, their contents are taken out and shaken before being returned to their places, so that no mosquito may remain in the interior of the furniture.

"It is frequently necessary for the sanitary authorities to treat barracks with badly adjusted walls and roofs, huts, wooden buildings, etc., in this manner. In such cases it becomes necessary to cover the building completely with canvas, adjusting the borders tightly and pasting strips of heavy paper over them. The procedure is otherwise the same as that already indicated." (Figs 5 and 6).

(2) *The Process of Fumigation.*—For the destruction of mosquitos, sulphur, in the proportion of two pounds for every 1,000 cubic feet, is the most efficient substance employed. After three or four hours' burning, it causes the death of all the mosquitos in the apartment. The principal objection to the use of sulphur is that it attacks certain tissues, pictures and metals, but seldom in an irreparable manner. Metals may be protected by covering them with a thin layer of vaseline. For fumigation the sulphur in powder is placed on frying pans or other flat vessels, each of these within other receptacles containing water, into which the burning sulphur which sputters during the fumigation may fall. A small quantity of alcohol is poured over the sulphur to initiate the combustion and it is lighted at the moment of leaving the apartment. At the expiration of four hours, the outer doors are opened first, and progressively the interior ones, to allow the vapors of the sulphurous acid to escape.

Although many other insecticide gases have been recommended, we have employed sulphurous acid exclusively in dealing with mosquitos, and with the best results.

The Infectious Diseases Commission.—I have purposely left for the end of my paper the few remarks which I desire to make in presenting to you this important wheel in our sanitary machinery. Without going into an exposition of the value of its component (the names of some of its members—Guiteras, Finlay, Albertini,—are sufficient guarantee of the scientific proficiency of the whole), a few words may be not amiss to show what an important rôle it plays in our prophylaxis against yellow fever.

Whenever a suspicious case is reported, whether by our sanitary inspectors, from the Spanish sanatoria above referred to, or by private practitioners, the Commission is convened, sometimes within two hours, and the case is taken under consideration. The patient is examined from a clinical as well as a microscopical point of view, and if the patient has died before the meeting of the Commission, the body is autopsied so that a definitive diagnosis is firmly established.

Fig. 6.—Method of fumigating a rural hut. Completely covered.

With this procedure it is not probable that a case of yellow fever will pass unrecognized, and almost impossible for an epidemic of this disease again to develop in our country.

Comparisons are odious, regardless of the aim intended in their making; but since, as I have said, from a sanitary standpoint we have been in the public eye for several years, I cannot refrain from calling the attention of my hearers to the superiority of our organization when compared with that of our neighboring countries, including Mexico and the United States.

The latter, and more especially the States bordering on the Gulf of Mexico, depend almost exclusively upon quarantine measures to prevent the introduction of yellow fever; their towns are overrun by stegomyia mosquitos; the city of New Orleans, in Louisiana, which depends for its water supply upon the use of cisterns in every house, has failed

to keep them all properly covered, and mosquitos are to-day nearly as plentiful as before the dreadful epidemic of 1905. The nonimmune population is widely disseminated and in the hands of private practitioners, who will fail to recognize the first cases, or will hide them, as they did in the memorable summer of 1905. The same may be said of the other Southern States whose bugbear is yellow fever and whose protective mainstay is quarantine, the least useful measure which may be implanted in any country for its defense against said infection.

Mexico has been doing considerable work, and the city of Vera Cruz is no longer the pest hole of years ago; but those parts of the country distant from the centers of authority (Yucatan, Campeche) are very deficient in their sanitary organization, and the result of their campaign against yellow fever is far from satisfactory. Yet Mexico has instituted a house-to-house inspection, petrolizing brigades, and in all respects a good antimosquito campaign which, after all, is the basis of successful yellow fever prophylaxis.

Of Central American sanitary methods, the least said the better. Until political conditions improve in our sister republics, little can be expected from them in the way of sanitary reform.

It may be remarked that I have done little more than indicated the measures which have been so successful in eradicating yellow fever from our territory; my purpose has been mainly to stimulate discussion upon the matter, inasmuch as no doubt some of the countries here represented possess features not unlike those of the Island of Cuba, and also because, according to the program of this Section, no official report has been prepared upon this important subject of Tropical Medicine.

A FURTHER CONTRIBUTION TO OUR KNOWLEDGE OF INTESTINAL DYSPEPSIA.*

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The functional disturbances of the stomach have been thoroughly studied within the last thirty to forty years. The recognition of the various forms is now comparatively easy, and treatment therefore successful.

Clinicians are striving to attain similar results in the field of affections of the bowel, viz., a suitable subdivision of various disturbances of intestinal function, that can be clinically recognized and upon which treatment can be based.

Schmidt has tried to attribute the disturbances of intestinal digestion to impaired function of the various digestive glands (pancreas, liver, intestine). Such a classification, although very desirable, is hardly possible at present. The intestinal functions are so complex and the various glandular apparatuses contain ferments with such similar properties that it is even physiologically difficult to differentiate them strictly. How much harder would such a division be in pathological conditions?

Schmidt speaks of pancreas achylia, when quantities of undigested meat are found in the stool and the nuclei have not disappeared. Achylia means absence of juice. It may be, of course, that pancreatic juice is present, but that it is changed in character; or the possibility cannot be excluded that the pancreatic juice is normal, but is disturbed in its action through other causes. In describing pathological processes it is always best to proceed in a precise manner and to state only the facts which are definitely known or that can be deduced from the result of the investigation. I therefore proposed two or three years ago to subdivide the functional intestinal dyspepsias according to the result of the bead test into the following groups:

I. Digestive disturbances affecting all three classes of food stuffs (albumen, carbohydrates, fat) "Dyspepsia Intestinalis Universalis."

II. Digestive disturbances affecting only some of the food stuffs, "Dyspepsia Intestinalis Partialis."[1]

Regarding the bead test I first desire to answer Schmidt[2] when he says: "I also look upon Einhorn's bead test as a mutilation and not a simplification of my test diet method which besides is described as a "new method." I would like to say that my bead test has nothing to do with Schmidt's test diet. As is well known, Schmidt examines the feces after the test diet described by him. I, on the contrary, have introduced test substances that can be recovered after passing through the bowels and which can be given with any kind of diet. The fate of these test substances was first determined in physiological conditions, so that deviations from the normal are easily recognized. Schmidt says further: "It does not depend on whether a small particle of meat or potato is digested by the digestive organs, but whether the latter are equal to the normal requirements." To this I must answer, that if we know how the normal organism behaves towards the test substances, they will readily serve as indicators of the digestive activities; they represent a sample of how the food materials are utilized in the bowel.

I would like to add that the bead test has been of distinct value in my further investigations, and that I do not hesitate to recommend it to you warmly as useful and practical.

For both groups of diseases which can easily be recognized by the result of the bead test I would like to give some new examples.

The following two cases belong to group one:

Case I. April 24, 1909.—Mrs. U. G., about 40 years old, has complained for the last twelve years of pains in the abdomen and nausea. One and a half years ago a gastroenterostomy was done, after which she felt much better for about a year. For the last six months she has been again suffering and was about the same as before the operation. The patient complains of pains in the pyloric region and of nausea, which occurs off and on. There is obstinate constipation and severe pain after stool over the entire abdomen. Examination reveals slight sensitiveness to pressure over the entire abdomen, otherwise nothing abnormal can be found except ichthyosis of the skin. The bead test shows the reappearance of the string after sixty hours; everything is present except potato; thymus nuclei have disappeared.

Case II, April 18, 1909.—David C., 34 years old, salesman, had syphilis fourteen years ago, was a moderate drinker. He used to smoke considerably until two years ago. About nine months ago he suddenly became constipated for five days. Patient then took castor oil, after which his bowels kept running continuously until two weeks ago. He had from two to twelve movements daily. About two minutes before the movement would come patient

*Read before the International Medical Congress at Budapest, August 29 to September 4, 1909.

would experience a rolling in the pit of the stomach, and a gnawing, screwing sensation over the abdomen; it seemed to run up and down in his intestines. There were no pains or cramps with the movements. He always had a lot of wind, no belching, slept well, no headaches. For the last six weeks patient had pains in the stomach and abdomen. The latter would be so tender that the least weight on it would cause suffering. The physical examination reveals a condition of cardioptosis, hepatoptosis, and dilatation of the stomach. One hour after Ewald's test breakfast the gastric contents show absence of acids and ferments. The result of the digestive test capsule is as follows: the bead string is passed after fifteen hours, everything being present including nuclei.

To group II belong the following cases:

Case III. January 5, 1909.—Ike B., 30 years old, tailor, had always been troubled with the stomach and had a bowel movement four to five times daily after eating; always a small quantity at a time. At night he had a good deal of wind and must get up to get rid of it, as he could not pass it in the recumbent position. He had to get up once, twice, or three times during the night, but never less than once. He had more or less headache. The digestive bead test shows after thirty-six hours: half potato and thymus present; nuclei and everything else has disappeared. Examination of stomach contents shows absence of HCl, acidity = 26; rennet ferment present.

Case IV. April 3, 1908.—Miss Dorothy C., 24 years old, has always been perfectly well until four years ago. She then started to have occasional attacks of diarrhea, which alternate with constipation. The diarrhea usually occurs in the morning after breakfast; she occasionally has as many as five evacuations daily, sometimes accompanied with pains in the bowels. She suffers from gas and bloating, also from belching. She has pre-menstrual pain and occasionally headaches. At times there is nausea. Physical examination shows a normal condition of the chest and abdomen. The digestive bead test was recovered after nineteen hours; everything had disappeared except three quarter potato and a trace of thymus, nuclei disappeared.

Case V. June 24, 1908.—Miss Mary R. S., 28 years old, has always been fairly healthy except for an attack of acute nephritis eight years ago, following a cold. She had about four attacks of appendicitis always attended, as she says, with the formation of an abcess, which regularly broke into the rectum. She was operated upon for appendicitis about one year ago. Until about four years ago she always suffered from constipation. She then developed diarrhea, which has lasted ever since; she has between twenty and thirty movements daily. She complains of backache, nausea, cramps, pressure in the epigastrium, desire to go to the toilet, tenesmus, and fullness in the abdomen. She has a good deal of mucus in the bowel. She formerly weighed 150 pounds, but now only 112 pounds. The physical examination shows enteroptosis, both kidneys being movable, and tenderness along the colon. Digestive test capsule reappeared after fifty-three hours; fat entirely, potato one eighth present, everything else disappeared.

Case VI. April 17, 1909.—Miss Florence L., 22 years old, actress, has had scarlet fever, measles, and chicken pox in childhood. Three years ago she got diarrhea, which continued until she was so weak that she could not stand it any more. She at that time also vomited. She was very sore in the stomach, and had a continuous dull pain in the abdomen. Appetite now is good. Had formerly between twenty and thirty movements daily; now about two to four daily. Examination reveals a condition of enteroptosis, right movable kidney and atony of the stomach. The gastric contents show the presence of HCl and an acidity of 70. Result of the digestive bead test after fifteen hours: fat, potato, thymus present; nuclei and everything else have disappeared.

Case VII. March 30, 1909.—Dr. Maurice U., 31 years old, physician, has always been healthy until about three months ago, when he became troubled with diarrhea. This would yield to astringents, but would return upon stopping them. He had a great deal of pain and colic in the entire abdomen, just before his bowels would move. Whenever he would feel the desire to go to stool, he would have to go very quickly. He also had some rumbling in the bowel and a bad and always a dry taste in his mouth. There was no vomiting until about three days ago, when it occurred subsequent to smoking a heavy cigar. In the beginning he was very weak, and had about fifteen movements daily. The physical examination shows enlargement of the spleen and liver and dilatation of the stomach. Digestive test capsule reappears after twelve hours; potato, fat, thymus present, nuclei present.

Case VIII. September 25, 1908. Dr. I. J., 34 years old, singer, was always perfectly well until January, 1908. He then had an attack of nephrolithiasis. He suffered from gas, belching, and distress in the right hypochondrium. Bowels are always irregular. Stool is seldom hard, but usually mushy, sometimes light in color. He also has occasional pains over stomach. He smokes a great deal, drinks moderately. He had no syphillis, no headaches. The physical examination reveals a normal thorax and slight atony of the stomach. Examination of the gastric contents show HCl +, acidity = 80. Digestive test capsule reappears after seventeen and a half hours; potato, thymus, and one-third fat present; nuclei and everything else disappeared.

Case IX. September 9, 1908.—Joseph I., 50 years old, traveling salesman, has suffered for nine years from pains and pressure in the right lower abdomen. Two and a half years ago he was operated upon by Dr. Ill, and the appendix and gallbladder removed. Dr. Ill at that time told the patient that he had had intestinal adhesions. Since that time he complains in the same manner about that pressure. He feels a little better after eating. After one hour patient has the sensation of heat and congestion in the head; he is nervous and sick. This lasts until the next meal. Stools are constipated. Physical examination does not reveal anything abnormal. The stomach contents show the presence of free HCl, acidity = 50. The digestive test capsule is passed after nine hours; fat, potato, thymus present; nuclei and everything else disappeared.

Case X. March 23, 1909.—T. C. A., 51 years old, manufacturer, had yellow fever about twenty-seven years ago, pneumonia five years ago, syphilis thirty years ago. Formerly (for about eighteen years) used to drink daily a great deal of champagne. He has not smoked for five years. About two and a half years ago he started to have loose bowels, lack of appetite and loss of weight. He lost about thirty-five pounds. He found that if he ate anything he felt as if something was turning over

in him. He also had a faint sensation, and after that relief would come from belching, which was accompanied by a mouthful of saliva, that would come up. There was a feeling of fulness in his abdomen and rolling of wind on the right side. There always was a good deal of flatus. Examination of the fecal matter shows microscopically many muscle fibres, with striation and fat. The addition of iodine does not show the presence of free starch. There is achylia gastrica. The digestive test capsule showed: first test, after thirty-eight hours everything disappeared except meat and thymus, nuclei disappeared. Second test—a month later, when patient had considerably improved—after twenty-eight hours, everything disappeared except trace of thymus, nuclei disappeared.

Case XI. January 18, 1908.—Mrs. J. S. T., 34 years old, had pneumonia as a child of three. At nineteen she was very anemic. Five and a half years ago she had a child. Six weeks after confinement she experienced violent pain in the region of the appendix. Since then she has had similar attacks of pain, but not as severe as the first attack, every month at time of menstruation lasting two to three days and returning again after the tenth day from the start of menstruation, accompanied by severe headache over entire upper part of the head. The sensations are described as resembling those of a foreign body. Pains are getting less gradually. Since one year ago she has had a great deal of wind and an offensive breath. Digestive test capsule after twenty-four hours: meat and potato entirely, trace of fat, and half thymus are present. Nuclei and everything else have disappeared. Examination of stomach contents showed HCl +, acidity = 60.

Case XII. May, 1909.—Charles A., aged 47, has suffered with diarrhea ever since his birth. About twenty-one years ago patient began to have acute exacerbation of pain in the abdomen and particularly in the suprapubic region and diarrhea. At times he would have as many as fifteen stools a day. The stools were usually well formed but mixed with stringy mucus and at times contained blood, but often also diarrhic in character. With some of the attacks he would have a great deal of tenesmus. In the last five years the attacks have become less severe and frequent and he has gained seventy pounds. Examination of the gastric contents shows pronounced hyperchlorhydria. The digestive test capsule was given on May first. The bead string appeared in the stool after twenty-one hours. Everything had disappeared excepting fat and part of the thymus; no nuclei present.

It would of course be desirable to recognize clinically the various groups from their symptoms. I tried to ascertain whether in my cases of intestinal dyspepsia various types could be recognized from the subjective complaints, which would correspond with the result of the bead test. The following seemed to me to be of importance:

In the large group of distributed starch digestion the subjective symptoms are relatively insignificant. They consist mainly in complaints of fulness in the abdomen, frequent eructations, and expulsions of wind. The condition of the stomach varies. It may be normal, or hyperchlorhydria, subacidity, or achylia may exist. The group of disturbed meat digestion is characterized by the following syndrome. There is usually nausea present and a bad taste exists in the mouth; flatus are frequent and especially malodorant. The stool smells like decay. Patients may be well nourished, but they suffer very much. Diarrhea is not necessarily present. The class of distrubed fat digestion is characterized by the occurrence of attacks of sometimes intense abdominal pains; the stool is usually less consistent and of a lighter color. At times subjective symptoms are entirely absent. In the mixed groups the clinical picture is still harder to define because the various symptoms are less marked. In dyspepsia intestinalis universalis the clinical picture is rather severe: lack of appetite; general debility; usually, although not always, diarrhea is present. Abdominal pain is frequent. I have nearly always found achylia gastrica in this class. I fully agree with Schütz,[3] who maintains that in the majority of cases of intestinal dyspepsia there are mixed forms. The cases described above show this very plainly.

In the treatment of intestinal dyspepsia I am not in favor of eliminating the food stuffs, that are apparently poorly digested, but only of permitting a limited amount of these substances. In intestinal fermentation dyspepsia (disturbance of starch digestion) H. Meyer[4] and also Schmidt have lately advised the elimination of carbohydrates. In these chronic conditions I do not consider it advisable to forbid entirely a whole group of food stuffs. It is better to give it in decreased amounts. It is also advisable to give drugs which will facilitate the utilization of the food stuffs, whose digestibility is diminished in that particular patient. It is self-understood that our principal aim must be directed not to drugs but to a suitable arrangement of the diet.

In dyspepsia intestinalis universalis fluid and semi-fluid diets are indicated: milk, kumyss, raw and soft boiled eggs, meat powder, sanatogen, or similar preparations, soups, fine gruels, and leguminous vegetables in mashed form, crackers or zwieback, tea, cocoa, malt, and beer. As soon as the patient improves, the diet should be increased by adding fish, rice, mashed potatoes, and later white bread, scrambled eggs and a small quantity of tender meats.

After a rational treatment the bead test very soon shows a better result.

In the cases of partial intestinal dyspepsia the food stuff that is not so well digested should be reduced and should be given in finely subdivided form.

Just as in functional diseases of the stomach, a generally invigorating treatment is of great importance also in intestinal dyspepsias (where no organic trouble is present, as ulcers, cancer, etc.). Thus hydrotherapeutic and electro-therapeutic measures are of value. Climatic cures, life in the open air, free from care, will be of great assistance in accomplishing a considerable improvement or an entire restoration to health.

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Tetanus.—L. G. Gunn of Dublin says that infection of the human tissues with tetanus is difficult, and that three conditions must be present before this can occur—the presence of the bacillus or spore of tetanus, the presence of a putrefactive organism, and the presence of dead animal tissue.—*The Dublin Journal of Medical Science.*

FORENSIC AND CLINICAL ASPECTS OF TRANSITORY FRENZY.*

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Transitory frenzy, mania transitoria, folie transitoire, furore transitoria, transitorische Töbsucht is an acute frenzy which, developing suddenly and rapidly, soon reaches a climax with ungovernable spontaneous motor impulses and seemingly violent anger with complete absence of consciousness. The paroxysm does not change in intensity, but after a comparatively short time, rarely more than twelve hours, it subsides, usually after a profound sleep without leaving any recollection of events during the paroxysm, or without pathological cerebral change or mental defect. Were we to judge by popular reports where no forensic element is involved, such a condition must be exceedingly frequent. Such popular reports, however, take into account only the demonstrable superficial features and ignore the underlying factors. Careful clinical examination of many of these cases has shown the existence of paretic dementia, of the transformation stage of paranoia, of the frenzied stage of melancholia, of the psychic crises of tabes, of epilepsia larvata, and of a migraine-replacing psychosis. There are also underlying factors of congenital instability. Independently of these there exists a psychosis which as Calmeil, Marc, Hoffbauer, Rush, Ray, Tardieu, Griesinger, Kraft-Ebing, Le Grand du Saulle, Kiernan (J. G.), Diller, Spitzka (E. C.), Salemi-Pace, Piek, Schwartzer, Reich, Bjornstrom, and others have shown, is a condition of impaired consciousness characterized by either an intense manialike furor or confused hallucinosis. This condition from its explosive character and rapid disappearance is much less apt to come under the care of the alienist than the protracted psychoses. Careful analyses of many cases reported as delirium, cerebral congestion, cerebral hyperemia, and very acute temporary menigitis leaves no doubt that under these nosological misnomers transitory frenzy has been recorded. An excellent illustration of this psychosis is a case reported by Kiernan. The case is peculiarly valuable as the reporter was a witness of the attack itself. The patient had had a quarrel with her betrothed, after physical exhaustion following night-watching at her mother's bedside. On going to another apartment after the quarrel alluded to, she found that two live coals had fallen on a dress which she had been occupied in sewing for two days, and which some one had placed near the fire. Hereupon she fell into what was apparently a violent rage, tore the dress to pieces, attempted to smash the furniture, and continued violently excited for an hour when the reporter saw her. She was then in a condition of intense frenzy; said the doctor was so dark he must be the devil, and made two assaults on him and continued destructive. After being treated with restraint and the cold pack she fell into a deep sleep, on awakening from which she was perfectly rational, and recollected nothing that had occurred subsequently to the discovery of the fact that her dress had been spoiled.

It is of peculiar interest to compare this case, a simple, clinical record, with three others in which judicial determination as to criminal responsibility was required.

In a case I was called as alienist the accused was the wife of a saloon-keeper. The victim had an equity in the building where the saloon was. The accused had a neuropathic constitution evinced by the survival of night terrors from childhood. These night terrors were accompanied at times by casual hallucinations of sight and hearing. This psychic disturbance was accentuated with the onset of menstruation and was particularly marked thereafter around the menstrual period. Her early marital life was very happy. She had one child who had reached the age of ten at the time of the homicide. A short time before the homicide the husband formed a liaision with its victim. Shortly before the homicide the accused learned that the husband was to make a trip to the Paris Exposition of 1900 with the woman at the latter's expense. She had saved a few hundred dollars. Putting this money in her stocking she went to her husband's saloon, the evening preceding the homicide, and asked him to take a walk with her. She asked her husband about the Paris trip who told her that the woman wanted him to go and would put up plenty of money to have a good time. She then took the money out of her stocking and offering it to him asked him to stay home. He asked her how much it was. When she told him the amount he laughed at her and said it would be enough to take him to Paris, but not enough to bring him back. He then stated that the other woman was willing to spend thousands, where she had but hundreds. She then returned home alone and had no sleep that night. She was seen at all hours at her window as she had been for many nights before by a policeman on duty. The next morning she purchased a revolver intending as she said to end it all by killing herself. She then went to the saloon to beg the woman to give her husband up. The negro porter went to the foot of a stairway leading into a room behind the saloon and told the victim that the accused's husband wished to see her. She came down the stairs partially clothed. The accused told her who she was and her errand. From this time the accused remembers nothing save a laugh by the woman and her scared expression. The victim was then slain by a pistol shot and the accused taken into custody by a policeman who noticed her dazed appearance. She did not regain perfect consciousness for some hours after the occurrence. She had no conception why she was imprisoned. In spite of much public prejudice against the plea of insanity the jury acquitted the accused, finding that while she was insane at the time of the homicide she was now sane.

In the second case a man of fifty-five who had led a wandering life, quite common with mechanicians in both English- and German-speaking countries, had lived for a time in a somewhat unsettled Pacific Coast region. Here controversies were settled by the revolver. The man who could draw first had the advantage. On one occasion the accused ejected a rowdy from a ladies' dining room in a hotel. The rowdy shot at him through his trousers pocket. This seems to have made a permanent impression on him.

The accused invented and patented several petty labor-saving devices. For the better manufacture and sale of these he removed to Chicago. Here he became acquainted with mechanicians to whom he committed the manufacture of his device. He purchased for them machinery and advanced money

*Read before the Juridical Section of the XVI International Medical Congress, Aug. 29-Sept. 4, 1909.

with the understanding that the machines (a patent drill) were to be made by a certain time. This time was greatly exceeded when he found the people to whom he had advanced money removing their place of business without notice under suspicious circumstances. He made demands for the return of the machines bought and of the money. These demands were evaded, whereupon he called in a lawyer. This lawyer made an appointment for him and the lawyer of the other people as well as the clients of the latter. They all met in an office of the debtor's lawyer. The accused went with a revolver, which he had always carried since his Pacific Coast days, to the meeting. Here an active controversy ensued. During this the accused believed he saw the debtor put his hand in his hip pocket. He then attempted to draw his own revolver. From this time he remembers nothing for twelve hours afterward until he awoke in the police station. During the period immediately after attempting to draw his revolver, he was struck at by a chair and the revolver went off, the ball striking the debtor and inflicting what was thought, at first, to be a fatal wound. The accused then fired the revolver aimlessly. A policeman was called in and conducted him to the station. According to the testimony of the policeman, the testimony of his lawyer, and the antemortem statement, as it was believed, of the man shot, the accused was in a state of hallucinatory confusion with no consciousness of his surroundings. The man shot recovered and then prosecuted the accused very venomously. The jury, under the charge of the judge, taking the scientific ground that it was the state's duty under the circumstances to prove sanity beyond a reasonable doubt, promptly acquitted the accused.

In a third case, in which I was consulted, the accused had been in business with a brother. His maternal uncle was of mental instability and a younger brother had been an inmate of an insane hospital between 15 and 25. The victim of the attempt at homicide was a very tricky individual, given to threats enforced by a revolver. The accused lent money to the firm without proper security. This the elder brother repeatedly refused to account for. Later he agreed to pay back the money in weekly payments. At this time the accused suffered from helmet sensations, ringing in the ears, dizziness, and confusion. The accused accepted notes for the weekly payments endorsed by a mutual business friend. This friend suggested that the firm be incorporated so that the rights of all concerned could be clearly defined. At this time the accused was sleepless and the helmet sensations, ringing in the ears, dizziness, and confusion came more often and lasted longer. The business friend in consequence suggested that the accused go to a watering place and recuperate. While at the watering place the firm was incorporated, but the name of the accused did not appear among the incorporators. The officers of the incorporation were later elected. The elder brother was made president and treasurer, his wife secretary, and the accused vice-president. At the end of the fiscal year the accused asked that the corporation declare a dividend justified by its financial success. This the president refused to do, whereupon the accused threatened to have a receiver appointed. Thereupon the president threatened to have the accused voted out of the corporation. From this time the cerebral symptoms of the accused increased. He was unable to sleep, and walked the streets day and night in a dazed state. He would find himself in different parts of the country where he had gone in these periods of mental confusion, not knowing how he got there. About this period the elder brother threatened the accused with a revolver which he took from the left-hand drawer of his desk. A meeting of the corporation was called, to which the accused took a revolver to protect himself. The details of the meeting are imperfectly remembered by the accused. The elder brother read some paper and when it was finished started to open the drawer in which was the revolver. From this time the accused remembers nothing until he found himself in a patrol wagon an hour after with a policeman. The accused knocked the elder brother off his chair with his revolver soon after the latter opened the drawer. The elder brother rushed at the accused, who was attacked from behind by the former's wife. The elder brother twisted the revolver in the accused's hands discharging it several times. A younger brother smashed the door with a chair and rushed in between the combatants. A policeman was then called and the accused placed under arrest. The accused, after repeated delays by the prosecution, was at length, on his own demand, brought to trial and acquitted on a technicality as to time of trial.

The forensic status of this psychosis must be determined by the clinical evidence in the individual case. So far as brevity, explosiveness, and violence are concerned, it does not stand alone as has repeatedly been claimed by those who employ special pleading in science. To call it cerebral hyperemia when the fact of its occurrence cannot be denied is merely to dodge recognition of the transitory furor which is the essential characteristic of the alleged cerebral hyperemia. To say it must be an expression of larvated epilepsy when the most minute examination fails to discover epilepsy of any nature is likewise special pleading equally unworthy of a scientist. At present it must be admitted, however, that the swing of the pendulum is a little too far in the other direction. While transitory frenzy is psychologically akin to the fugues of epilepsy, still it differs from these in being an isolated phenomenon of a life while the fugues are recurrent phenomena natural to such a pseudorhythmic disorder as epilepsy. Many of the recurrent fugues, said to be non-epileptic, are so designated because of a purely grand-mal conception of epilepsy. The forensic status of transitory frenzy is therefore a matter of fact to be settled by experts in continental countries and by juries in English-speaking countries, and not a matter for judicial dictation. The question of public benefit is one for a legislature, not for a judge.

It has been stated by Fisher (E. D.) of New York that the plea of transitory frenzy is not accepted by the American courts. This is an error, not only as to the United States courts, but as to those of New York State. The jury in the Cole case at first returned with the statement that they found the accused sane a moment before and a moment after the killing, but they were in doubt as to his sanity at the moment of the homicide. The judge told the jury that they must give the prisoner the benefit of any rational doubt founded upon the evidence. Thereupon the jury found the accused "not guilty."

Transitory frenzy must be recognized by any tribunal which admits that irresponsibility exists where freedom of the will is impaired. In States like New York were insanity to be accepted as a

defense must destroy the knowledge of right and wrong, transitory frenzy must be accepted as a defense, since by creating unconsciousness of the act done it emphatically destroys a knowledge of right and wrong. In Illinois it must be received under the test laid down in Hopps vs. the People, that irresponsibility results when the degree of insanity is such as to create an uncontrollable impulse to do the act charged, by overriding the reason and judgment and obliterating the sense of right and wrong as to the particular act done, and to deprive the accused of the power of choosing between them. The plea of transitory frenzy must therefore be received in courts which admit the continental European test of impairment of the will, the late English and American right and wrong knowledge test, and the older English and American uncontrollable test which is in essence that of Continental Europe. The forensic status of transitory frenzy turns upon the evidence whether it has occurred in a particular case.

The determination of its clinical status is easy according to the pre-Kraepelin psychiatry. Kraepelin would place it in what he calls the collapse-deliria. Here he also puts the confusional and stuporous states, which are incongruous, with his classification. This is not so much of a hodge-podge as would first appear. The deliria, the confusional and stuporous states are closely related from the clinicopsychical standpoint. The commoner name of enteric fever shows this. Typhus is the Greek for stupor and typhoid the Greek for stupor-like. The clinical phenomena of the psychic states resulting from exhaustion, from the strain of migraine, multiple neuritis, and neuralgia are very similar to those of transitory frenzy. There is a confused mental state attended at times by violence and destructiveness. Of this, as a rule, the patient on recovery retains no remembrance. The same, of course, is true of mental states which precede, take the place of, or succeed epilepsy. The distinction between transitory frenzy and these states is that it may be and generally is, an isolated phenomenon in a lifetime. The etiological moment usually comes but once. The menstrual period with its mixed soil of toxemia, nervous instability, and exhaustion furnishes psychoses with clinical characteristics resembling those of transitory frenzy. Tabes, with its circulatory disturbances, its renal and hepatic instabilities often presents isolated psychoses differing from transitory frenzy only in the fact that they occur in a tabetic. In migraine, as Kraft-Ebbing has pointed out, similar psychoses may occur which may become recurrent through the rhythmic law of the nervous system or may remain isolated phenomena. In heat exhaustion similar psychoses may occur, which differ from those produced by sunstroke in the fact that they do not result from a basis of morbid suspicion, but destroy consciousness. The same is true of the allied states produced by electricity and traumatism. In both these states, however, confusional explosive psychic states occur which resemble transitory frenzy, but are recurrent phenomena, not isolated. The psychoses which at times replace gout and rheumatism assume all the essential characteristics of transitory frenzy. While generally the recurrent element might be expected in these, still the absence of one of the essential factors of the etiological moment often prevents them from being more than isolated phenomena. The transitory furibund psychoses due to the untoward effect of quinine and other drugs on unstable constitutions are also closely akin to transitory frenzy. Indeed, on one or two occasions in the United States such a plea has led to a refusal to prosecute. From what has been said it is clear that the psychosis, transitory frenzy, belongs in a group of the confusional insanities of toxemias and exhaustion, and is not psychically or pathologically, as has been claimed by the special pleaders, an anomaly.

An unnecessary confusion of the question has resulted from the etiological classifications of Risch and others creating what are called psychogenic states. These include stuporous states with or without active psychomotor excitement, with or without violent behavior. While transitory frenzy may be and often is psychogenic in exciting origin there is, as already pointed out, more to the etiological moment than the simple exciting cause, otherwise it would not be, as it generally is, an isolated phenomenon in the life of the individual. This is so equally true of all the psychogenic states described by Risch that the term becomes by its limitations an absurdity, since necessary predisposing factors are ignored by it.

The transitory frenzy of popular caricatures and of legal denunciation is not the transitory frenzy of science and the law. It lacks every characteristic of the psychosis.

Ovarian Grafts With and Without Anastomosis of Vessels.—Mauclaire believes that in order that ovarian grafts may be successful it is best to provide a blood supply by anastomosing the ovarian vessels with some others, preferably the epigastric. He has had two positive cases in women. There is no doubt that both heterografts and autografts have been successful, both in animals and in women, although not nearly all the grafts have taken, and many have undergone atrophy. The author gives a review of the successful cases recorded. Heterografts and autografts are made for the purpose of avoiding the nervous symptoms that result from double ovarian ablation, especially obesity. Heterografts are also made to render pregnancy possible. Another indication is amenorrhea from congenital ovarian atrophy. If we are to succeed generally the author believes that we must supply nutrition to the graft by furnishing it with a circulatory supply. This appears to be much more important than a continuous nerve supply.—*Archives Générales de Chirurgie.*

Histological Observations in Human Osteomalacia.—Gino Baggio has examined histologically the bones of four victims of osteomalacia, one man, and two women who died of intercurrent affections in advanced life. There were found only islands of calcified bone substance. The osseous trabeculæ were traversed by canals filled with fibrous substance rich in vessels. There were three types of medulla, lymphoid, fibrous, and fatty; of these the fibrous predominated. The bone corpuscles found in the ossified portions showed elongation toward the periphery of the islands, their shape being preserved only at the center. In the uncalcified portions the structure consisted of fibrous tissue in large parallel bundles. The corpuscles in the osteoid zones were large and with dilated, short prolongations. When the process of osteomalacic alteration is in progress the limits between soteoid and calcified tissues are changed continually by a dissolving of the calcerous salts produced by the same cells which formed it.—*Archivio per le Scienze Mediche,* Vol. XXXL., No. 26, 1909.

Congenital Muscular Atony.—Lévi-Sirurgue describes congenital muscular atony as occurring in new-born children, and being distinctly regressive, ending generally in recovery, unless the infant is carried off by some intercurrent respiratory affection. The cause of this affection appears to be a congenital lack of development of the muscles, or of the medullocerebellar nervous strands. The muscles of the infant are soft and flaccid; there is so marked a paresis that the child is unable to make voluntary movements, and later is unable to stand alone or walk. There is no affection of sensibility. The spine is abnormally movable. The tendon reflexes are abolished, and electrical contractility is almost if not quite abolished. Treatment consists of faradism of the muscles, baths, and massage, combined with arsenic and strychnine.—*Gazette des Hôpitaux.*

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THE EARLY TREATMENT OF THE INSANE.

IT may be freely granted that the treatment of the insane is now conducted on far more intelligent and rational lines than was the case formerly. In fact, the progress made in this direction has been, during the past few years, remarkable, but there are still features in the treatment of those suffering from mental troubles which are susceptible of improvement. Up to a comparatively recent date, the treatment of insanity in its early stages was more or less conspicuous by its absence. Those alleged to be of unsound mind were neglected until their mental state became too obvious to be overlooked. Of recent years reception wards for this class of patient have been instituted in many hospitals in different parts of the country.

A Royal Commission on the Control and Care of the Feeble Minded in Great Britain which has issued its report recently is very insistent that insanity in its early stages should have more attention than has hitherto been the case. The report of the British Commissioners contains the following statement: "We regard it as very important that a free hand should be allowed to committees in dealing with this matter, so that they may be able to utilize many existing agencies for the purpose. We do not consider it at all necessary that in crowded centers of population large and expensive buildings should be erected like the reception blocks of the great county asylums. Separate wards in workhouses or in general hospitals might be used under contract, or existing houses or other buildings adapted. The special advantages of these reception wards for the clinical study of mental disease are so evident that many general hospitals, especially those to which medical schools are attached, would be glad, we think, if they were subsidized, to provide them within their own premises with medical nursing and attendant staff complete." The Asylums Committee of the London County Council, impelled by the Commission's report, has decided to suggest the reintroduction at the next session of Parliament of the Lunacy Acts Amendment Bill, by which the Council has sought power to establish receiving houses for the accommodation of persons mentally afflicted or alleged to be of unsound mind, with the object, if possible, of curing insanity in its early stages. The scheme proposed by the committee is that the Council shall provide receiving houses to be entirely under its supervision and staffed by its officers, to which an alleged lunatic will be taken. The medical superintendent of the receiving house will have power to detain the alleged lunatic for a period not exceeding three days, but he must bring him before a justice before the expiration of that period or else discharge him. The medical superintendent is to report to the justice whether, in his opinion, the alleged lunatic should be sent to the county asylum or be detained in the receiving house. If the justice decides that the case is one for asylum treatment the usual proceedings under the Lunacy Act will be taken. If, on the other hand, he concludes that the case is one for detention in the receiving house, the justice is to call in the superintendent, and may, if he so wishes, call in any other medical practitioner, and after investigation order the alleged lunatic to be detained in the receiving house. This order remains in force for only six weeks, but extensions not exceeding three weeks at a time may be made by a justice if thought necessary. The patient during his detention in the receiving house will not be designated a lunatic. At any time during the period of detention the medical superintendent, if he thinks that the patient should be removed to an asylum, may bring the patient before a justice with a view to the ordinary reception order being made.

The London committee uses much the same arguments in support of the scheme as have been brought forward from time to time in the MEDICAL RECORD, but as good arguments cannot be recapitulated too frequently, the main points may be run over again. The alleged lunatic, as soon as he enters the receiving house, will be under the care of physicians who have made a specialty of mental disease. The greatest authorities on insanity hold the opinion that the increase of insanity which has been apparent in London, and it can be added in other large cities of the civilized world, during recent years, can be limited only by proper early treatment of cases. Such treatment would be provided in receiving houses, and thus many persons who are at present sent to asylums would not need to go to such institutions at all, but would improve and recover in the receiving houses. In connection with these there could be, if required, an out-patient department, which would enable persons who needed it to obtain advice. By these means it is believed that many cases of incipient mental disease might be arrested, and the necessity for long seclusion in an asylum avoided. The London County Council thinks the matter so urgent that it proposes to establish quickly two receiving houses, each for 250 patients, one on the north and one on the south side of the Thames. In all highly civilized countries, and the more highly civilized the more aptly the remark will apply, insanity is on the increase. Even if, as is sometimes argued, acute dementia or well-established madness is not obviously more prevalent than formerly, at any rate there are more individuals of unstable temperament and who, given favoring conditions, may develop insanity, than there used to be. Unfortunately, in large towns favoring conditions are

always present, and the strain of modern town life so affects a certain large class of persons that there are always candidates for receiving houses. A large proportion of such people are amenable to skillful treatment, and consequently the plea for receiving houses seems to be thoroughly justified.

THE EARLY DIAGNOSIS OF TABES DORSALIS.

The diagnosis of locomotor ataxia in its initial stage is often no easy matter, the detection of the signs and symptoms of the disease requiring careful search, an acute eye, and an alert mind. It is in this stage, however, that the diagnosis is of especial importance, particularly in deciding the question of whether or not a man should marry. Much unnecessary hardship has been caused by physicians in overlooking early cases of tabes dorsalis, and permitting sufferers to marry when in a physical condition which would make matrimony little better than a crime. Every care should be taken in examining a prospective bridegroom, especially if there is the faintest suspicion of a previous specific taint, in order to detect the first suggestion of this insidious disease. In this relation an article by Kann, of Bad Oeynhausen on the diagnosis of initial tabes, which appears in the *Berliner klinische Wochenschrift* for June 21 is of interest, for, while it teaches nothing new, it emphasizes some points which seem worthy of note. The pain in early tabes is often not of the typical lightning character, but may be a dull ache in the joints resembling chronic rheumatism or persistent boring pains in various parts of the body. The well-known paresthesias may be absent from the hands and feet, but present in the perineal region. Digestive symptoms, loss of appetite, or constipation may be early symptoms, while bladder symptoms of all kinds must be investigated with care. The Argyle-Robertson sign may be only partial or unilateral. Inequality of the pupils, loss of the reflex pupil reaction, and double vision from muscular paresis may occur early. The loss of the knee jerk appears comparatively late in the disease, and is of but little value in early diagnosis. The tendo-Achillis reflex, however, disappears much earlier. Owing to their frequent absence in health, the state of the arm reflexes is of little value, though that of the triceps is of some significance, especially if it is weaker on one side than the other. The hypotonicity of the musculature shown by the abnormal motility of the joints is of especial value.

Pronounced ataxia occurs late, but the symptom may manifest itself early by slight uncertainty in the dark or by tremor of the leg when held in the air. When the Romberg symptom appears to be negative, it may be elicited by standing with one foot before the other, or with one off the ground; while in the absence of gross swaying, an abnormally active play of the leg and buttock muscles may put the examiner on his guard. The important point is not the presence of abnormal movements, but their increase on closing the eyes. All abnormalities of sensation should be studied, especially those in the neighborhood of the breasts and perineum. The deep joint sensation is demonstrated by moving the great toe, and its loss is of significance. More recent discoveries of value are the lymphocytosis in the spinal fluid and increase in globulin as shown by Noguchi's test. The Wassermann test, too, may give information of value.

A careful and systematic search for these minor and more obscure symptoms of tabes in every suspect of past syphilis or candidate for matrimony may establish a diagnosis in a case which otherwise would be overlooked, may save the physician some later chagrin and a prospective bride a life of slavery and unhappiness, and by enabling the institution of early treatment will give the patient himself the greatest possible chance for checking the course of the disease.

THE RECOGNITION OF SCIENTIFIC WORK.

If one may judge from the methods pursued by Dr. Wiley and his followers at the Pure Food Convention in Denver last week, it is evident that they knew he had no case. Without doubt he is sincere in the delusion that sodium benzoate is toxic when ingested in minute quantities, but he was extremely unfortunate in his friends and in the methods they adopted in the endeavor to carry the convention against the United States Government. The press, both lay and medical, was bombarded days before the convention met by ready-made telegrams from Denver; editorials were printed in many influential papers seeking to obscure the issue by pretending that the question was one of garbage *versus* pure food; a medical paper reissued, or redistributed, just before the meeting, a three-months-old number filled with platitudes regarding the advantages of clean catsup and jam; and Dr. C. A. L. Reed, a gynecologist, distributed broadcast copies of a paper in which he questioned the personal integrity of four of the best known chemists and laboratory workers of the country, fortifying his inexpert statements with the announcement that he was chairman of the Committee on Legislation of the American Medical Association, thus giving the impression that he spoke officially for the physicians of the country. As a matter of fact, it was published in the press last January that this committee, meeting in Washington, passed a resolution disavowing for the American Medical Association the utterances of Dr. Reed at that time, which he repeated at Denver, regarding the findings of the Referee Board of Consulting Scientific Experts. He is the spokesman neither of the medical men of the country nor of the members of the American Medical Association. In marked contrast with these tactics was the dignified action of the members of the Referee Board appointed by the Government to review the experiments of the chemist of the Department of Agriculture. They addressed the convention, simply telling what they had done and why they had done it, summarizing briefly their experiments, and giving their conclusions and the reasons therefor. Their honesty of purpose was so evident and their reputation as experts was so unassailable that the convention was convinced and endorsed their action by a substantial majority.

This is a defeat for Dr. Wiley in his contention that sodium benzoate in small quantities is injurious, but it is no victory for dishonest manufacturers who want to utilize factory sweepings in the making of catsup and other such delectable food products. Those men know that they can make "garbage" palatable by means of vinegar and spices much better than they can by the use of benzoate of sodium, and so they take little interest in the decision of the Referee Board. This is, however, apart from the issue at Denver, which was solely whether the findings of the Referee Board were correct. Dr. Wiley's experiments, upon which his condemnation of sodium benzoate was based, were crude and unscientific, as was clearly shown by Dr. E. E. Smith in his review of them published in the MEDICAL RECORD of January 2, 1909. The decision of the Referee Board, on the other hand, was based upon the results of three series of experiments, conducted by expert chemists and physiologists, working independently, in New York, New Haven, and Chicago. The findings of these three independent sets of experimenters were substantially the same, and the board was unanimous in its conclusion that "sodium benzoate in small doses (under 0.5 gram per day) mixed with the food is without deleterious or poisonous action and is not injurious to health." This report was signed by Ira Remsen, Russell H. Chittenden, John H. Long, and Christian A. Herter. It would have been strange had the Pure Food Convention not endorsed a report made by such men, and had it not discredited the intemperate accusations of bias and dishonesty brought against them by men trained in the arts of the politician.

As we said above, this vote of the Pure Food Convention supporting the conclusions of the Referee Board is no victory for dishonest food manufacturers. It is simply and purely a vote in support of honest scientific investigation and in repudiation of nonsense uttered by unscientific and inexpert partisans of a chemist who has apparently made a mistake. It is entirely apart from the question whether catsup is more wholesome when preserved by sodium benzoate than when spices are used to prevent its decomposition. This is another matter entirely, and is one which it might be well to submit to the Referee Board for decision.

THE CONVULSIONS OF WHOOPING COUGH.

WHILE pertussis in itself is a serious disease, especially when occurring in early infancy, the fatalities are caused, as a rule, not by the primary condition, but by one or other of its complications. The prognosis of a simple case is certainly good, but the appearance of signs of bronchopneumonia marks the transition of the disease from one of expected recovery to one of serious import, and the onset of convulsions makes the outlook practically hopeless. This latter complication of whooping cough is fortunately rare. Roger found it to occur fifteen times in four hundred and thirty-one cases, while in the Charité Hospital in Berlin it appeared twenty-four times in four hundred and seventy-six cases. When convulsions occur in pertussis, they usually begin from the third to the sixth week of the disease, in children under three years of age, and may be preceded for a few days by headache and restlessness. They may be local, but are more commonly general. Rarely coming singly, they recur more and more frequently, the patients soon becoming comatose between the eclamptic seizures, and dying in a condition closely resembling the status epilepticus. At autopsy the only abnormality found in the cerebrum is a marked edema. In consideration of this edema, Eckert, assistant to Professor Heubner in Berlin, has recently been experimenting with a new method of treatment, the striking results of which he has reported in the *Münchener medizinische Wochenschrift* for August 3, 1909. The four patients treated presented typical cases of pertussis convulsions, varying in age from eleven to seventeen months. They were unconscious, and the eclamptic attacks were recurring with great frequency, in the first case as often as forty-eight times in twenty-four hours. Believing them to be due to the cerebral edema, Eckert performed lumbar puncture, and removed from five to twenty-five cubic centimeters of clear, sterile, cerebrospinal fluid. The intraspinal pressure varied in the different cases from 150 to 330 mm., and in each case dropped after the operation to 80 mm. In two of the cases the convulsions ceased immediately; in one five more occurred and then they stopped; and in the fourth a second puncture was required, after which the convulsions occurred three times and then disappeared. As the operation, though stopping the convulsions, did not clear up the coma, "souse baths" were given. These restored consciousness immediately. The four patients all made uninterrupted recoveries from the whooping cough. As to the theory of the treatment, Eckert believes that the cerebral edema is caused by congestion due to the powerful expiratory spasm of the cough, recurring with sufficient frequency to prevent renewal of the cerebral circulation between the attacks. The lumbar puncture removes enough fluid, not in itself to overcome the edema, but by relieving the intracranial pressure to enable the meninges to absorb the excess of fluid, this being actually brought about by the suction on the veins produced by the violent inspiratory spasm incited by the sudden cold baths. Whether this theory is correct, and it seems at least logical, the results of the treatment were brilliant, and the method offers hope for recovery in a complication of whooping cough which has heretofore been considered to be practically hopeless.

BISMUTH IN THE DIAGNOSIS OF GASTRIC ULCER.

THE differential diagnosis between ulcer of the stomach and a simple gastric neurosis is often a matter of some difficulty, and requiring no small degree of clinical skill, especially in cases in which the ulcer is not accompanied by hemorrhage. The symptoms of pain, vomiting, and point tenderness may occur in both conditions, while the finding of a hyperacidity, though suggestive of ulcer, is far from being pathognomonic, and the other characteristics of a test meal are of little or no aid. In view of the seriousness of the condition of ulcus ventriculi and the necessity of early and rigid treatment, a specific test is much to be desired. In the *Deutsche medizinische Wochenschrift* for August 5, 1909, Karl Grandauer of Berlin has reported some investigation of a procedure which he believes may be of use in the diagnosis of gastric ulcer. He has found that an examination of the contents of a stomach, the lining membrane of which is normal

and the motility not greatly reduced, will show, twelve hours after the administration of bismuth, practically no trace of the drug, whereas, if the mucous membrane is irregular, the black crystals may be present in fairly considerable quantity. His technique consists in giving two grams of bismuth subnitrate at night, on an empty stomach, and the following morning an ordinary test meal. One hour later this is removed in three portions. The first consists of the undiluted contents; the second is all that can be removed with 100 c.c. of wash water; and the third comprises the wash water required to clean the organ thoroughly. The first is used for the usual chemical and microscopic examination. The second and third are allowed to sediment, and a few drops are removed from the bottom with a pipette and examined microscopically for bismuth. Grandauer finds that in cases of pure gastric neuroses practically no bismuth can be demonstrated, while in cases of ulcer, cancer, and erosions it is found with ease in the wash water, owing to its retention in the crevices of the mucous membrane. The test is also positive in cases of gastritis, due to the bismuth being held by the mucus. He concludes that in the absence of motor insufficiency, carcinoma, and gastritis, the finding of bismuth in any quantity is a diagnostic sign of ulcer.

Intoxication with Magnesium Sulphate.

That a drug so extensively used as magnesium sulphate, on lay initiative as well as on professional recommendation, should occasionally give rise to toxic effects, at times even of a fatal character, and altogether apart from excessive dosage or adulteration, emphasizes a danger that may occasionally be encountered in connection with any efficient therapeutic agent. A case in which such an untoward result was observed was recently reported by Dr. Charles Fraser in the *Lancet,* recovery ensuing after exceedingly alarming symptoms. Four of the five other cases that could be found recorded in the literature terminated fatally. A boy, 3½ years old, apparently in perfect health, took by mistake for sugar a heaping teaspoonful of magnesium sulphate, about half an ounce by weight, and washed it down with a mouthful of milk. Retching soon set in, with considerable pain in the stomach, and later nausea and vomiting. The bowels remained unmoved, and thirst was marked. The face became pinched, the eyes sunken, and the skin pale. Only a small amount of urine was passed. The abdomen became distended and rigid, and the skin markedly hyperesthetic. The temperature was but slightly elevated, while the pulse was considerably accelerated. Acute peritonitis being suspected, the abdomen was opened, and two pints of blood-stained serum, evacuated. This was on bacteriological examination found sterile. No other abnormality was discovered. For a while the outcome of the case appeared dubious, but in the second twenty-four hours after operation improvement set in and went on to complete recovery. It is pointed out that the symptoms observed may have been due to intussusception or volvulus, but of the presence of either of these conditions there was no convincing evidence. No adequate explanation is at hand for the symptoms noted in the six recorded fatal cases. In some it may have been the result of exhaustion from excessive purgation, in others of some form of intestinal obstruction, and in yet others of the directly toxic effect of the magnesium sulphate.

The Budapest Congress.

The Sixteenth International Medical Congress, which has been held during the present week in the beautiful capital of Hungary, will no doubt go down to medical history as one of the most enjoyable, if not the most numerously attended, of any similar gathering. Yet the attendance must have reached no mean figures, for, as noted in our special cable report, there was a registration of practically 2,000 foreign delegates, and this added to the number of native physicians present, doubtless brought the total up to, if not exceeding, 5,000. Although no sensational discovery was announced, at least during the first half of the meeting covered by our report, if the papers and addresses, four of which we are privileged to present to our readers this week, are an indication, the general average of the work done was sufficient to make the Congress a notable one. A feature of interest to Americans was the decoration of the statue of Washington, which the liberty-loving Hungarians had erected in his honor in their capital. The American delegates attended this celebration in a body, and Count Apponyi, the Hungarian Minister of Public Instruction, honored the occasion with an address and brought the school children under his care to grace it with the singing of patriotic airs. The social festivities, as was inevitable when such a hospitable folk as the Hungarians were hosts, were most enjoyable. Altogether, the Budapest Congress will be voted a success, and those who have had the good fortune to be present will cherish the occasion as one full of pleasant recollections.

News of the Week.

Civil Service Examinations.—The New York State Civil Service Commission will hold examinations on September 18, 1909, for the following positions: Assistant Sanitary Chemist, Department of Health, $1,200 to $1,500; Physician, Homeopathic, and Physician, Regular, $900 to $1,200, and Superintendent or Assistant Superintendent of State Hospital Training School, $900 to $1,200, and maintenance. The last day for filing applications for these positions is September 11, at noon. For information and application for any of these examinations, address (postal card preferred) State Civil Service Commission, Albany, N. Y.

More Pure Milk Depots.—A plan calling for an expenditure of $55,850 during the next year to reduce infant mortality in New York City by supplying pure milk and educating tenement mothers has just been made public by the New York Milk Committee in a pamphlet outlining the proposed work for next year. Two new depots are to be opened in addition to the seven now running.

Cholera in Europe.—Asiatic cholera has made its appearance in Rotterdam. On August 26 four deaths were reported, nine cases of cholera were under treatment in the hospital, and forty-two in the observation ward. The Marine Hospital Service in Washington has received a cablegram from the American Consul at Rotterdam, that the Dutch ship *Andyk* sailed from that port on August 25 for Baltimore with cholera on board. Assistant Surgeon Robert A. C. Wollenburg, now stationed at Naples, has been ordered to proceed to Rotterdam to assist the American Consul in seeing that the sanitary regulations required by our government

for ships sailing to American ports are properly carried out. The steamer *Singapore* arrived at Antwerp from Riga with five of her crew dead, presumably from cholera. The ship was quarantined. The epidemic in St. Petersburg continues. Twenty-nine new cases and twelve deaths were reported one day last week. On August 27 one of the officers of the Guard in the Winter Palace was attacked by cholera. The entire staff of officials and servants of the palace is being closely watched. Twelve cases were reported from Riga, with nine deaths during the three days from August 26 to 28. Whereas the epidemic is apparently less severe in St. Petersburg, it is spreading rapidly to the different cities of Russia.

Smallpox in Spain.—Reports from Madrid state that a severe epidemic of smallpox prevails there at present. Compulsory vaccination is being carried out. Considerable excitement was created last week on the steamship *Carpathia* by the discovery that a cabin passenger who had boarded at Gibraltar was suffering from the disease. The patient was isolated, and on arrival at New York was transferred to the Willard Parker Hospital.

Poliomyelitis in Greater New York.—A severe epidemic of anterior poliomyelitis is at present prevalent in the Brownsville section of Brooklyn. It is stated unofficially that during the past three weeks two hundred children have become affected with the disease. That the epidemic is not confined to Brooklyn, but is spreading to Manhattan as well, is shown by the report from Hospital for Ruptured and Crippled, where twenty new cases have been admitted within two weeks. Dr. Terriberry of the staff of this hospital is taking active steps to organize the hospitals and research laboratories of the city in preparation for an acute epidemic of the disease.

A peculiar epidemic in Utah is said to be puzzling the physicians of that State, numerous cases of the disease having appeared there. The fever often rises to 105 degrees, and in many cases the results have been fatal. On the theory that the infection is contracted from handling goats the disease has been called "goat fever." The disease prevails in the goat raising districts, and seems to occur especially at about the kidding time. As yet the investigations of the bacteriologist of the Utah Board of Health have failed to throw light on the cause of the disease.

Bubonic Plague in Hawaii.—Three cases of bubonic plague and one death from the disease were reported on August 23 from the Island of Hawaii. No cases have occurred in Honolulu.

Pellagra.—Five deaths from pellagra are reported in Butler county, Alabama, three persons are dying, and five more are under observation. The State Department of Health is investigating the conditions in Clark county, where more than one hundred cases are reported. Captain J. F. Siler of the Army Medical Corps has been sent to Peoria, Ill., to investigate and report upon an outbreak of the disease there. About 75 cases have been found among the 2,200 inmates of the Peoria State Hospital. This is the first outbreak of the disease that has been reported in the United States north of Mason and Dixon's line. Dr. James A. Egan, Secretary of the Illinois State Board of Health, has been investigating the cases with Captain Siler and states his belief that the disease did not originate in the institution, but that all the patients had pellagra when they were received and that their insanity was but a symptom of the disease.

Two Epidemics of Anthrax.—Three large dairies in Chenango county, New York, are affected with anthrax. Six of the cattle died on August 27. Chenango is in the heart of the district that ships many thousands of pounds of milk to New York and other Eastern points every day. An outbreak of anthrax in the dairy herd at the farm of the University of Wisconsin developed recently. The authorities of the College of Agriculture have taken every precaution to check the disease and to prevent its further spread. The death of a cow in a pasture aroused suspicion. The sale of milk was discontinued and the dairy herd was placed under strict surveillance. A quarantine was established and an isolated stable provided to which all cows that showed abnormal temperatures were taken.

The Nelson Morris Memorial Institute for Medical Research.—Chicago is to have an institution for medical research similar to that founded in New York by Mr. Rockefeller. The new institution is the gift of Mrs. Nelson Morris, and $250,000, which is needed for erection and furnishing, has been given by her as a memorial to her husband. The institution will be known as the Nelson Morris Memorial Institute of Medical Research, and will be connected with the Michael Reese Hospital. The building will be constructed according to the ideas of Dr. James W. Jobling, Chief Pathologist of the Michael Reese Hospital, who is to be the Director of the new Institute. Dr. Jobling was for a number of years connected with the government laboratory in Manila, and for the last few years has been on the staff of the Rockefeller Institute. The new director is known as the coworker with Dr. Flexner in the discovery and production of the antimeningococcus serum.

Charitable Bequests.—By the will of the late Michael Horn of New York, among many other bequests, the Mt. Sinai Hospital received $5,000, and the Montefiore Home $2,500 to endow memorial beds.

Osteopathy Legalized in Alabama.—Governor Brown of Alabama has signed a bill permitting the licensing of osteopaths. The bill was vigorously opposed, but passed the General Assembly by a large majority in both houses.

New York University Additions.—Plans have been filed for the construction of a new building to be erected for the New York University Medical School. It will be six stories in height, and will adjoin the Carnegie Laboratory. It will serve as a surgical pavilion.

Appointments.—Dr. Paul Gerhardt Wooley has been appointed Professor of Pathology of the Medical College of Cincinnati University and Pathologist to the City Hospital. Dr. Wooley was associated with the Pathological Laboratory of the U. S. Government Hospital in Manila, and more recently has acted as medical adviser to the King of Siam. Dr. William B. Wherry has been appointed Assistant Professor of Bacteriology at the Ohio-Miami Medical College of the University of Cincinnati. Dr. Wherry was also connected with the laboratory of the Government Hospital in Manila. He is now bacteriologist to the Marine Hospital Service in Oakland, and has been in charge of the laboratory work of the Bubonic Plague Commission.

The Physicians National Board of Regents has

recently been formed with offices at 1717 Chestnut Street, Philadelphia. The following are the officers: *President,* Dr. Eugene Underhill; *Secretary,* Jacob R. Jordan, and *Treasurer,* Edwin H. Frazier. The official journal of the board, *The Guide Book,* is under the editorship of Dr. Henry Beates, Jr., *Consulting Editor;* Dr. W. A. Newman Dorland, *Associate Editor,* and Dr. Underhill, *Editor.* The purpose of the organization is to insure the proper subordination of the nursing to the medical profession. It will classify and list "all nurses who are willing to pledge themselves to abide by the instructions of the attending physicians."

Medical Society of the Missouri Valley.—As previously announced, the twenty-first annual meeting of this association will be held in Council Bluffs, Iowa, on Thursday and Friday, September 9 and 10. The features of the evening session will be the President's address, by Dr. C. B. Hardin of Kansas City; the oration on Medicine by Dr. Alfred C. Croftan, and the Surgical oration by Dr. John E. Summers. Dr. Crofton has chosen as his topic, "The Diseases of Metabolism as a Group," and Dr. Summers will discuss "Cancer as a Constitutional Disease; Its Rational Treatment." Programs will be issued August 30, copies of which the secretary will furnish on request.

Surgeon's Heroic Death.—The preliminary report to the Navy Department over the loss of the naval tug, Nezinscot, on August 11, describes the death of acting assistant Surgeon C. E. Trotter. It seems that Dr. Trotter was clinging for over an hour to a piece of wreckage and had become greatly exhausted. Just as a boat, then overloaded and in a heavy sea, came to his rescue, he saw a sailor at a short distance in much distress in the water and told the rescuers that he was all right, for them to get the other man. This act of self-sacrifice cost Dr. Trotter his life.

Obituary Notes.—Dr. William Palmer Wesselhoeft of Boston died at his summer home at York Harbor, Me., August 24, 1909, aged 74 years. Dr. Wesselhoeft was a graduate of the University of Leipsig and of the Harvard Medical School, having received his degree from the latter in 1856. He had practised medicine in Boston for over fifty years.

Dr. Paul Randall Abell of Norwich, N. Y., died at his home August 23, 1909, aged 31 years. He was a graduate of the Long Island College Hospital in 1902, and was a member of the Susquehanna Valley Medical Society.

Dr. Homer Bushnell of North Adams, Mass., died at his summer home in Pownal, Vt., on August 23, 1909, aged 63 years. Dr. Bushnell received his medical degree from the University of Michigan in 1873. He was a member of the Berkshire County Medical Society, the Massachusetts Medical Society, and the American Medical Association.

Dr. William H. Wells of Sacramento, Cal., died on August 15, aged 91 years. Dr. Wells was one of the oldest physicians in California, where he went in 1849. He was a native of Connecticut and a graduate of the Rush Medical College. He practised for many years at Silveyville, Solano County, California.

Dr. Walter A. Smith of San Francisco, Cal., died of pneumonia at St. Francis Hospital, in that city, on August 14, 1909, aged 30 years. He was a graduate of the Cooper Medical College in 1907 and was resident physician to St. Francis Hospital.

Dr. Harmon W. Gross of Quincy, Mass., died suddenly on August 24, 1909. He was a graduate of the medical department of the University of Pennsylvania in 1895, and had been on the staff of the Boston City Hospital, the Boston Children's Hospital, and the Massachusetts General Hospital. At the time of his death Dr. Gross was superintendent of the Holy Cross Hospital, connected with the Fore River Shipbuilding Works at Quincy and was a member of the Norfolk County and Massachusetts Medical Societies. In 1906 he was a member of the Quincy Council.

Dr. Thomas S. P. Fitch of East Orange, N. J., died August 24, 1909, at Portland, Maine, aged 64 years. He was a graduate of the Bellevue Hospital Medical College in 1867. Dr. Fitch practised for a few years in New York City and then moved to East Orange. He was a member of the Essex County Medical Society, the Medical Society of New Jersey, and the American Medical Association. For three years Dr. Fitch was a member of the Orange Board of Education.

Dr. G. Colburn Clement of Haverhill, Mass., died at his home on August 27, 1909, aged 54 years, as the result of a cerebral hemorrhage. He was a graduate of Dartmouth College and of the Harvard Medical School in the class of 1880, since which time he has practised in Haverhill, paying especial attention to surgery and ophthalmology. Dr. Clement was a member of the Essex County Medical Society, the Massachusetts Medical Society, and the American Medical Association.

Dr. James M. H. Borglum of Omaha, Neb., died suddenly at his home on August 29, 1909. He was a graduate of the Homeopathic Medical College of Missouri in 1874 and a member of Douglas County Medical Society, the Nebraska State Medical Association, and the American Medical Association.

Dr. Elmer D. North of Lansing, Mich., was found dead in his rooms on August 17, 1909. The death was apparently from heart disease and had occurred several days before the body was found. Dr. North was 68 years of age and a graduate of the Detroit Medical College in 1881.

Dr. William Francis Swalen, born in New York City, June 2, 1837, died from apoplexy in his summer home on Shelter Island. He received his medical degree from the Columbia University in 1859 and soon went to the front in the Civil War as assistant surgeon. He was captured at Bull Run, but paroled as a non-combatant and sent to Libby Prison. After being exchanged he was mustered out, but remained an inspector of hospitals for the Sanitary Commission until the close of the war. He was surgeon to the Eye and Ear Infirmary for thirty years. Another step in his career led him into the militia as medical director of the second brigade as well as afterward surgeon general of the state. He is survived by a widow and a stepson. His funeral was held from the Universalist Church of Our Father, August 29, and was attended by many friends saddened by the thought that his life was ended, even though he had exceeded the Psalmist's allotted span by more than two years.

Dr. Charles W. Crispell of Kingston, N. Y., died suddenly at his summer home at Shelter Island on August 30. He was a graduate of the Vermont Medical College in the class of 1883. He was well known as a bacteriologist and was connected with the pathological laboratory at Albany. He was a member of the Medical Society of the State of New York and of the American Medical Association.

Sixteenth International Medical Congress.

(Special Cable Report to the Medical Record.)

Budapest, September 1.—The inaugural session of the Sixteenth International Medical Congress was held on Sunday, August 28, in the Municipal Building. After the singing of the Hungarian national hymn by a chorus accompanied by the Royal Hungarian Band, the Archduke Joseph, representing the Emperor, with a few words of cordial welcome, declared the Congress open. On motion, a telegram was sent to the Emperor thanking him on behalf of the delegates for graciously accepting the patronage of the Congress.

The President of the Congress, Dr. C. Müller, being ill, his address was read by the general secretary, Professor Emil de Grósz. In this address Dr. Müller presented a brief historical review of the successive international medical congresses beginning with that held in Paris in 1867. The idea of a gathering of medical men from the entire civilized world originated at the annual meeting of the French Société de Médecine in Bordeaux in 1865. It was suggested that, as many foreign medical men would probably visit the international exhibition to be held in Paris in 1867, the occasion would be opportune to gather them together for a discussion of matters of universal interest. The Congress comprised 333 French and 589 foreign members. In his opening address the President, M. Bouillaud, said: "We celebrate to-day a great fête, than which the history of medicine can cite no greater." Among the questions discussed were: Tuberculosis in different countries, and its influence on mortality; the possibility of proposing efficacious measures for the restriction of venereal diseases; the influence of alimentation, climate, race, and conditions of life in different countries, upon disease. During one of the sessions, Dr. Pantaleoni, a delegate from Italy, expressed the wish that this international meeting of physicians might be the first of a long series, thus originating the idea of periodical international medical congresses.

The Second Congress was held at Florence, the then capital of Italy, from September 23 to October 2, 1869. Seven questions were discussed, among which were: Marsh miasm, the conditions favoring its developments, its effects, and the most efficient methods for combating it; the therapeutics of cancer; the treatment of gunshot wounds; the hygienic conditions of hospitals; the conditions favoring epidemics in large cities, and the means for prevention; the rights and duties of physicians in regard to legislation in different countries, and the ameliorations which can reasonably be expected therefrom.

The Third Congress was delayed four years, in order to hold it at the time of the Vienna Exposition of 1873. All the questions for general discussion at this meeting related to hygiene. The establishment of quarantine by land and river, and the maintenance of sea quarantine were favored, and the Congress suggested the formation of an international commission for the investigation of the cholera virus. Compulsory vaccination was also recommended to the European governments.

The Fourth Congress was held from September 19 to 25, 1875, at Brussels, under the presidency of Dr. J. F. Vlemingkx. In this Congress various sections were organized for the discussion of subjects belonging to the special branches of medical science. At this Congress the first exposition of drugs, instruments, and other appliances was held, and for the first time also there were a number of delegates from the governments of the various countries. The principal topics of discussion were the prevention of cholera, the rôle of alcohol as a therapeutic agent, surgical anesthesia, the organization of the public hygiene service, and the disposition of the criminal and dangerous insane.

The Fifth Congress took place at Geneva from September 9 to 15, 1877. The membership was less than 500. Prof. Carl Vogt was elected president. Professor Bouchard read a paper on the etiology of typhoid fever, calling attention to its dissemination by water. Broadbent discussed cerebral localization. Esmarch discussed the advantages and disadvantages of his well-known bloodless method of operating.

The Sixth Congress took place at Amsterdam from September 7 to 13, 1879. The membership was under 500. This Congress was marked by Lister's discourse on his antiseptic method of handling wounds, and also by Virchow's address upon the preliminary education of physicians. Professor Donders, the President of the Congress, spoke on the condition of medical science, and emphasized the importance of experimental physiology to its future growth. Sayre of New York gave a demonstration of the value of his plaster-of-paris jacket in spinal diseases. Hydrotherapy in fevers was discussed, and Bright's disease was discussed at length, Semmola contending that the disease is general, and only secondarily local, that the action of moist cold checks the respiratory function of the skin, whence result changes in metabolism and finally changes in the kidney.

The Seventh Congress, held at London, from August 3 to 9, 1881, had a membership of 3,182, and was of all the congresses up to that time the most successful. The Lord Mayor's dinner at the Mansion House, the soirée at the Guildhall, and the conversazione given by the English members at South Kensington were the chief social functions. By a large majority, the committee decided to limit the invitations to the Congress to men, which brought out a protest from forty-three duly qualified medical women. Pasteur reported upon his investigations of chicken cholera, and upon protective inoculation against splenic fever. Virchow spoke on vivisection as an indispensable aid in research, and made a powerful plea for perfect freedom of investigation, showing conclusively that our present knowledge of life is the result of experimentation, and that the only reliable and practical method for the increase of that knowledge is also experimentation. Professor Huxley gave an address upon the relation of the biological sciences to medicine.

The Eighth Congress was held at Copenhagen, from August 10 to 16, 1884. The attendance was over 1,700. Professor Panum of Copenhagen was the President. Pasteur described the results of his protective inoculation of dogs against rabies. Sir William Gull of London advocated international collective investigation of disease. Antiseptic methods came in for a full discussion, which was opened in the absence of Lister, by Esmarch. Virchow spoke on metaplasia. Sayre demonstrated again his plaster-of-paris jacket. Tommaso Crudeli exhibited specimens of malarial blood showing anilin-stained inclusions in the red blood cells, which he regarded as the germs of the disease. McEwen described his operation for genu valgum

The Ninth Congress was held in September, 1887, at Washington. The attendance of foreign members was, because of the distance, and for other reasons, small. The Congress was opened by President Cleveland, and Dr. N. S. Davis was elected president. Compared with other Congresses the principal distinctive features of the medical work were the large number of papers, their almost exclusively "practical" character, and the large number taking part in the discussions. Professor Körösi read an address on vaccination, and showed that compulsory vaccination in the United States might be expected to save 120,000 lives, with a debit of 300 infant deaths as the result of the operation. Dr. W. H. Welch spoke on the effects of vaccination during the incubation period of smallpox. Dr. August Martin delivered an address describing his vaginal operation of total extirpation of the uterus for cancer.

The Tenth Congress, held at Berlin, from August 4 to 9, 1890, was successful, as regards both numbers and scientific work. Some 7,000 members were registered. Virchow was unanimously elected president. The principal feature of the Congress was the address of Koch, in which he announced that he had succeeded in immunizing guinea-pigs against tuberculosis, and also in arresting the growth and multiplication of the tubercle bacillus after inoculation. Lister reviewed the theories of immunity, dwelling on Metchnikoff's theory of phagocytosis, and expressed himself a firm believer in antisepsis as against asepsis. Professor Bouchard propounded a theory explanatory of immunity and infection. Professor von Bergmann gave an address on his aseptic methods, and Billroth presented his statistics, for the ten years under antiseptic methods, of the results obtained in resection of the stomach and intestines.

The Eleventh Congress was held at Rome, from March 29 to April 5, 1894. Professor Giulio Baccelli was president. Over 7,600 members were registered. Virchow, Babès, Michael Foster, Laache, and Jacobi delivered addresses.

The Twelfth Congress was held from August 19 to 26, 1897, at Moscow. To commemorate the meeting the city of Moscow founded a research prize of $1,000 for the congresses in perpetuity. The membership of the Congress was about 7,300. At this meeting Virchow reaffirmed his belief that the grand truth of unbroken cellular succession would never be overthrown. The diagnostic and therapeutic value of serums was discussed. The first Moscow prize was awarded to M. Henri Dunant for his organization of the International Red Cross Society.

The Thirteenth Congress held at Paris, from August 2 to 7, 1900, had a membership of over 6,000. Professor Lannelongue was elected president. At the opening session in the Salles des Fêtes Lannelongue's address emphasized the value of international medical congresses in promoting international intercourse, breaking down prejudice, and cementing the bonds of a common humanity. Virchow spoke on traumatism and infection. Pavlov presented a paper on experimental therapy as a new and extremely fecund method of physiological research. Jacobi of New York spoke on medicine and physicians in the United States. Ehrlich spoke on his theory of the action of toxins. The Moscow prize was awarded to Professor Ramón y Cajal for his great work on the nervous elements.

The Fourteenth Congress was held in Madrid, April 23 to 30, 1903, under the patronage of King Alfonso and the Queen Mother. Professor Calleja y Sanchez was president. The subject of his address at the inaugural session was "The Progress of Medical Science." The attendance at this Congress was over 5,000. The general addresses were by Arthur Thomson on anthropology, Coni in the campaign against tuberculosis in Latin America, Waldeyer on phylogenetic theories and Darwinism, Laache on reciprocity in pathology, Maragliano on immunization against tuberculosis, Brouardel on food adulteration, Fernandez on ocular affection in the tropics, Carracido on polypharmacy, Ramón y Cajal on the plan and construction of the thalamus, and Rolin on prophylactic and therapeutic indications in tuberculosis. The Moscow prize was warded to Professor Metchnikoff, and the Paris prize to Professor Grassi.

The Fifteenth Congress was held in Lisbon, April 19-26, 1906, under the presidency of Professor Costa Alemão, who reviewed in his address the rapid strides that medicine had made since the Madrid Congress three years before. Brissaud delivered an address on infantilism, Hansemann on the significance of domestication of animals in relation to disease, Crocq on the mechanism of the reflexes, and Senn on cancer.

At the close of the address Professor Grósz presented the statistics of registration of the present Congress. There were 1,994 foreign members, of which number 202 were Americans, 235 Austrians, 288 Germans, 92 British, 228 Russians, 281 French, other countries being represented by smaller numbers. In no previous congress had there been such a large representation from distant countries as in this, and this he regarded as an omen of great promise, for the greatest need of humanity to-day was that of the pacific conciliatory force of science; he quoted Pasteur that the realm of science knows no political boundaries, but embraces the whole of humanity.

The report of the secretary was followed by addresses of welcome by Count Apponyi and by M. de Fulepp, the Mayor of Budapest, and then the presidents of the various national delegations made the customary brief addresses of mutual congratulation and compliment. Dr. John H. Musser of Philadelphia spoke in behalf of the American delegates.

In the evening a largely attended soirée of welcome was given in the handsome Gallery of Fine Arts in the City Park. There was music by the royal band during the evening and refreshments were served. The presidents of the twenty-one sections into which the Congress is divided received the members of their own sections, each in a separate room of the gallery.

On Monday, August 30, a meeting was held of Esperanto enthusiasts, who discussed the question of the adoption of their method of intercommunication as an official tongue by the Congress. In the afternoon the American members visited the statue of Washington and placed wreaths at its base. The statue was draped with American and Hungarian flags, and the addresses were interspersed with excellent chorus singing by the school children of Budapest. An address was delivered by Dr. L. C. McMurtrie of Louisville, and Count Apponyi, Minister of Public Instruction, gave a warm appreciation of democracy and of the impulse given by the great western nation to the freedom of humanity.

At the general session Professor Guido Baccelli

of Rome delivered an address on the "Introduction of Heroic Remedies by Open Veins." He said that in syphilis he had had most marvelous results from the intravenous injection of corrosive sublimate, and also in malaria the intravenous injection of quinine was the most efficacious means of reaching and destroying the parasites of the red blood corpuscles. The bacteria which had invaded the cerebrospinal tissues were also most readily acted upon by remedies introduced directly into the blood channels. In tuberculosis, unfortunately, it is not possible to get at the bacilli through the blood stream since the way is blocked thereto by the tubercles.

In the evening the municipality gave a banquet followed by a musicale and reception in honor of the foreign delegates. These functions were largely attended and were pronounced most enjoyable despite the heat, which was intense, even for the American delegates.

At the general session held August 31, Dr. E. F. Bashford of London, Director of the Imperial Cancer Research Fund, delivered an address on cancer [see page 381]. Dr. R. Kutner of Berlin delivered an address in which he advocated the formation of a number of specially equipped centers for post-graduate instruction for medical practitioners, and a scheme was evolved by which such instruction could be made available by all physicians in town or country.

In the evening a reception was given to the ladies of the Congress by Count and Countess Szechenyi on an island in the Danube.

The Congress has awarded the Moscow prize to Professor Bordet of Ghent, and the Paris prize to Professor Hertwig of Berlin.

Correspondence.

PROFESSOR BRIEGER IS HAPPILY ALIVE.

To the Editor of the Medical Record:

Sir:—I am glad to notify you that the information upon which my notice of Professor Brieger's death was based proves incorrect. I received a communication from him yesterday, written in Carlsbad, and informing me that he was about to deliver an address there on the cachexia reaction in carcinoma and diabetes. It is a rare privilege to enjoy one's own obituary and to discover, as Mark Twain once cabled, that "the reports of my death are greatly exaggerated."

August 31, 1909. S. Baruch, M.D.

THE PASSING OF SECTARIANISM.

To the Editor of the Medical Record:

Sir:—The rapid approach of professional unity and higher standards of excellence cannot be better illustrated than by referring to certain recent changes in the names and methods of some sectarian colleges. An old and at one time prosperous eclectic college in Chicago has dropped its sectarian name and teaching. A homeopathic college in Denver and one in Baltimore have in effect taken themselves out of the homeopathic ranks. An old homeopathic college in St. Louis has closed its doors. The board of regents of the University of Minnesota has practically abolished homeopathy in that institution. It is said that some of the Iowa authorities are growing impatient over the burdensome homeopathic department in that university. There remain some three or four strong and well-equipped homeopathic colleges, which are largely reduced to a modern basis, but which remain nominally sectarian. The greatly increased cost of conducting institutions of learning will necessarily close the doors of the smaller struggling colleges, some of which have but a handful of students. The necessity for a division in the medical profession no longer exists, a broad spirit having followed in the train of the immense strides recorded by modern medical science. The prevention of typhoid fever is considerably more interesting than a discussion of the teachings of Hahnemann.

One feature of the situation deserves mention. A progressive old physician, nominally a homeopath, was invited by me to become a member of the regular societies. He replied: "No, I am too old to make new friends. My son is a regular and I am glad of it. Each of us has walked by his best lights. Something had to be done to bring the Old School to its senses. Organized Homeopathy helped to do it. We have not lived in vain, although I am glad to see an end of sectarianism." Medicus.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

BARNATO TRUST FOR CANCER—LUNACY REPORT—ENTERTAINMENTS FOR HOSPITALS—AUSTRALIAN TROPICAL SCHOOL—OBITUARY.

London, August 13, 1909.

The topic of this week, both within and without the profession, has been cancer. The announcement that the trustees of the late Mr. H. Barnato had decided to devote his munificent bequest to the building and endowment of an institution for the reception of cancer patients has put aside other subjects of conversation, including to no small degree acrimonious political discussion. You may remember that Mr. Barnato left £250,000 in memory of his brother and nephew, who both predeceased him. This sum was for founding a charity in the nature of a hospital or kindred institution. The trustees were to have absolute discretion as to the application of the fund and the equipment, endowment, and management of the institution. Mr. Barnato died last November and his will was proved in January, since which the trustees have been studying various means of carrying out the intention. At length they have determined on devoting the whole fund to a hospital for cancer patients and have acquired a site adjoining the Middlesex Hospital, in conjunction with which it will be carried on. You know that the Middlesex Hospital has long been a center of cancer research. For 117 years there has been a cancer ward, which was begun by an anonymous donor, afterward found to be Mr. S. Whitbread, M.P. This ward gradually increased until a separate wing was built. In 1900 a research department was instituted by the hospital and everyone interested in such work knows about its investigations. The medical staff of the Middlesex and its laboratories will no doubt have the opportunity of partaking in the extension of such work, though others may have to be added, for it is probable that the new hospital will provide for the comfort of at least fifty patients and in connection therewith a thoroughly equipped research department.

The decision of the trustees has met with warm approval in most circles, though there are suggestions of doubt in some respecting the desirability of increasing the number of separate hospitals. So far as the comfort of patients and the alleviation, the public seems satisfied, but many doctors are impressed with wider views. In all our great hospitals a number of beds are constantly occupied by cancer patients. There are many others who cannot obtain admission and the selection is made in accordance with the prospect of benefit. At present the hope of correcting the disease lies in early recognition and consequent early operation. For inoperable cases an increase in the number of hospitals may be considered as a good use of charitable funds. But for cases with any prospect of cure it is held by many that their distribution among existing hospitals must be better than anything approaching a concentration in one large institution. All the great hospitals are well equipped and their surgeons have experience and skill. The clinical study of cancer and the instruction of students are points which must not be forgotten.

On the other hand, it may be said that there is considerable provision for hopeless cases and it is not impossible that the study of these may lead to important results. There is a cancer hospital in Fulham Road which has 110 beds, and I am informed that the claims of this for help were put before the Barnato trustees, as were those of numerous charities of all kinds.

Mr. Howell Evans, Hunterian professor at the Royal College of Surgeons, is on the staff of this hospital and

says the clinical investigations carried on there are most complete and the pathological museum valuable. Two or three years ago the staff of this hospital desired to convert it into a national hospital for cancer, but the funds were not forthcoming. Another member of the staff remarked that all research helps clinical work and the more money given to either department the greater the prospects of even incurable cases.

Mr. Pearce Gould, as senior surgeon to the Middlesex Hospital, has abundant experience of the working of the cancer department. He is sure its increase will not be in excess of the demand. It provides a home for victims of cancer who are not at the time suitable subjects for surgical treatment, and no limit is placed on the length of their residence while they suffer from this disease. He evidently thinks that almost every patient admitted derives benefit, often very great benefit. One may cherish such an opinion, for a hospital ward with skilled medical supervision and nursing may well give greater relief than a home, even when there is no prospect of radical treatment. On this ground alone a quarter of a million sterling must prove a benefit to these sufferers. If it does as much for science as for philanthropy, its value cannot be exaggerated.

The Imperial Cancer Research Fund is only seven years old, but its scientific investigations are known throughout the world. Dr. E. F. Bashford is the director of the laboratory on the Thames Embankment and superintendent of the whole work. He is about to leave to take part in the international congress at Budapest and will no doubt give an account of what the fund has done at that assembly. I will therefore only mention some points. It was pointed out at the recent annual meeting at Marlborough House, about which I wrote to you at the time, that the work had caused a great change in the views held of cancer, e.g. it has been shown that practically all races are liable to the disease, and that the notion which had prevailed as to the exemption of the Japanese has no foundation; that climate, soil, diet, etc., have not the importance formerly ascribed to such influences; that all vertebrate animals, wild as well as tame, are liable to it, even fish in their natural state in the North Sea and off the coast of Newfoundland. Further, the investigations have not only corroborated the old belief that cancer was a disease of advancing age, but have shown that this is so in all animals, however short or long their lives may respectively be. It is the later period of life in which cancer appears. It has also been proved that the only way of transmitting the disease from one animal to another is by inoculation, and so the nightmare of inheriting it has been dispelled. From extensive breeding experiments strains of mice have been obtained from cancerous ancestors and out of many thousands not a single one has shown inheritance. On the other hand, some old opinions seem to have been confirmed—such as the influence of chronic irritation, which indeed seems to have acquired greater importance with regard to prevention as well as to surgical removal.

Yesterday the annual report of the Lunacy Commissioners was issued as a bluebook. It is made up to January 1 last and shows an increase of certified cases over those of the previous year of 2,703—an excess of 336 cases over the average annual increase for the decennium. Among curious items as to the ratio of admissions to the population I find a high ratio among those engaged in professional or intellectual pursuits. For example, the ratio for the clergy was 10.7, for lawyers 16.7, doctors 14.2, literary and scientific persons 19.4, engineers 49.8, artists, sculptors, etc., 25.4 The remarkable figure for engineers is paralleled among the less cultured classes by 51.2 for ironworkers and 40.3 for hawkers (male and female) and costermongers.

As to causes, the report assigns 22.6 of total admissions to heredity and states that prolonged mental stress is more commonly assigned in private (21.6 per cent.) than in pauper cases; that sudden mental stress is also more common among the former, particularly in females. Of toxic influences alcohol was assigned among private patients in males 17.3, females 7.1 In paupers, males 24, females 9.1, and there was a family history of alcoholism in 5.3 of both sexes.

King Edward's Hospital Fund has received the report of the committee it appointed in May to inquire into the expenses of entertainments arranged for the benefit of charities. The revised uniform system of accounts requires, when the hospital is responsible, that the income and expenditure show the results, and the committee advises that detailed estimates be formed beforehand, and, further, that the question whether the possible receipts are worth the risk entailed. When outside agencies organize the entertainment the hospital would have less risk, but the precautions ought to be proportionate. In all cases an audited statement of receipts and expenses, with full details, should be required. A rule exists at some hospitals that permission to use the name of the institution is granted only where the governing body has a voice in the management of the entertainment. It is not proposed now to formulate rules binding on hospitals, but it is hoped the perusal of the report may assist managing committees to frame their own regulations.

The managers of the Anti-Vivisection Hospital are so annoyed with the remarks made at the meeting of the Sunday Fund, which I reported last week, that they have resolved to refuse the grant made or any grant "until it can be voted in an impartial and dignified manner."

Dr. Anton Bricul, of the Liverpool Tropical School, is to be director of the newly founded Australian School of Tropical Medicine. He was assistant to Professor Chiara, of Prague, and was attracted to Liverpool by the Johnston International Fellowship. His work on the trypanosomes is well known. He and Dr. Thomas introduced citoxyl as a remedy for sleeping sickness.

The death of Dr. Alexander Fraser, the popular professor of anatomy at the Royal College of Surgeons in Ireland, on the 25th ult., will be felt as a great loss in the Irish school and regretted by numerous pupils and friends as well as colleagues. On completing the 25th year of his professorship he was presented with a check in a silver casket. He made numerous contributions to his science, chiefly in the Transactions of the Royal Society and Royal Academy of Medicine.

Progress of Medical Science.

The Boston Medical and Surgical Journal, August 19, 1909.

The Intravenous Administration of Strophanthin in Other Than Cardiac Disease, with Special Reference to Its Use in Collapse in the Course of Pneumonia.—A. K. Stone states that most observers agree with Fraenkel that 1 mg. of the strophanthin properly introduced into the venous circulation produces no unpleasant reaction and calls forth a prompt response on the part of the failing heart, which shows itself by the slowing and strengthening of the beat. The change for the better appears in from five to fifteen minutes and usually lasts from twelve to eighteen hours. The cases most favorable for its administration seem to be those of mitral disease with failing compensation; next, those cases of arteriosclerosis where there is but little renal involvement and where the heart has dilated and become incompetent. Pure renal cases with struggling heart are not only not helped but often retarded in their progress. In several cases where death has occurred in the course of the administration of strophanthin, repeated or frequent doses have been given, or it has been given to patients who have already had digitalis pushed to the limit of safety and the sudden addition of strophanthin has produced collapse. In the introduction of strophanthin great care must be taken that the solution be injected into the blood stream. For the majority of cases the median basilic vein at the bend of the elbow will be found to be the one easiest of access. Liebermeister states as his belief that the use of strophanthin would enable a certain number of severe pneumonia cases to be carried along until the patient was able to eliminate the toxin of pneumococcus and to get on the road to recovery. Dr. Stone cites several cases in his experience which confirm this statement. He does not advocate the use of strophanthin as a specific for desperate cases of pneumonia, but believes that in certain cases of collapse, due to cardiac weakness, the physician has in strophanthin a drug which will act so promptly and powerfully and will enable the patient to rally and the heart to resume its work. The large amounts of urine passed by these patients following the crisis of pneumonia makes it seem that strophanthin has to do with the production of diuresis, by means of which the toxic products are more rapidly eliminated than would otherwise be the case. When the patient has grown weaker and weaker in the course of his disease, whether it be pneumonia or typhoid fever, this drug will have little effect.

Stenosis of the Larynx.—After reporting three cases of stenosis of the larynx following intubation for diphtheria, Richard H. Johnston says that as such patients usually wear tracheal cannula the easiest treatment is dilatation from below upwards. With this procedure there

is danger of making a false passage. If there is an opening in the larynx, however small, the sound will probably find it and pass through without damage. This treatment should not be resorted to until a careful examination has been made under direct laryngoscopy. With the knowledge thus obtained one may be able to resort at once to intubation, which is the logical method of treating incomplete stenosis. In complete obstruction we may succeed in establishing an opening through the direct laryngoscope which must be kept open by intubation. After months of intubation we may remove the tube and find that the patient is not cured. Rogers believes that practically every case can eventually be cured by retained intubation tubes. He is opposed to any form of external operation and dispenses with the tracheal cannula as soon as possible. In the early stage when the difficulty of breathing appears it is of paramount importance to have the larynx examined. A certain number of patients can be cured before complete stenosis takes place; after complete closure takes place the difficulties are increased and the treatment prolonged months and even years.

New York Medical Journal, August 21, 1909.

The Pharyngoscope: A New Method of Examination of the Nasopharynx and Larynx.—This instrument, devised by Harold Hays, is composed of a horizontal and vertical shaft which join each other at right angles, at the outer third, so that the instrument may be used as a tongue depressor. The inner portion of the horizontal shaft consists of a central circular tube with an electric light carrier on either side, the three components being incorporated in a flat piece of metal. In the central tube is inserted the telescope, which is made on the principle of the Otis cystoscope. To the eye piece is attached a little metal ball, which indicates the position of the lens. The horizontal shaft, including the telescope, is about eight inches long and the widest portion is less than five-eighths of an inch. There is an arrangement for cutting off the electrical current so that the lamps need not be turned on until the instrument is in the mouth. The advantages of this pharyngoscope are: 1. That the instrument can be used without any of the usual difficulties encountered by the patient and the examiner, while a much more distinct and larger view of the parts is obtained. 2. One can see adenoid and tubal conditions. 3. In the examination of the larynx it is unnecessary for the patient to protrude his tongue; the larynx is examined with the mouth closed. 4. Applications to the nasopharynx can be made under direct vision. 5. Eustachian catheterization can be accomplished more readily as one is able to see the catheter go directly into the tube. 6. The posterior pillars of the fauces, the base of the tongue, the lingual tonsil, and the epiglottis are distinctly seen.

The Roentgen Rays in the Diagnosis of Carcinoma of the Stomach.—George E. Pfahler concludes that by means of the Roentgen rays gastric carcinoma is demonstrable when it changes the course of the food through the stomach, when it decreases the volume, interferes with peristaltic action, fixes or displaces the stomach, causes an indentation in the stomach wall, or modifies the rate of evacuation of the gastric contents. He believes that with this aid a diagnosis can be made earlier than has hitherto been possible, but that owing to the fact that a Roentgen ray study is tedious and expensive each case should first be studied well clinically. At present it is impossible to differentiate a stenosis of the pylorus due to old ulcer and that due to carcinoma, but this is not important, since the line of treatment is the same. Great caution and thoroughness will have to be observed or this valuable method of investigation will fall into discredit. No case is thoroughly studied for carcinoma unless both the screen and the plate are used. Generally the standing posture with the abdomen against the plate or screen gives the most evidence. The next most valuable position is with the patient lying on the abdomen for posterior anterior view. At the beginning of an examination it is best to use a tablespoonful of a mixture of bismuth and water, as this gives the greatest density with the greatest fluidity. For general use and for further distention of the stomach a mixture of bismuth and kefir is most serviceable.

The Action of Glandular Extracts upon Tetany After Parathyroidectomy.—Isaac Ott and John C. Scott describe experiments on 60 cats and two dogs upon which they made 133 observations. In cats, when all parathyroids were removed, symptoms of tetany came on in about forty-eight hours. In some old cats, some time after removal of the parathyroids and careful examination of the thymus, no tetany ensued for two weeks. It is probable that the well developed pituitary of older animals was sufficient to delay the attack of tetany, although the animals were kept on a meat diet, which favors tetany. About three hours after the subcutaneous injection of pituitary extract in animals that had tetany the symptoms began to disappear. The whole bearing of the animal would change, but at the end of twenty-four hours the tetany would again appear. In no case was death prevented by the repeated injection of pituitary extract. Pituitary was also injected by the vein, but the best results were obtained by subcutaneous injections. It was demonstrated that neither calcium nor its combination with other salts was concerned in the action of the pituitary. Observations showed that it is an organic body in the pituitary that abates the tetany. They tried also pituitrin and found that it acted rapidly, but that its action was much more fugitive than the pituitary extract. Adrenalin was given by the jugular, in the cat, and some improvement was noted. Iodothyrine was also given by the jugular, and it had a quieting action on the tremor. Mammary gland, thymus, testicle, prostate, spleen, spinal cord (all rubbed with distilled water), and Poehl's spermin had no effect upon the tetany. Pancreas had a quieting effect in seven cases out of ten. The experiments did not show that there was any difference in the comparative value of calcium lactate and pituitary extract. It is inferrable that the infundibular lobe is the active part of the gland in antagonizing the tetany after the removal of the parathyroids. Tetany is not due to a want of calcium, but to a poison in the blood. The removal of the parathyroids in the cat produces paresthesia, probably an action on the center of touch, as shown by the lifting of the feet as though they were wet with water.

Journal of the American Medical Association, August 21, 1909.

Primary Hemorrhagic Glaucoma.—M. Frank gives a detailed account of a case which presents certain clinical and diagnostic peculiarities that render it of interest. It points out that a broad iridectomy, freeing the filtration angle, is not always a preventive of glaucoma, though iridectomy is the best method of treating the acute disease. It further indicates that diminished depth of the anterior chamber and narrowing or closure of the filtration angle are not absolutely essential for the production of glaucomatous symptoms, but that perhaps hypersecretion and changes in the character of the fluids of the eye impeding proper filtration are sometimes concerned in the onset of glaucoma. The clinical picture in the case was that of an acute hemorrhagic glaucoma, but iridectomy was at first considered inadvisable, and paracentesis of the cornea with later posterior sclerotomy were performed, and as a later resort a month afterward a broad iridectomy was performed, and lastly an enucleation of the left eye, the right eye having become affected and sympathetic inflammation being feared. A careful microscopic examination of the left eye was made after removal, the details of which are given. There were no anatomic or histologic evidences of sympathetic inflammation discovered, this being in marked disagreement with the clinical symptoms. The presence of a chronic iridocyclitis throws some doubt on the diagnosis of primary glaucoma, and it is possible that an anterior uveitis may have preceded, without symptoms, and caused the glaucoma. Frank expresses the opinion that the acute glaucoma here can be more rationally accounted for by some vascular disturbance, probably due to a toxemia, rather than by gross obstruction of the filtration zone.

Hair Ball of Stomach.—W. W. Butterworth has found forty-three cases of hair-cast of the stomach reported in the literature. It is most common in women, thirty-nine of the forty-three being of that sex, and most of the cases are from literature of English-speaking people. His personal observation was in a girl eight years old, from whom at autopsy a hair ball weighing three and three-quarter ounces was taken. She had suffered from abdominal symptoms for about four weeks before death. Butterworth comments that the habit of eating hair is most often commenced in early life. His own patient was a victim of hook worm disease, which may have had a part in the etiology. He finds but one other case recorded where an intestinal parasite seemed to play a part in the etiology. He thinks it probable that the custom of young girls wearing their hair loose is an important factor in setting up a habit of biting it or passing it between the teeth. Various reasons are given for the abnormal tendency. One patient said she swallowed the hair because "it was so nice," another to make her voice clear, another to clean her tongue, etc. In at least three cases the diagnosis was made before death by the passage of small tufts of hair through the bowel. It is remarkable how little the general health suffers, considering the duration of the habit. Eventually the limit of

toleration is reached and Nature protests. Pain is fairly constant, vomiting is common, and alternating attacks of constipation and diarrhea are the usual rule. Eventually the breath becomes very offensive, there is marked anemia, ingestion of food is difficult, emaciation and weakness increase, and the patient finally, unless relieved by laparotomy, dies from inanition or perforation.

Adenoids in Infancy.—R. G. Freeman criticises the neglect of adenoids in early infancy, as they interfere with the proper development of the child by reflex action, by the irritation they produce, and the obstruction they cause. The post-nasal pharynx at birth is a space only one-quarter inch high by one-third inch wide, so that a very slight adenoid hypertrophy at this period will cause obstruction. At the end of the first year it is nearly doubled in size. It often produces symptoms in the first days of life, and the mistake is sometimes made of diagnosing specific disease. The snuffles are specially marked while the child is nursing, and result from an adenoid which produces irritation, and if large enough to obstruct the pharynx there is mouth breathing. Other causes may produce mouth breathing, but adenoids do so most frequently during the first year of life. A third indication of the condition is the appearance of recurrent colds, which during the first year are usually caused by adenoids. Another most characteristic sign is a persistent cough, sometimes simulating whooping cough, without any other indication in the pharynx or bronchi to account for it. A fifth and most dangerous condition is otitis media. It is not always easy in a very young infant to determine the presence of adenoids, but it can be done by rapid manipulation. The right index finger being rapidly passed into the mouth while the jaw is held open by the ends of the fingers of the left hand pressing on the teeth, the rough surface of the adenoid can be detected by the skilled physician, and sometimes so quickly that the baby does not even cry. He describes the operation of removal of the adenoids, which he says can be done quickly without an anesthetic and with very little shock or lasting fright. If an anesthetic is used it should be nitrous oxid, and only enough to produce primary anesthesia, and the parents should be warned of the possibility of a lymphatic constitution and the dangers of anesthesia in that case. In conclusion, he says that adenoid hypertrophy which causes persistent symptoms should be operated on as early as the third or fourth month of life. The operation should be done rapidly and without an anesthetic.

Radioactive Charcoal.—J. B. Shober has investigated the radioactive property of cocoanut charcoal. He passed a slow current of air through a celluloid tube, eight inches long and three-quarters of an inch in diameter, coated on the inside with a collodian solution containing one mgm. of strong radium bromid, into a porcelain vessel containing a quantity of cocoanut charcoal. At the end of a week he found the charcoal strongly radioactive, discharging his electroscope more rapidly than would a specimen of high grade pitchblende ore. He then spread a quantity of this charcoal over a key on an *x*-ray plate and obtained a very strong picture of the key after an exposure of four days. He made the same tests with untreated charcoal with negative results. Tests of the degree of radioactivity of cocoanut charcoal thus treated and its rate of decay, made for him by Mr. D. H. Kabakjain, are given in detail, and show that this substance can be raised to from 110 to 160 times the radioactivity of uranium oxid and retains this for a number of days before it is entirely dissipated. He quotes also from R. W. Boyle (*Phil. Mag.*, March, 1909) as to the radioactive emanations of charcoal, as confirmatory of his findings, and proposes to utilize this property for external and internal radium treatment. He is able to obtain on one charge sufficient charcoal of 140 activity to fill five small test tubes each containing enough to supply a patient for fourteen days, the dose being about as much as would cover a dime, taken three times a day. He feels therefore that he has developed a very easy and simple method of utilizing radioactive emanation internally as well as externally, for there is no reason why the charcoal should not be incorporated in ointments or solutions and applied in cases of leg ulcer, lupus, etc. The internal administration would require study. It has been utilized somewhat in Germany and reported on by Nagelschmidt, Lowenthal, and by Laqueur. No effects have been observed except the ordinary reaction, by which is probably meant the erythema. Nagelschmidt thinks that the emanation treatment may be contraindicated in certain cases, as it has appeared to cause hemorrhage from latent gastric ulcer. The class of cases in which he is inclined to test it are certain chronic diseases treated with difficulty by other methods, such as inflammation and ulceration in the gastrointestinal tract, malignant disease, chronic muscular rheumatism, tuberculosis, etc. He submits the following observations for the consideration of the medical profession: "1. Cocoanut charcoal is an inert substance and can be administered freely internally. 2. Cocoanut charcoal will absorb and retain the emanation of radium and, when treated by my method, can be raised to a very high degree of radioactivity compared to water, namely, from 200 to 300 times the radioactivity of the most radioactive water. 3. It can be prepared with but small expense. The same radium can be used over and over again indefinitely; none of the radium need be lost. 4. The charcoal will retain its radioactivity for at least two weeks and the method of administration is simple. 5. The beneficial results of radioactive spring waters in many diseases, and the results obtained abroad by the administration of weak emanation preparations, warrants the belief that in this highly radioactive charcoal we have an agent, the use of which will be followed by the same, if not better, results. 6. The local application of emanation cocoanut charcoal in tubes or capsules or incorporated in ointments or solutions is worthy of trial."

The Lancet, August 14, 1909.

Congenital, Hereditary, and Family Hematuria.—John Aitken reports seven cases of this rare condition in one family which has been under his observation for seven years. The family is composed of 17 persons, of whom 10 have suffered from hematuria. Testimony is conflicting as to whether the great-grandmother had hematuria or not; she died at an advanced age of "senility" with dropsy. Her only child, a daughter, had hematuria, married, and had eight children, of whom three are alive. There is no evidence of any of those who died having had hematuria. Of the three living there is no evidence of the eldest son, 31 years of age, having ever had hematuria, but his six children have all been hematuric: the second son, aged 28, has suffered from hematuria, and also his only child, aged two years. The daughter, aged 23 years, and unmarried, has hematuria. It is interesting to know that the hematuria has been inherited first through the female side, and then transmitted on two occasions through the male side, in one case the transmitting male not being affected. In the family reported by Guthrie, in which 12 members of a family of 15, covering two generations, were affected the hematuria was transmitted only through the female side. In the six children having hematuria the condition is marked by acute exacerbations. There has never been at any time in any of the cases edema, nor pain on micturition, nor renal tenderness. None of them have suffered from scarlet fever, rheumatism, or gravel, nor have any shown symptoms of scurvy, purpura, or Raynaud's disease. There is no history of other hemorrhage in any of the cases. Guthrie says that the condition does not seem to endanger life or even health as a general rule. But one of the cases which Dr. Aitken reports died from acute nephritis with uremia, and this would necessitate a very guarded prognosis for the other members of the family. It is uncertain whether these cases of hereditary hematuria are of vasomotor origin or are due to structural changes in the renal vessels or tissues.

A Case of Acute Pancreatitis with Fat Necrosis.—F. W. Goyder relates the history of a woman, aged 36 years, admitted to the hospital, complaining of attacks of abdominal pain and vomiting. Examination was difficult, owing to fat, but the abdomen was distended, slightly tender in the right loin and more resistant on the right side than on the left. There was no iliac tenderness. The patient's chief complaint was difficulty in breathing, especially at night. After several weeks a diagnosis was made of abscess in the right loin, secondary perhaps to appendicitis. Incision into the loin was followed by the discovery of an extensive cavity filled with a brownish, fetid fluid containing debris with a few acicular crystals and cohesive brownish masses resembling blood clots. The wound discharged the same kind of matter. Respiratory difficulties, increasing cardiac insufficiency and general weakness, resulted in death in six weeks after the onset of the illness. Autopsy showed that the thoracic cavity was much encroached upon by the distended abdomen; the lungs were congested at the bases, but not consolidated. The liver was large, soft, and fatty; the gall-bladder was thickened and contained many gallstones. Retroperitoneally, communicating with the sloughing operation wound, was an irregular cavity with necrotic walls. It was roughly H shaped, the right hand limb extending from the iliac crest, behind the liver to the diaphragm, the connecting limb surrounding the pancreas, and the left limb lying behind the spleen and the descending colon. The contents of the cavity were like those found at the operation. He read in this case the following order of events: (1) gallstone with one or more attacks of cholecystitis:

(2) a secondary pancreatitis, (3) a pancreatic lesion causing escape of the secretion behind the peritoneum; and (4) retroperitoneal necrosis of the very abundant fat which is present in this region with formation of the tumor in the right loin.

British Medical Journal, August 14, 1909.

Acute Necrosis of Skin.—Carey Coombs reports the case of a woman whose illness began with intermittent fever, pain along the course of the sciatic nerves, followed after a few days by the appearance of bullæ, like those of ecthyma near the tuber ischii. These bullæ formed sores which healed in the course of three months. Later a bulla appeared on the inner side of the right knee, and in the course of two months the whole skin was gone from the right leg. On some days more than a square inch of skin died. The process usually began by the appearance of serum under the epidermis at the growing point of the necrotic area; the cutis vera died in a few hours; when it was cut off granulations were found growing beneath. Eighteen months after the disease started the whole surface had skinned over. Some six months later the skin began to die again, and the patient's temperature was above 99 for twenty-five weeks, the highest being 104. The treatment consisted in quinine and iron throughout the illness. Opium was given at night and was added to the ointment composed of lanoline containing tincture of benzoin. Boric acid in carbolic solution was used at first and idoform was added later, and the edges of the wound were painted with peroxide of hydrogen. At the beginning of the second attack the sores were ionized, but it seemed that the hydrogen peroxide and iodoform lotion had a better effect. The case is remarkable because of the persistance of the high temperature, the appearance and progress of the sore, and the fact that the first nurse had to leave because her hands became infected, suggesting a bacterial cause. Syphilis and tuberculosis might be dismissed, as the patient and her children had never shown any tendency suggestive of either.

Prognosis in Tetanus.—John Patton cites two cases in which antitetanus serum was used freely and yet the course of the disease and the results were quite different. The first case, a miner, aged 52, with a large fungating mass on the outer aspect of the left thigh of two years duration. A large tender swelling was also found in the hypogastric and left iliac region. He presented the symptoms of tetanus, but under the injection of antitetanus serum and the daily application of hydrogen peroxide the patient improved and it was possible to amputate the leg, after which he recovered. The tetanus bacilli were found in large numbers in the epitheliomatous mass. The second case was a man, aged 38, who presented the symptoms of tetanus a week after having sustained an injury to his thumb, dislocating it at the interphalangeal joint and breaking the skin so that the head of the second phalanx protruded through the aperture. The finger had been steeped in carbolic solution 1 to 40 for a half hour before reduction and had been dressed daily afterward. Suppuration started, however. In spite of large doses of antitetanus serum the patient had a spasm on the morning following his admission to the hospital. Chloroform was given, and although pulse and respiration ceased, they were ultimately re-established. The following morning the patient had another spasm and died. At autopsy pus was found in the tendon sheath extending to the elbow and containing the tetanus bacillus. It seems evident that the difference in the results in these cases was due to the difference in the site of the infection and the facility for multiplication offered to the bacillus. The conclusion to be drawn is that the synovial fluid of the tendon sheath is an excellent medium for the growth of the tetanus bacillus and that steeping in carbolic will not prevent the occurrence of tetanus if the tendon sheaths are exposed. When tetanus has occurred the sheath of the tendon should be freely opened up, even although there is no apparent necessity to do this. Hydrogen peroxide is capable of destroying the tetanus bacillus if the microorganism and the remedy can be brought into intimate contact. It is impossible to say whether the antitetanus serum was of any value or not in these cases.

The Sterilization of the Skin of Operation Areas.—Painting the skin of operation areas with iodine (10 per cent) has been recommended by several authorities recently but Dr. Lionel Stretton feared to risk using a solution as strong as this, and thought that a weaker solution might be effective, and he accordingly used the tincture of iodine B. P., which is about a quarter of the strength. He used it in 51 consecutive cases with no failures, and in six septic cases with satisfactory results. The ages of the patients varied from two months to 84 years, and in none did the iodine application cause the slightest discomfort. The cases were representative, including knee joint, hernia, fracture, etc. The first and only dressing was made on the eighth day, when the stitches were removed and the line of incision with a margin of one inch painted again with the iodine solution. No other preparation of any kind was used. The solution used was made of one part of stronger solution of iodine B. P. and three parts of spirit. The spirit was made by mixing equal parts of spt. vini meth. and distilled water. The following reasons are given for the use of the iodine solution: 1. It is an efficient method of skin sterilization. 2. The surgeon can be absolutely certain that it has been applied. 3. It is quickly and easily applied. 4. It saves the patient the suffering of a preparation which is at present very lengthy and very disagreeable. 5. It obviates the necessity of shaving. 6. It saves an enormous amount of labor on the part of assistants and nurses, and consequently a lessened expenditure. 7. It saves the cost of preparatory materials and dressings. Furthermore iodine can be used in emergency cases in which preparation by any of the usual methods is wholly out of the question.

Berliner klinische Wochenschrift, August 2, 1909.

Abdominal Symptoms in Beginning Pneumonia.—Glaserfeld calls attention to the difficulty occasionally met in differentiating between appendicitis and early pneumonia with abdominal symptoms. Especially in children the early symptoms of pneumonia may be confined entirely to the abdomen and it is at times almost impossible to make a correct diagnosis. The patients are taken ill suddenly with pain in the right abdomen, slight rigidity of the abdominal walls, high fever, and either diarrhea or constipation. In many cases laparotomy has been performed and a normal appendix found, the typical symptoms of pneumonia appearing first after two to four days. He reports two cases, one of supposed lead colic in a man who had been subject to chronic lead poisoning. The abdomen was boardlike and the pain intense. The lungs were clear. The second day the temperature rose, meteorism appeared, and the abdomen was very tender; constipation was marked. On the fourth day the abdominal signs disappeared and a pneumonia of the left base was found. The other case was more typical of appendicitis, but proved to be pneumonia of the right base. Both cases recovered after developing pulmonary abscesses. Glaserfeld considers the important points in diagnosis to be: (1) The facies. Though these patients with "abdominal pneumonia" may be as pale as in true appendicitis they do not show the anxiety which one sees in the face of the latter when one handles the tender portions of the abdomen; they lack the facies abdominalis. (2) The tongue is usually moist and but slightly coated (3) Rapidity of respiration, attention to which is much too frequently neglected. (4) Abdominal spasm. In pneumonia this is more apt to be general than local. The tenderness is more superficial and deep pressure over the appendix does not cause such severe pain. (5) Careful physical examination of the lungs.

Münchener medizinische Wochenschrift, August 3, 1909.

The Etiology of Arthritis Deformans.—Heckmann says that arthritis deformans may be monarticular or polyarticular. In four cases of the monarticular form definite histories of syphilis were given, and they reacted positive to the Wassermann, Wassermann-Noguchi, and globulin (Noguchi) tests. In eleven cases of polyarticular arthritis also either suggestive or positive syphilitic histories were given in most of the cases, and in all the serum tests were positive. The author says that he believes that the monarticular form of arthritis deformans is the immediate result of trauma but that the underlying cause is syphilis. The lues is responsible for the fact that the contusion of the joint and the synovitis do not heal as they do in a healthy person, but go on to a progressive arthritis deformans. Two factors are necessary for the polyarticular form—a rheumatic disposition and constitutional syphilis. Polyarthritis deformans is, at least in a large percentage of cases, either a chronic or a subacute articular rheumatism in syphilities. The syphilis is here also responsible for the rheumatic affection not healing but going on to form the polyarthritis deformans. The treatment of these cases by antisyphilitic methods has not been carried out long enough to be reported. Patients who are anemic and emaciated, as is well known, do not tolerate any large doses of potassium iodide, and in such cases the author advises that mercurial inunctions should be used first and the iodides given only after the general condition has improved.

Book Reviews.

Treatment of the Diseases of Children. By Charles Gilmore Kerley, Professor of Diseases of Children in the New York Polyclinic Medical School and Hospital, Attending Physician to the New York Infant Asylum and Maternity, Assistant Attending Physician to the Babies' Hospital, Consulting Physician to the Sevilla Home for Girls, and to the New York Home for Destitute and Crippled Children; Consulting Pediatrist to the Greenwich (Connecticut) Hospital. Second edition, revised. Philadelphia and London: W. B. Saunders Company, 1909.

It is pleasing to note this new edition, and to observe that it is very little larger than its predecessor. The only appreciable changes are the rearrangement of some of the matter in the section on Nutrition and Growth, and the addition of two new sections. These are (1) on the care of acute illness, and (2) on vaccine therapy, and new diagnostic methods. It may be well to remind our readers that this book is written specially for the general practitioner, and is not intended either for the specialist in children's diseases or for the undergraduate student. Further, it contains all that a physician is likely to look for, and is so clearly and forcibly written that it is impossible for any one not to understand the author's meaning.

Dietetics for Nurses. By Julius Friedenwald, M.D., Professor of Gastroenterology in the College of Physicians and Surgeons, Baltimore, and John Ruhräh, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Second edition, revised and enlarged. Philadelphia and London: W. B. Saunders Company, 1909.

In this new edition the part dealing with milk has been rewritten and enlarged; sections have been added on the detection of certain food adulterations and preservatives, and other slight changes have also been made. The work remains one of the most serviceable books on the subject of dietetics, and, while written primarily for nurses, it will be found worthy of the attention and study of both physicians and students.

A Text-Book of Medical Chemistry and Toxicology. By James W. Holland, A.M., M.D., Professor of Medical Chemistry and Toxicology and Dean of Jefferson Medical College, Philadelphia. Fully illustrated. Second edition, revised and enlarged. Philadelphia and London: W. B. Saunders Company, 1908.

The author of this work has taken advantage of a new edition to correct some errors which were found in the former edition, and also to incorporate some new material. The chief additions are paragraphs referring to the electronic theory; chemical equilibrium; Kjeldahl's method for determining nitrogen; classifications of alkaloids and of proteins; chemistry of foods and their changes in the body; synthesis of proteins, and some improvements in the urinary tests. This revision adds to the value of the work, and the book is one which is calculated to be of much service both to students and to physicians. In addition to its other good points, it should be stated that it is more readable than most other text-books on chemistry.

Seven Hundred Surgical Suggestions. Practical Brevities in Diagnosis and Treatment. By Walter M. Brickner, Assistant Adjunct Surgeon Mount Sinai Hospital; Eli Moschcowitz, Assistant Physician Mount Sinai Hospital Dispensary, and Harold M. Hays, Associate Editor *American Journal of Surgery*. New York: Surgery Publishing Company, 1909.

This little volume might well be called the almanac of surgery, for while, unlike the nautical almanac, which gravely forecasts the future, or the farmers' almanac, which foretells portentous agricultural events, it is as full of facts as the best of them. Most unfortunately, there is no adequate way of turning rapidly to the information, but the very nature of the book may make this impossible. It represents an immense amount of work, which is carefully and accurately presented.

Etudes Anatomo-Cliniques. Coeur Vaisseaux, Poumons. Par le Dr. Raymond Tripier, Professeur à la Faculté de Médecine de Lyon. Avec 32 figures dans le texte. Paris: G. Steinheil, Editeur, 1909.

This volume contains a series of clinical studies on certain phases of the diseases of the vessels, heart, and lungs. In his discussion on the pathogenesis of endocarditis the writer lays stress upon the tuberculous origin of certain types of valvular lesions. The part which is played by chronic arteriosclerosis in the production of renal and cardiac lesions is very fully treated. The remainder of the volume is devoted to a consideration of the pathology of pulmonary emphysema and the relations which exist between this disease and other lesions of the lung. A separate chapter concerns the reciprocal relationship between the diseases of the heart and lungs. The style is clear, and, while the volume does not present much that is novel in fact, its eminent readability will commend it to those who wish to freshen their memories and obtain new lore on this important phase of medicine.

Inborn Errors of Metabolism. The Croonian Lectures Delivered before the Royal College of Physicians of London, in June, 1908. By Archibald E. Garrod, D.M., M.A., Oxon, Fellow of the Royal College of Physicians, Assistant Physician to and Lecturer on Chemical Pathology at St. Bartholomew's Hospital, Physician to the Hospital for Sick Children, Great Ormond Street. London: Henry Frowde; Hodder & Stoughton, 1909.

The revised collection of Garrod's Croonian Lectures of 1908 is an excellent example of the admirable work in the chemistry of metabolism which is now being done by the younger group of scientific workers in England. This volume forms a part of a series of such books, each written by a master in the subject. Garrod's name has long been associated with the matter of which he treats, especially alkaptonuria and cystinuria. It seems curious that albinism should be included as a disease of metabolism, and the author recognizes the weakness of his position, though he makes a strong plea for careful chemical studies along the line of pigment defects and Mendelian heredity. The other three conditions, which include pentosuria in addition to those already mentioned, are very fully presented, and every one who is in the least interestsed in the progress of the chemical side of medicine should peruse this little volume.

Sammlung klinischer Abhandlungen über Pathologie und Therapie der Stoffwechsel und Ernährungsstörungen. Herausgegeben von Prof. Dr. Carl von Noorden. 7 und 8 Heft. Über die Behandlung einiger wichtigen Stoffwechselstörungen (Hungerzustand, Mastkuren, Entfettungskuren, Gicht). Berlin: Verlag von August Hirschwald, 1909.

This small monograph forms the seventh and eighth parts of the series published by von Noorden during the past nine years. The subject is the treatment of some of the more important conditions in which the bodily metabolism is disturbed, and inasmuch as such treatment usually consists in a general reduction in the quantity of food, or in the elimination of certain articles of diet, a chapter on the changes in metabolism which occur when a patient is put upon a low diet is very properly introduced. One section is devoted to the treatment of obesity and another to the dietetic treatment of gout. As in all the numbers of this series the form of presentation is as simple as possible, all unnecessary scientific matter being eliminated, and the practical aspect of the various problems emphasized as much as may be. It is to be hoped that a translation of this book will be undertaken in order to make it accessible to those physicians who do not read German.

Moritz Schmidt: Die Krankheiten der oberen Luftwege, aus der Praxis fuer die Praxis. Vierte umgearbeitete Auflage von Prof. Dr. Edmund Meyer in Berlin; mit 180 Textfiguren. 1 Heliogravur und 5 Tafeln in Farbendruck. Berlin: Verlag von Julius Springer, 1909.

Professor Schmidt was fortunate in being able to secure during the last days of his life Professor Meyer's consent to edit a new edition of his well-known textbook, and right well has the latter's task been performed. The frontispiece is a handsome portrait of the deceased professor, and to those who ever had the privilege of meeting him the sight of this representation of his refined and benignant face awakens emotions not easily expressed. Throughout the successive editions which the master himself carried through the press the idea that the work was that of a practitioner for the benefit of his fellows was always prominent, and this same idea has been followed out in the present edition. This contains more pages, and each page is larger than in the previous editions, so that the book as a whole is considerably increased in size and matter. An elaborate table of contents makes reference very easy, and it is supplemented by a copious index. Full particulars are given with reference to the newer procedures, as the submucous reaction of the septum, bronchoscopy, esophagoscopy, etc. One great charm of the work has always been the grouping of topics; thus, neoplasms of the upper air tract, instead of a division and consideration in separate chapters of tumors of the nose, pharnyx, larynx, etc. It might well be wished that a translation of the work into English could be made, for we regard it as one of the best textbooks now extant in this field of medicine.

Der Einfluss der Mineralwässer auf Verdauungs- und Stoffwechsel-Krankheiten. Von Dr. Robert Baumstark in Homburg v. d. H. Halle a. S.: Carl Marhold Verlagsbuchhandlung, 1909.

In recent years a very considerable amount of attention has been directed, especially in Germany, to the action of mineral waters on various types of chronic diseases, without perhaps any very astonishing practical results. In this pamphlet are assembled the conclusions of many of these studies, and the physician will find it a useful compendium of the most recent knowledge on the subject.

Practical Points in Anesthesia. By Frederick Emil Neef. New York: Surgery Publishing Company, 1908.

This concise little volume of fifty pages covers the subject matter as adequately as many larger books, and can be recommended to all.

La Nuova Scienza Medica. Ossia la sifilide ereditaria ed acquisita in rapporto alle malattie del corpo umano. Studi ed osservazioni ad uso dei medici pratici. Per il Dr. Pasquale Fusco. Volume I. Roma: Tipografia "La Speranza," 1909.

Those who are interested in the rather novel theory that tuberculosis is only the last stage of an acquired or hereditary syphilis will find this subject discussed in all its phases in this small volume.

Studies on Immunization and Their Application to the Diagnosis and Treatment of Bacterial Infections. By Sir A. E. Wright, M.D., F.R.S., Director of the Department for Therapeutic Immunization, St. Mary's Hospital, London, W.; Late Professor of Pathology, Army Medical School, Netley. London: Archibald Constable & Co., Ltd., 1909.

Despite the fact that the interest of the medical public in the determination of the opsonic index and the treatment of disease based upon such determinations has somewhat waned during the past two years, the scientific value of Denys' and Wright's discovery is still as great as ever, and this collective series of studies by A. E. Wright and his pupils forms an extremely useful addition to the literature of the subject, especially as many of the most important and fundamental papers are in the rather inaccessible Proceedings of the Royal Society of London. The first group of articles, dating between 1897 and 1899, is concerned with the theoretical and practical value of the agglutination test, especially in typhoid and Malta fevers. Two other papers treat of bactericidal substances, while the remainder of the contents is devoted to studies on the opsonins and on therapeutic immunization. The volume is an admirable example of English bookmaking, being printed on a light, unglazed paper, which makes it very easy to read.

Further Advances in Physiology. Edited by Leonard Hill, M.B., F.R.S. Contributors: Benjamin Moore, M.A., D.Sc.; Martin Flack, M.A., B.M.; Thomas Lewis, M.D., D.Sc.; Leonard Hill, M.B., F.R.S.; Arthur Keith, M.D.; M. S. Pembrey, M.A., M.D.; N. H. Alcock, M.D.; Joseph Shaw Bolton, M.D., M.R.C.P.; M. Greenwood, Jr., M.R.C.S. With Diagrams. New York: Longmans, Green & Co.; London: Edward Arnold, 1909.

The present volume is a sequel to and amplification of "Recent Advances in Physiology," issued under the same able editorship something over two years ago. Like that work, it consists of a series of articles on subjects in the domain of physiology that have important bearings in pathology and clinical medicine, and in which noteworthy advances have recently been made. While the former volume dealt largely with problems of metabolism, secretion, and excretion, in the present one some of the late researches concerning the circulation and respiration, the neuromuscular system, and vision are discussed. The first article, by Professor B. Moore, is on the equilibrium of colloid and crystalloid in living cells, and forms what is really a very comprehensive résumé of the application of the newer teachings of physical chemistry to cellular physiology. Mr Martin Flack writes on the recent theories concerning the heart beat, and Dr. Thomas Lewis discusses the cardiogram and venous pulse. Mr. Hill's section deals with the advances in experimentation made possible by the development of Carrel's technique of vascular surgery, and also with blood pressure, its measurement in man, and its relation to edema, urinary secretion, etc. Dr. Arthur Keith's chapter is on respiration and its mechanism, and Dr. Pembrey contributes an exceedingly interesting discussion of the physiology of muscular work, in which the results obtained by the recent observations on marching soldiers are considered. Various topics belonging to the physiology of nerve, such as growth, regeneration, and the nature of the nerve impulse, are dealt with by Dr. N. Alcock, and the article on cortical localization by Dr. J. S. Bolton includes an account of much original work by himself and others. Major Greenwood's article on visual adaptation and color vision closes the volume, which, as is evident from the above enumeration, comprises a series of most interesting essays on subjects of much significance. No more instructive or agreeable volume could be suggested for the medical man's summer reading.

A Textbook of the Diseases of the Ear. By Professor Dr. Adam Politzer, Imperial-Royal Professor of Aural Therapeutics in the University of Vienna, etc., etc. Translated at the personal request of the author by Milton J. Ballin, Ph.B., M.D., Assistant Surgeon New York Ophthalmic and Aural Institute, and Clarence L. Heller, M.D. Fifth Edition, Revised and Enlarged, with 337 original illustrations. Philadelphia and New York: Lea & Febiger, 1909.

The present edition of Politzer's book has been brought thoroughly up to date, and remains in its essentials the same exhaustive treatise which was given to the world for the first time some years since. In so far as one can determine, nothing of value has been missed in the effort to make this edition suitable to the needs of the practitioner and student of medicine. Of especial value is the chapter on diseases of the labyrinth, a subject which is being pursued with such zeal by Americans. Politzer thinks the prognosis of labyrinthitis is not unfavorable, several of his patients having recovered and regained their hearing. Cases of tuberculous and cholesteatomatous origin are unfavorable. A simple catarrhal labyrinthitis often gets well, therefore operation is inadvisable save when suppuration is sure and is associated with meningitis and positive lumbar puncture.

Politzer says that the hearing after radical mastoid operation is usually worse; exceptional cases only are improved. The degree of hearing depends on the amount and density of scar tissue about the stapes. The modified radical operation seldom fulfills its purpose because all diseased tissue is not removed. Suppuration continues, or if it ceases soon returns. Cholesteatomata and granulations, with large perforation of the drum, contraindicate its use.

Diet in Health and Disease. By Julius Friedenwald, M.D., Professor of Gastroenterology in the College of Physicians and Surgeons, Baltimore, and John Ruhrāh, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Third Edition, thoroughly revised and enlarged. Philadelphia and London: W. B. Saunders Company, 1909.

It is not surprising that a third edition of this useful work has been issued. The previous editions, while of great value, were scarcely so helpful for ready reference as the present is likely to prove. The articles on milk and on alcohol have been carefully revised, and additional information is given as to salt-free diet, rectal feeding, calorie needs of infants, etc. The section dealing with the dietetic management of tuberculosis is especially satisfying, and shows how the profession in its desire to maintain nutrition of the patient to its highest point overstepped the border line in many instances by too great insistence on forced feeding. Several useful tables have been added, notably that of Winton of the Connecticut Agricultural Station showing the composition at a glance of most of the proprietary diabetic foods. The chapter on "The Dietetic Management of Surgical Cases" deserves especial mention, since one finds this subject so diffused in the literature as to be of little immediate use to the busy surgeon. Nausea and vomiting, thirst, care of the bowels, diet in shock and after anesthesia are all described briefly but sufficiently. The tables showing the chemical composition of American food materials are instructive, and give in calories the fuel value per pound of most foods in common use in this country. Dietetics is a subject quite as important as diagnostics, and such a volume as the authors have given us should form the basis of a full working knowledge possessed by every physician, whatever be his specialty.

Rational Immunization in the Treatment of Pulmonary Tuberculosis and Other Diseases. By E. C. Hort, B.A., B.Sc., M.R.C.P. Pp. 1-75, cloth. New York: William Wood & Company, 1909.

The author uses the word heteroinoculation to denote inoculation by immune sera "from without." In the light of autolysis and anomalies of cell metabolism, production and maintenance of immunity are not questions of protection against bacteria and their products alone. Autoinoculation is a natural process of cure; hence artificial autoinoculation is immeasurably superior to all other types. Hort believes that the tuberculoopsonic index is unreliable and produces a diagram which seems to substantiate his claim. He shows a new method of interpreting temperature charts in terms of immunity curves. This is an original, brief, and valuable contribution to the study of serum therapy.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE AMERICAN POCKET MEDICAL DICTIONARY. Sixth Edition. By W. A. NEWMAN DORLAND, A.M., M.D.; 16mo; cloth; 598 pages; $1.25 net. W. B. Saunders Co., Philadelphia, Pa.

REPORT OF THE STATE COMMISSION IN LUNACY, New York State. 8vo; cloth; 1,317 pages.

REPORT OF THE METROPOLITAN WATER AND SEWERAGE BOARD. 8vo; cloth; 238 pages; illustrated.

EYE, EAR, NOSE, AND THROAT. Edited by GUSTAVUS P. HEAD, M.D. Cloth; 12mo; 366 pages; illustrated. The Year Book Publishers, Chicago, Ill.

EXPERIMENTAL PHARMACOLOGY. By CHARLES WILSON GREENE, Ph.D. 8vo; cloth; 76 pages; illustrated; $1.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

STUDIES ON IMMUNISATION. By Sir A. E. WRIGHT, M.D., F.R.S. 8vo; cloth; 490 pages; illustrated; 16 shillings. Archibald Constable & Co., Ltd., London, England.

THE ELEMENTS OF HYGIENE. By ISABEL MCISAACS. 12mo; cloth; 172 pages; illustrated; 60c. net. Macmillan Co., New York.

FURTHER ADVANCES IN PHYSIOLOGY. Edited by LEONARD HILL, M.B., F.R.S. 8vo; cloth; 440 pages; illustrated. Longmans, Green & Co., New York.

HYDROTHERAPY. By WILLIAM H. DIFFENBACH, M.D. 8vo; cloth; 267 pages; illustrated; $3.00 net. Rebman Co., New York.

SEMMELWEIS, HIS LIFE AND HIS DOCTRINE. By Sir WILLIAM J. SINCLAIR, M.A., M.D. 8vo, 369 pages; cloth; illustrated. Sherratt & Hughes, London, England.

MEDICAL JURISPRUDENCE, FORENSIC MEDICINE, AND TOXICOLOGY. By R. A. WITTHAUS, A.M., M.D., and TRACY C. BECKER, A.B., LL.B., Vol. III. 8vo, 981 pages; cloth; illustrated; $6. Wm. Wood & Co., New York.

DEUXIÈME CONGRÈS DE LA SOCIÉTÉ INTERNATIONALE DE CHIRURGIE, Vols. I et II. Par les Docteurs A. DEPAGE et L. MAYER. 8vo, 580 pages; cloth. Hayez, Imprimeur des Academies Royales de Belgique, Bruxelles, Belgium.

MYELOISCHE METAPLASIE UND FÖTALE BLUTBILDUNG UND DEREN HISTOGENESE. Von Dr. med. HEINRICH FISCHER. 8vo, 140 pages; paper; 4 marks. Julius Springer, Berlin, Germany.

STATISTICA SANITARIA DELL'ARMATA per GLI ANNI, 1901 e 1902. Folio, 284 pages; paper; illustrated. Tipografia Ditta Ludovico Cecchini, Roma, Italy.

GYNECOLOGY, PRACTICAL MEDICINE SERIES, 1909, Vol. IV. Edited by EMILIUS C. DUDLEY, A.M., M.D. 12mo, 225 pages; cloth; illustrated; $1.25. The Year Book Publishers, Chicago, Ill.

MODERN MEDICINE. Edited by WILLIAM OSLER, M.D., Vol. VI. 8vo, 799 pages; cloth; illustrated; $6 net. Lea & Febiger, Philadelphia, Pa.

MANUAL OF THE DISEASES OF THE EYE. By CHARLES H. MAY, M.D. 12mo, 391 pages; cloth; illustrated; $2 net. Wm. Wood & Co., New York.

THE MALARIAL FEVERS. By CHARLES F. CRAIG, M.D. 8vo, 477 pages; cloth; illustrated; $4.50. Wm. Wood & Co., New York.

LECTURES ON HYSTERIA. By THOMAS D. SAVILL, M.D., Lond. 8vo, 262 pages; cloth; $2.50. Wm. Wood & Co., New York.

LECTURES ON NEURASTHENIA. By THOMAS D. SAVILL, M.D., Lond. 8vo, 226 pages; cloth; $2 net. Wm. Wood & Co., New York.

ANAESTHETICS AND SURGICAL TECHNIQUE. Edited by JAMES CANTLIE, M.A., M.B., C.M., Alberd.; F.R.C.S., Eng. 12mo, 382 pages; cloth; illustrated; $3 net. Wm. Wood & Co, New York.

DIATHESIS AND OCULAR DISEASES. By A. MAITLAND RAMSEY, M.D. 12mo, 184 pages; cloth; illustrated; $2 net. Wm. Wood & Co., New York.

STATE OF PA., U. S. A., REPORT OF THE COMMISSIONER OF HEALTH. 8vo, 973 pages; cloth; illustrated. Commissioner of Health of Pennsylvania.

DIE ERSTE ÄRZTLICHE HÜLFE BEI UNFALLVERLETZTEN. Von A. KÖHLER. 8vo, 44 pages; paper; 1 mark. A. Hirschwald, Berlin, Germany.

LES MALADIES DES ENFANTS. Par V. HUTINEL. 8vo; paper; 5 vols., 808, 823, 778, 790 and 1,036 pages; 100 francs. Asselin et Houzeau, Paris, France.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of August 28, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	491	149
Diphtheria	156	14
Measles	167	9
Scarlet Fever	58	5
Smallpox	—	—
Varicella	4	—
Typhoid Fever	158	14
Whooping Cough	44	13
Cerebrospinal Meningitis	5	9
Malarial Fever		
Totals	1,083	213

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending August 27, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS
California, Berkeley	July 24–31	1	
San Francisco	July 3–26	1	
District of Columbia, Washington	Aug. 7–14	1	1
Indiana, Fort Wayne	Aug. 7–14	13	
South Bend	Aug. 7–14	1	
Iowa, Cedar Rapids	July 1–31	1	
Kansas, Wichita	July 31–Aug. 7	2	
Missouri, St. Louis	Aug. 7–14	2	
Montana, Butte	Aug. 5–12	7	
Belgium, Antwerp	July 17–24	4	
Canada, Halifax	July 31 Aug. 7	1	
China, Amoy	June 26–July 3		8
Kang Thau	June 1–30	1	
" "	Apr. 1–June 30	7	1
Shanghai	July 3–10		1 (among natives)
Egypt, Cairo	July 1–8	1	1
France, Paris	July 24–31	1	
Italy, general	July 25–Aug. 1	14	
Naples	July 25–Aug. 1	22	2
India, Bombay	July 6 13		7
Calcutta	June 26–July 3		5
Madras	July 3–9	1	1
Rangoon	June 26–July 3		3
Mexico, Guadalajara	July 22–29		1
Monterey	Aug. 1–8		1
Veracruz, vicinity	Aug. 12	6	
Peru, Lima	July 17–24	1	
Russia, Moscow	July 10–24	71	9
Odessa	July 17–24	4	
St. Petersburg	July 10–17	18	3
Spain, Barcelona	July 19–Aug. 2		4
Tarragona	July 19–26		1
Valencia	July 10–17	6	
Vigo	July 24–31		1
Tripoli, Tripoli	July 10–24	17	6
Turkey, Constantinople	July 25–Aug. 1		1

YELLOW FEVER.

Brazil, Para	July 10–31	8	8
Ecuador, Guayaquil	July 10–24		6
Mexico, Colima	Aug. 19		Present
Merida	Aug. 6–13	1	

CHOLERA—INSULAR.

Philippine Islands, Provinces	June 26–July 3	110	92

CHOLERA—FOREIGN.

China, Amoy	June 26–July 3		11
Hankau	July 10–17	1	1
Kang Thau	June 1–30	2	1
"	April 1–June 30	4	2
India, Bombay	July 6–13		17
Calcutta	June 26–July 3		56
Madras	July 3–9		1
Rangoon	June 26–July 3		3

PLAGUE—INSULAR.

Hawaii, Hilo, vicinity	Aug. 19 20	1	1
Olaa	Aug. 20–22	2	2

PLAGUE.

Azores, Terceira	June 16	3	
Chile, Antofagasta	July 10		in Lazar'to
Iquique	July 11	7	
"	July 16	7	
China, Amoy	June 26–July 3		95
"	July 10–17		73
Kang Thau	June 1–30	37	19
" "	April 1–June 30	117	59
Hongkong	July 3–10	4	2
Ecuador, Guayaquil	July 10–24		4
India, general	July 3–10	558	462
Bombay	July 6–13		21
Calcutta	June 26–July 3		41
Rangoon	June 26–July 3		22
Japan, Shikoku	July 28	5	1
Peru, general	July 3–10	10	8
Venezuela, Caracas	Aug. 6	1	

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THE RÔLE OF VISUAL FUNCTION IN ANIMAL AND HUMAN EVOLUTION.

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ITHACA, N. Y.

WHEN scientific interest first appeared it concerned those things farthest removed from the observer and of the least vital importance to him. During thousands of years the intellect gradually approached the consideration of the human being himself. Astronomy was the first of the sciences; then man discovered his own world. The beginning of biology came nearer home than geology, and through numerous approaches and standstills man finally reached his own body. The bones of that body were his first care, then physiology was found; psychology is now emerging. It is natural that the law which expresses the order of the diverse kinds of discoveries should hold when applied to the stages of progress in each individual type. It follows that in zoölogy and physiology the nearest and most important conditions which have brought about the exclusion of the unfit have been deferred for final finding and scrutiny, and we are now entering upon this last stage of accounting.

Hitherto the interaction of organism and environment has largely summarized the philosophy of biological development, followed at once by the admission that the environment is the predominant factor, and that the individual organism has but little influence upon the outside circumstance. The truth seems rather to be that, when rightly estimated, the human organism, as a whole, has largely made its own environment, and that civilization is progressively taking almost entire charge of it.

With this recreation of the environment by humanity will come the recognition of the hitherto unseen truth that the most intimate and influential part of the environment is man's own body. Following this it will also be admitted that the individual variants of organs, such as imperfect senses, traumatisms, diseases, etc., not to be accounted for by heredity, are powerful factors in making misfits and unfits of such organisms and thus excluding them from the phylum.

Whether the controversy concerning the inheritance of acquired characteristics shall be settled in one or another way, the speediest and surest method will be by the study of the action of the inheritance of disease. And especially as to those diseases which depend upon ametropia. Here is an astonishing mass of evidence collated and placed in the hand. If it were used, the controversy would soon be illuminated. The people, rightly or wrongly, also believe that they "inherited" their headaches, sick-headaches, and morbid nervous diseases. A very little careful testing would prove or disprove both the scientific and the popular faiths. Thus again, as always, what is good science is good benevolence. Pathology would soon settle more scientific and social problems than normal physiology or morphology.

This gives warrant for criticism of that too common prejudice which excludes pathology from scientific consideration. It would rather seem that all other factors combined hardly equal in efficacy that of disease in excluding the unfit from genetic function. The morbidity and mortality rates, even among animals, and certainly in human life, markedly govern the evolution and characteristics of the phylogeny.

If so much is admitted, then the function of vision has been a strangely overlooked factor in the development of fit and unfit, and in shaping animalian and human trends and products. This is because vision is the most directional component, the *sine qua non*, indeed, of that part of the environment called the body; it intermediates between that body and the more external world; between man's hands and himself; between his mentality and his corporeality. The reason for the preponderant rôle of the eye in the development of unfitness lies in the difficulties encountered in its creation and present perfecting. It has been the severest task of the biological process, and its imperfections are still a vast and growing source of the imperfections, characteristics, and failures of that process itself.

These difficulties may be roughly classified as those which relate to:

1. The embryology and optics of the eyeball.
2. The rôle of vision in the development of self-motility of the body.
3. The progress from divergence to parallelism of the optic axes, or from laterality to forward-looking.
4. The adaptations consequent upon the assumption of the vertical posture of the body.
5. The development of the shading mechanisms of the retina.
6. The struggle against astigmatism and other forms of ametropia, accommodational failure, cataract, ocular, and systemic disease.

1. In view of the fact that the ether is the chief medium connecting organism and environment, the knowledge and utilization of the external world was possible only through the development of visual function. The fundamental difficulty in the construction of the eye was to devise a mechanism which should react instantaneously, accurately, and for a lifetime to a stimulus hundreds of millions of millions slighter in kinetic energy than that, for instance, of sound waves. There is a keen suggestion of this difficulty shown by embryology. Within a few weeks after fertilization, the ovum, nearly synchronous with the differentiation of muscular tissue, shows the eyes in beginning formation. That it is so early, and that eye and muscle develop at the same time, is strikingly significant, for neither

alone, certainly not the muscular system alone, would be either possible, or of use. *Ubi motus ibi visus!* If "the ontogony repeats the phylogeny," then the long stage of coincident embryonic evolution of the visual and muscular organs demonstrates an amazingly long period during which the difficulties and imperfections of either, or of both, were overcome. Those individuals and types in which these imperfections were the greatest must have been those excluded from the phylum because of unfitness. The undoubtedly greater difficulty of device in making the eyes renders it clear what delayed the perfecting of bodily mechanism, and why the unfit were preeminently those that were visually unfit.

A still more significant fact is that the brain comes out to see: cerebral substance is pushed outward to make the essential ocular structure, the retina. In no other instance is this embryonic process the same; and the reason seems clear that in no other is such a procedure necessary; the mechanism could not be devised as in the other organs and senses with the crude and refractory materials at the disposal of the organismal artificer. It was only with its own highly differentiated and complex cerebral substance that the complex and differentiated retina could be constructed and kept in life and repair—as the food of the babe is part of the mother's own tissues. The number of medullated nerve fibers of the human optic nerve is about 438,000, the number of retinal cone cells at birth between 3,000,000 and 4,000,000. Noteworthy is the fact that the creation of the eye at birth is incomplete; the number of cones in the adult is double that of the babe. The number of retinal rods has been estimated as high as 130,000,000. Upon these hundred million rods and cones, as if upon so many bunched finger-tips of a blind man, is laid the warm picture, made by light, of the external scene, and the blind man sees, his crowded and extended fingers making, as it were, an eye.

The sensitive film of this living camera had to become a perfect mechanism of color-photography; had to be resensitized in an instant for a million pictures a day! All the adventitious peripheral structures—cornea, aqueous, crystalline lens, and vitreous, had also to be made and kept transparent without the usual red-blood corpuscles always necessary elsewhere. Such are a few of the difficulties encountered and overcome. Failure in any part inevitably threw out the individual, good in every other way, as unfitted to survive. If at the present time millions are thus excluded, what must have been the havoc in the animalian and savage past?

2. Adaptation to the environment and utilization of it by the organism was and remains impossible without the intermediate of self-motility. But this was likewise impossible without the prerequisite of vision to make the outside world known. Hence the synchronous and coincident development of the ocular and muscular systems. The accurate spacial and topographic representation of the objective world by the visual mechanism, and intimate, instant, and dominating guidance of all motor centers by the ocular picture, thus became primal necessities. There is scarcely an organ, surely no striated muscle, that is not directly or indirectly the servant of the eye. From animalian fight, shelter-seeking, and food-hunting, to civilization's latest cunning and devising there is an ever-increasing interplay of seeing and doing, until now vision seems to have vastly outrun execution. With every cerebral motor center awaiting, instigated by and obeying the guiding vision, how numberless the failures due to a hundred diseases and faults of mechanism! The present world of the sick, hurt, and prematurely dying are innumerable illustrations of the excluded unfit.

3. The optical axes, in the lower orders of the Mammalia, began with almost absolute divergence and proceeded toward parallelism through the progressing orders, until with the Simiae and Man there is perfect parallelism.* The large range of the axes in the Marsupialia (from 75° to 30°) is suggestive, especially when that of the Carnivora is found to begin the overlopping at about 50° and reach to within 5° of the perfect parallelism of Simiae and Man. The approach of parallelism may be looked upon as a kind of Ariadne clue through the maze of phylogenetic ascent. If we translate the approach towards parallelism, and its attainment by Simiae and Man, in terms of the struggle for existence, we gain a new insight into the profound significance of the lateral and of the forward-looking kinds of vision. The greater the self-motility and the fighting ability, the greater the approach of the visual axes to parallelism, the large and small Felidae being nearest that of the Simiae and Man. The difficulty in attaining parallelism is, of course, due to the necessity of great modifications, not only in the bones of the face, but even in those of the skull, the transplacing of the orbits, etc. The more divergent the axes the more gregarious, the more cowardly the animal. The common hare has 85° axes. What a vast, and astonishing influence, therefore, has this factor had in the entire evolution of the fit, the exclusion of the unfit, in animal psychology, in morphology, indeed, in every zoölogical inquiry! It seems to have been unsuspected.

4. In the same way the significance of the change in bodily posture from horizontality to verticality, effected in man, appears to have escaped proper recognition. It is man's most striking and differentiating characteristic, distinguishing him from the rest of the zoölogical world. Has it been effected without a long and mighty struggle, without profound influence upon the victors, without exclusion of great numbers of the vanquished? Concealed by the slow process of ages we do not see the profound changes that occurred during the passage from horizontality to verticality of body. Think of placing a habitually horizontally-bodied animal on his hind legs only, his body erect, and one has a picture of what immense modifications of morphology, physiology, etc., must follow before the abused animal, if he lived a thousand years, would see and act with any approach to our "natural" seeing and acting. The Marsupialia and other relics of the halfway accomplishment of verticality exhibit most significant traces of the sorry ill successes. They may be described as the forty-five degree zoölogical failures. It would have been quite impossible to create visual organs equally well adapted to alternating horizontality and verticality. Hence the comparative failure and absence of numerous species even of the 45° types. The marsupial pouch is a necessary device to meet an exigency caused by the constriction of the pelvic outlet, which is due to the induced massiveness of the bony pelvis, and this a result of body-weight resting upon these bones. The ovum soon after fertilization must be extruded at an early stage of gestation. In the kangaroo a special osseous support of the pouch is required—itself a hint of the failed struggle of the intermediating unfit. The primary necessity which drove the Simians

*See Johnson, *The Mammalian Eye.*

(and the Marsupials, also, for that matter) toward verticality was tree-climbing, for food-getting partly, but more to escape from enemies. But *pari passu,* one should not forget, came the required perfection of ocular function with parallelism of the ocular axes.

Out of many great changes consequent upon the assumption by Simians and Man of the upright posture I select several illustrating the difficulties and dangers encountered in fixing and making permanent the habit.*

When we medical men do not know the etiology of a disease we take refuge in the solemnly chanted words, *Diathesis, Neuropathic Diathesis, Neurasthenia, Hysteria,* etc. It may be said that in the human race spinal curvature is due to scoliotic diathesis. In a great American university, of about 1,200 Freshman examined by experts, 80 per cent. had lateral spinal curvature. The proportion does not probably differ in any occidental country where school children are taught to write in the way advised with us. These 60,000,000 of United States folk have, therefore, not only the scoliotic "diathesis"; they have the scoliotic fact. The support of two-thirds of the body weight by a single upright rouleau of ligatured bones, like that in the lumbar region, is an enormously expensive and hazardous proceeding, And yet accurate verticality might still be usually preserved if it were not for two ocular factors of mischief.† The morbid occidental writing-posture, due to ocular function and malfunction, together with some peculiar axes of astigmatism, are the active and sufficing causes of the great majority of cases of lateral spinal curvature. None may measure or calculate the part played by this astonishingly frequent scoliosis in the making of unfitness, and in swelling the morbidity and mortality rates.

Another cause and result (both peculiarly interwoven, as always in such proceedings) of permanent verticality of the body-trunk consists in the freeing of the front feet and legs from the function of walking and running, and making them into the manipulating tools without which *Simia* could never have become *Homo.* Immediately and synchronously in development came the evolution of sign-language, and of articulate language itself. The word *digit,* and the Roman numerals representing the fingers held up, are the living remains and evidence of the early stages of this evolution of the front foot, paw, and hand as a tool, and also of language-formation.

According to the admitted localization of the cerebral centers controlling muscular acts, the center for articulate speech is located upon one side of the brain, adjacent to the center for writing.. Articulate speech is a single not dual act, and hence its center could not in one person be bilateral. For the same reason neither could the writing center be double. Consequently the writing center and the speech center are close neighbors, located in one cerebral hemisphere, the left in the righthanded, the right in the lefthanded. The expert task of writing is carried out by the right hand, and because what is written is language (even now writing is correlated by the schoolboy with whisper and lip-motion) the contiguity of the centers in the *single* third frontal convolution is a necessity.

But there is now a new factor of great importance subtly introduced into the whole affair—that of a choice of one hand or of the other for special tasks. For certain delicate and expert ones the dextral hand was chosen in about 94 per cent. of men and women, in the other 6 per cent. the sinistral. In either case the less expert hand is the helper of or the holder for the other. Among animals there is no trace of such differentiation into right and left, because, of course, both front paws are equally and almost solely used for walking, etc. In the four-footed, horizontally-bodied animal, to the divergent right eye, looking to the right side, was allotted the task of seeing the world to the right, and particularly of placing the right front foot. To the similarly divergent left eye was given the left side to watch out for and the left foot to place.

There was in mammalian beginnings little forward-looking, because parallelism of the visual axes was ages ahead, and could not be complete until the front legs and paws could be relieved of locomotion, and, with the upright posture, put to manipulative uses. Such an animal blinded in one eye was thus quickly excluded as unfit. Ophthalmic disease and traumatism, of course, was more and more frequent as we go back to more remote and primitive conditions and habits.

With the vertical posture came righthandedness and lefthandedness, came parallelism of the optic axes, came downlooking, overlooking, outlooking, and forwardlooking, and the immense and sudden leap from monkey to man! Necessarily there were, besides those heretofore bespoken, a hundred vitally important modifications, extensions, and perfectings of function and structure which will long occupy the attention of future scientists. Of these we are here concerned with the ocular ones only; but what a vista is opened wherethrough we see the fittest to survive are often those only that are visually fit, and those excluded are they visually unadapted to the new conditions. Because, forget it not, the greatest perfection of visual function, from the day of assumed verticality, becomes the chief of all the agencies of progress. Ingenuity and intellect, speech, and writing, and printing, and language itself, could not follow without vision. The letters of the alphabet are conventionalized pictures, that is, ocular photographs; and memory, without which there can be no personality or individuality—memory and experience, are but a gallery of such photographs.

The latest complication and modification of visual function is a direct result of righthandedness; the eyeballs being placed 50 or 60 millimeters apart necessarily see two different pictures of an object. Therefore with delicate and dangerous tasks one eye must dominate. From the most primitive times the right foot or hand has been directed by the right

*The mystery, seemingly so insoluble as to paralyze even the questioner, of the descent of the testes stands as the *bête noir* of medical science. I suggest that the amazingly strange makeshift of extruding the testes from the pelvic cavity is due to the collapsibility of the seminiferous tubules, epididymis, and especially of the vas deferens. Even the most habitual horizontality of posture of any animal is often and somewhat continuously changed for a partial uprightness. The weight of the superposed viscera would prevent the amazingly long journey of the spermatoza through such thin collapsible tubules. In the subhuman Mammalia, therefore, the choked tubules would almost vitally endanger the propagation of the species, and in the habitually upright Simian and Man it would stop it. Cryptorchidism is accompanied by impotence. Every physician knows that the majority of all hernias are secondary to abnormalisms of the pelvic wall consequent upon the extrusion of the testes. Does not this great present-day vital expense to the community point to exclusions of other millions of the unfit in past ages?

†Helpful is the often overlooked fact that we spend one-third of our lives in bed—in the old horizontal position.

eye, the left foot or hand by the left eye. With the evolution of righthandedness, upon the right eye has devolved the duty of guiding in the more expert tasks. Hence the inevitable correlate of righthandedness is righteyedness (dextrocularity), and of lefthandedness it is lefteyedness. Indeed, I think that the precedent righteyedness forces the choice of the right hand as that for the more expert task, writing, sighting a gun, etc.* The infant chooses the right hand with which to reach out and grasp things because it is righteyed. All army regulations, uniform since Xenophon, cannot make the lefthanded soldier into a righteyed one. The question of righthandedness and righteyedness has been a mighty one in all history; all military life, drill, and maneuver, chivalry, single combat, the rule of the road, etc., etc., are commanded by it. All mechanics, tools, etc., must consider it well. Early railway locomotive building worked for years aimlessly at the unknown problem of righteyedness, until it was found out, none knew why, that the engineer must stand or sit on the right side of the boiler. Railway wrecks still occur because three double track roads pass to the left.

So advanced is the fixation of righteyedness that, in the righthanded, the right eye will retain its function of righteyedness despite a far greater degree of amblyopia than in the left, caused by late arising disease or ametropia. The left eye is far more subject to disease than the right, and is the one usually thrown out of use by ametropia, heterophoria, etc. There are, I suspect, a million Americans, whose right eye is the only useful one. Were it not that the nose hides from the right eye a considerable part of the world to the left side, it is probable that the trend toward a single or cyclopean eye would be greater than it is at present.† In the light of the localization of the speech and writing center, and of the origin of righthandedness, the blunder of the ambidexterity-monger is as maleficent as may be easily imagined. Every lefthanded child taught by him to write (and that is all he tries or is able to do) with the dextral hand is thereby sadly and permanently injured.

5. If one is able to fix the visual axis of one eye, without movement or winking, upon an illuminated object, it soon fades out and disappears. The sensitive film, the retina, can hold the image but a second or two. Constant change of stimulus, of the scene or image, variation of light and shade, etc., are necessary to retinal resensitization. The fact points to the fifteen mechanisms I have described which bring about this change of place, of stimulus, and of regenerating shadow.‡ Observation shows that the lower mammalia have eyes inferior to man in visual power. The widely opened pupils and lids prove this fact even if other evidences were not manifest. All birds, nocturnal prowlers, etc., must see upward and widely about, so that the shading mechanisms of the human retina are necessarily absent. That the numbers of rods in the adult are twice those of the infant suggests far greater complexity and responsiveness of the visual function of man as compared with that even of the higher animals. It also prophesies further progress. But the shading mechanisms, in their totality, so necessary in man, are themselves demonstrations that in the ascent toward humanization and civilization the individuals superiorly equipped in these respects won in the struggle over those with less protected retinas.

Winking excepted, the chief of the human shadowing mechanisms is the position of the border of the upper lid at the upper edge of the pupil, followed by its instantaneous descent over the pupil in every act of winking. While hovering above the border it is shading, when dropping over it, it is wholly blackening the retina. Its position is a consequence of the vertical position of the body and head, to shield the retina from the unused light above which would otherwise flood it with stimuli and thus drown photographic definition.

This inobviable necessity of the habitual placing the upper lid at the upper border of the cornea of vertical-bodied man brings with it a sad new evil, less pathogenic than would have been the excess of light, it is true, but still of enormous disastrous results of civilization. It is the chief cause of astigmatism. The cornea is warped by the pressure of the lid and one radius of its curvature is rendered greater than that at right angles to it. The retinal image of an astigmatic cornea does not therefore represent the true conditions and topography of the external world. The cerebrum is the organ of the inherited average of all past experience of approximately perfect visual images. The widely variant and morbid retinal stimulus passing through the 400,000 optics nerve fibers to all parts of the cerebral switchboard, meets the infinitely complex but perfectly normal, receiving and relaying mechanism. Resultant abnormalism of sensation, as to shape, color, accuracy of topography, etc., confuses the sensorium, and makes external action, based always upon vision, hazardous and ill adapted for the act and for the individual. The individual must succumb, the race must persist. It is all a clear example of the truth that the body is really a part of the environment. Compounded with the other forms of ametropia as it usually is, we have the greatest of all environmental limitations to the progress of civilization. Almost every human eye has little or much astigmatism—there is not an optically or mathematically perfect pair of eyes in the world—and a small defect of shape may be more harmful and unfitting for the struggle for existence than the greater ones. The only miracle of ingenuity impossible for the ocular mechanic seems to be to make an eyeball true to within 1/200 or 1/300 of an inch. That fault of shape or measurement is constantly excluding millions from work in late social development, and differentiation of function.

I beg you not to think or characterize this as the visionary imagining and exaggeration of specialism or of ill-balanced judgment. The reception of dis-

*I have had two left-handed patients who, compelled to shoot from the right shoulder, could take aim only when they depressed the right eye below the gun-level, and sighted with the left eye.

†In reference to the disadvantage of a high nasal bridge in man, it should be noted that Oriental types have a higher wall between the eyes than the Teutonic races, who are now the chief carriers of an advancing civilization. In the statues of the classic Greek and Roman sculptors the line of the nasal crest joining the tip of the nose and the forehead is a straight one. The Jew of to-day illustrates the same inheritance, or, indeed, that from a more remote ancestry in which the bridge bowed forward or outward. With us, instead, there is a marked depression between the eyes, which will probably increase, and thus will be avoided some of the disadvantages of the trend toward monocularity.

‡In birds the pecten, I suspect, unites in itself the most of these mechanisms, the large floating mass of waving vessels, with every movement of the bird's head, securing shadowing of one macula, while exposing that of the other eye. Birds, nocturnal prowlers, and those animals with habitually widely opened lids have no astigmatism and thus have this compensation for their less sensitive retinas, etc.

coveries, medical or purely scientific, of the past warns us that the greatest advances often spring from overlooked little things, and that prejudging is unsafe. Even as a military organization the German nation has far less validity than is necessary, because of myopia. The greatest ocular handicap after astigmatism is the hyperopic eyeball, well adapted for old-world life-tasks, but most ill-fitted for the inordinately demanded near-work of civilization. Astigmatism is the chief cause of myopia, and of cataract. Astigmatism is unavoidable, but all its effects may be easily avoided. Accommodational failure, or presbyopia, is also inevitable, but its evils may also be circumvented. Handed down as a tradition of the past ages, an absurd premature senility and a long drawn out useless old age have become so customary that one may hardly recognize that both are the needless results of unnecessary eyestrain.

The catalogue of ills and the exclusions of the unfit—because of ocular malfunction, are by no means ended. The president of the *British Medical Association* officially emphasizes the testimony of hundreds of other careful scientific medical men that vast numbers ("millions," he says) suffering with incapacitating headache, produced by eyestrain, have been relieved by spectacles. The Governor of Massachusetts goes much further in his inaugural address, and a famous surgeon of New York City says he avoids the majority of abdominal operations by sending patients to oculists who cure them with glasses. The great majority of the diseases of the world's sick and prematurely dying began in functional disease, which is of course simply abnormal physiology. The larger number of aberrant physiological processes are directly or indirectly due to slight imperfections of measurements and shape of the eyeballs. Eventually they phase themselves into those mysteries of medicine called migraine, headache, sick headache, functional diseases of the digestive organs, lateral spinal curvature, kyphosis, nervous and mental diseases, such as insanity, much criminality, hysteria, neurasthenia, epilepsy, even suicide. There is an abundance and a growing mass of testimony that these diseases are very largely the consequences of morbid ocular function. Only the healthy are admitted to the future phylogeny; the diseased are unfit. It is easily possible to eradicate the diseases caused by eyestrain, and when the opportunity is realized, the number of medical men, colleges, and hospitals will be reduced by more than a half, the morbidity-rates and mortality rates equally decreased, while the number of those endowing the future will be correspondingly increased.

THE MEDICAL MANAGEMENT OF DEGENERATE CHILDREN.

By ROBERT H. PORTER, M.D.,

CHICAGO.

At the present time backward and delinquent or truant children are receiving more careful attention than ever before. The discussion of this important subject, from the educational and social points of view, has been the means of accomplishing a great deal of good for defective children. Classes are so arranged now, in both the public and private schools, that a defective child can receive all the instruction he can appropriate and utilize, without the great wear and tear which an effort to keep up with his more fortunate and better endowed companions would produce. In an effort to benefit this most unfortunate class, it seems, in some cases at least, that the benevolent pendulum has already swung too far, so that now more money is being spent in an effort to educate some of them than the ultimate results would justify.

The educational side of the problem is well equipped in all large cities, and whenever a boy becomes an habitual offender and is no longer amenable to his home and school authorities, he is sent to a school of reform. Some of these are located on farms, where the boy has certain hours every day for study and the balance of the time is spent in working on the farm; while others have a manual training school attached, where part of the time is spent in learning some useful vocation for which he is best adapted. By such means great good is often accomplished and many go out from these schools making useful citizens. While the educational side of this great subject is important and must by no means be neglected, yet the question of primary consideration is one of disease.

Fig. 1.—Baxter at the age of 18 months.

The delinquent child is a half-brother of the backward child. In fact, many backward children become delinquent because of their own mental and moral deficiency. Beginning with the feeble-minded child that is dull and backward, just a little below the normal, extending down through the delinquent, the imbecile, and the idiot, all of these children have something in common; a morbid bias which has caused them to depart from the normal.

Most of these children, in addition to their mental deficiency, have physical signs of impairment known as the stigmata of degeneration. While each individual differs, more or less, in the morbid, as well as in the normal development, yet through this bondage of degeneracy they are related to one another to a certain degree, as they are not to the rest of the population. Now this condition of degeneration is the effect of disease, and if, under the proper medical management, this diseased state could be removed, many of these children would be restored to the normal, others sufficiently improved to learn some useful vocation so as to prove self-sustaining, while some of the idiots could be benefitted to such an extent as to learn to talk, walk, and be able to dress, feed, and take care of themselves.

The best authorities agree that morbid heredity is generally the cause of mental deficiency. In other words, that a morbid inheritance is the cause of this form of degeneracy in most, if not, all cases. The writer, in the study of some of the other forms of degeneration, arrived at the conclusion that chronic toxemia is the cause of the first departure of the individual from the normal, and from this chronic toxemia the various forms of degeneracy may sooner or later develop. The chronic toxemia may be either mental, chemical, or microbic in origin, or most probably one or more of these in combination with other morbid conditions and an unfavorable environment. While it is well known that a certain infectious fever is caused by a definite or specific germ, yet when the patient is carefully examined, he is found to be suffering from a mixed or multiple infection. So it will no doubt prove to be true that degeneracy is the effects of a chronic multiple infection. The toxemia may remain latent for a long time, slowly impairing the nutrition and vitality of the brain and nervous system, with a marked tendency to the development of the neuropathic diathesis. And it is from this diathesis that the various nervous maladies may develop. Just what kind of nervous disease may develop from the diathesis depends largely on the life, habits, and environment of the individual. The condition of the patient will vary greatly according to the intensity of the toxic impressions, his vital resistance, and whether his environment, mode of life, etc., tend to increase or counteract the morbid tendencies; and also as to the part of the brain and nervous system most affected. No doubt, in many instances the individual toxemia serves only to start a neuropathic diathesis that may show itself in some mental or physical defect in the offspring. But a vicious and intemperate life, with excessive drinking, smoking, or any of the various drug habits, will very much intensify the degenerate tendency.

Fig. 2.—Buster at the age of 7 years.

Nature, through the law of the survival of the fittest, endeavors to eliminate the unfit, the degenerate. First, and the method most often used, is where favorable conditions are intelligently directed, and either the individual or his descendants are restored to the normal. This represents the more vigorous among the degenerates, and those among the well-to-do, when all science and all knowledge are made subservient to the welfare and benefit of this greatly afflicted class. Thus under favorable conditions degeneration is eliminated through the propagation of the race. And, second, is where ignorance and poverty combined with unfavorable conditions serve to so intensify the degenerate tendency as ultimately to result in extinction.

It is not at all surprising that the defective classes should produce degenerate children, but it is also true that a temporary toxemia in parents may start a degeneration in the offspring that may be both destructive and farreaching in its effects. Thus it can be seen how there may be defective children among the well-born and the well-to-do; for the degenerates are by no means confined to the defective classes. If they were so limited, then the problem could be much more easily handled.

Then, again, in a certain sense, the degenerates may be regarded as among the by-products of civilization, and with the rapid progress being made by modern civilization the waste materials must of necessity be very large, and this is confirmed by the great increase in the various degenerate classes in all civilized countries at the present time. In the present state of development, it would be impossible to secure the necessary laws to prohibit the marriage of the unfit. And even if there were such laws, and they were rigidly enforced, this would not perceptibly reduce the number of degenerates. Such measures would be ineffective and relief is not to be sought in that direction.

If a magician could wave his wand over one of our large cities and at once restore all the degenerates to the normal, but in all other respects leave the life and other conditions just as they are now, then the first generation would produce an abundant supply of degenerates among all classes of the population, for the elements of degeneration are diffused through the people without any respect of persons, either of high or low degree.

The strain and stress of modern civilization serve to intensify the neuropathic diathesis, especially in all the large cities, where the atmosphere is at all times charged with impurities and toxic germs, the water often polluted, and the food more or less contaminated or adulterated. Then, many of the amusements and diversions at night, with intemperance in eating and drinking, frequently consume more vitality than the daily duties. From these conditions it is not at all surprising that there should be so many nervous maladies.

The chronic toxemia may often combine with other morbid conditions, so that each serves to intensify the other to such an extent as to cause nutritive deterioration and even degeneration in the various organs of the body whose structures were once well organized. This condition of degeneration is often seen in the brains of the chronic insane and the epileptic.

Now, these morbid conditions may have such a detrimental influence over the nutrition of the infant and the young child as to cause an arrest of body

and brain development, either one or both, in varying degrees. The arrest of brain development causes mental deficiency and that of the body produces the stigmata of degeneration. The nutrition of the brain and body is so intimate that whatever impairs the one is very likely to affect the other also, and this is true to such an extent that generally children with mental deficiency are poor in vitality and below the average both in size and stature. But there are some notable exceptions to this rule.

Degenerate children make feeble units, and they easily fall victims to the various infantile maladies and often have convulsions, Saint Vitus' Dance, or epilepsy. Instability is as characteristic of their vital processes as it is of their moral or mental qualities. It is the intensity in the expression of the mental and moral perversions that distinguishes the degenerate from the normal child, just as it is the intensity of expression that distinguishes the insane from the sane.

In these children with mental deficiency there may be an arrest of development along certain lines, with perverted activity in some and excessive activity in others. Whatever they attempt to do is done wrong. They are normal in nothing. The ability and resources of a degenerate child to create and maintain a reign of terror, anarchy, and destructiveness has to be seen and experienced to be fully appreciated.

Dr. A. F. Tredgold of London is at the present time the highest authority on mental deficiency, and he recently said: "There is no drug which has the slightest direct or specific influence upon primary mental deficiency, and, we may safely assert, there never will be. Considering that this condition is the outcome of a neuropathic diathesis, due in many cases to generations of antecedent disease, we can no more hope to relieve it by medicaments than we can hope by such means to transform the worn-out tissues of age into virile ones of youth, or to restore life to the dead." Dr. Tredgold believes all that can be done for these unfortunate children must come to them through environment, training, and education. While these are important aids, and must never be neglected, yet in all conditions of disease they must of necessity be secondary to the necessary therapeutic measures.

Now the condition of the defective child, whether backward, delinquent, imbecile, or idiot, is the effect of disease, and if ever he is to be restored to the normal it must be done through the proper medical management. As the doctor has well said, the deplorable conditions associated with mental deficiency are the effects of antecedent disease, and yet it is immaterial whether the neuropathic diathesis has existed for one or many generations; it never becomes normal to the individual, but always shows the persistence of the morbid elements. The neuropathic diathesis is due to physiological chemical defects in the nutrition of the brain and nervous system. Nature is all the time trying to restore and maintain the normal. Now if the proper chemical measures are used to correct these defects at the right time and in the right way, then many of these defective children can be restored to the normal, while others can be sufficiently improved to be independent and take care of themselves.

What are the indications for medication? This deplorable state of mental deficiency is due to antecedent toxicogenic conditions. The patient is below normal in vitality and vital resistance, the temperature is often subnormal, the circulation poor, and the nutrition defective. Stimulating tonics, antiseptics, and eliminatives meet the general indications in many cases, but if there are complications of either epilepsy or mania with a tendency to violence and destructiveness, sedatives are needed. Many of the secretions of the body are antiseptic or germicidal in character, and when defective they can be stimulated by the proper chemical measures. It is the chemical correlation of the secretions of the various organs of the body that keeps up functional activity and at the same time maintains normal nutrition. In the defective child there is an arrest of development with perverted nutrition in one or more of the vital organs.

The biologists tell us that by giving the extract of an organ, either by the mouth or hypodermically, as the case may require, not only the functional activity of the organ may be very much increased, but this will assist in building up the structures of the organ itself. This adds to the present resources the benefits of the whole field of organotherapy. Along this line of investigation the administration of the thyroid gland has been most studied and its effects are best known. And yet it is said that the chemical constituents of the gland will vary with the age of the animal and the season of the year when slaughtered, the winter-killed containing the most iodin.

Continued clinical study in the administration of the thyroid to defective children will be required to clear up some obscure points, for at the present time while some of these patients are very much benefited by it others are not, and in some cases the use of it is contraindicated. When properly studied other organic extracts will no doubt prove equally beneficial in many of these cases.

The writer had devoted many years to the study and treatment of defective children before the present knowledge of organotherapy was developed, and as many measures then used had proven very beneficial he has continued to use them in connection with the newer resources. "Prove all things and hold fast to that which is good" is a valuable precept in medical things as well as spiritual affairs. Let us see what is the effect when these principles are applied to the individual patient. The first cases reported will be those of three idiotic children:

Case I.—On June 18, 1908, J. C. brought his nine-year-old daughter to my office, carrying her in his arms. Her body and limbs were well developed and well nourished and she was about the average in size for her age. Her head was normal, both in size and shape, but the expression of the features was idiotic, and I could not tell if she heard or comprehended anything said to her in my office. Her cry had the peculiar tones of an idiot; it is so characteristic that when heard you can always tell that it is the cry of an idiot, whether you see the child or not. His wife had been dead for some time and this child was cared for by one of his daughters, and at home she could hear and understand, but only to a very limited extent, what was said to her by this sister who took care of her. She had never made any attempt either to stand, walk, or talk. She could sit at the table while being fed; she ate and slept well enough and was content to remain quiet in an easy chair or on the bed, wherever she was put during the day. The various organs of the body, as well as could be determined under the circumstances, were in good condition and their functions were fairly well performed.

After a careful study of her condition she was

regarded as a low grade idiot just above the deaf mute, and that her deplorable state was due to defects in the physiological chemistry of the brain. As far as could be determined the only defects were in the nutrition and organization of the brain structures. As her morbid state was regarded as the effects of antecedent toxicogenic conditions, she was given the thyroid extract with antiseptics, and these were modified from time to time as needed. In a little while she began to improve, and in six months she could stand and walk across the room alone, could talk well enough to be understood by the family, and had very good use of her hands. During this period she has had two attacks of rheumatism that retarded the improvement. The indications are that she will improve more rapidly in the future than she has up to the present time.

Cases II and III.—On January 10, 1908, Mr. and Mrs. K. brought their five-year-old son to my office. He was well grown and well nourished, somewhat above the average, and his head was too large even for his body; not actually hydrocephalic, but more like what is sometimes seen in epileptic children. He could not stand alone and had never walked or talked. He could hear, but his comprehension of what was said to him was very limited. The expression of his features was idiotic in character and the lower part of his face was too full and heavy. A physical examination of his head showed parietal and occipital tenderness. Their nine-year-old son, left at home, was in a similar condition, only more helpless. Instead of being well nourished he was frail and delicate; his appetite and digestion were poor; his limbs small, rickety, and cold. His complexion was pallid, the expression of his features idiotic, and his comprehension was about the same as that of the younger boy. The oldest one was very timid and had a great fear of falling, it being difficult to make him try to stand up, even when supported.

In each of these cases there was an arrest of brain development, and in the case of the older boy there was an impairment of nutrition of the body as well. After a careful study of all the conditions a definite line of medical management was adopted, and the first indications of improvement were physical in character. The older boy soon began to show an improvement in his appetite and digestion and commenced to gain in strength and flesh. There was a corresponding change in his complexion and expression, and there was also a favorable change in his mental condition. In the younger one the first change noticed was in his expression, and in a little while he began making efforts to walk and talk. In six months this boy could walk about the house, go in and out of doors, take care of himself, and talk plainly enough to be understood. In the same time the older boy became the picture of health, but improved less rapidly in walking and talking than his brother.

Just about this time the mother broke down with pulmonary tuberculosis, and as they lived out of the city the treatment was suspended with the promise of taking it up at a later date. A recent report said the younger continued to improve slowly, but the older remained stationary when the treatment was stopped. Each one of these boys was given thyroid tablets, and I think with marked benefit, and also such tonics and antiseptics as the peculiarities of each indicated, with stimulants for the abdominal secretions, not as a laxative, but just to maintain the secretions up to or a little above the normal.

Of all the complications met with in mental deficiency epilepsy is the most frequently seen, and at the same time it has been regarded as very unfavorable for the patient. In fact, it is considered one of the most hopeless forms of the disease, for the conditions that produce epilepsy with mental deficiency will in the end very likely cause dementia also, and this heretofore has been regarded as an utterly hopeless state. The further aim of this paper is to show that there is a brighter side to this picture, and also to indicate that the outlook for these patients in the future is much better than it has been in the past, as the following cases will very well demonstrate:

Case IV.—June 10, 1907, S. L., aged ten years, a demented epileptic, was brought to my office. She was having from eight to ten spasms every day, the attacks occurring both day and night. She was very frail and delicate and so feeble that she could hardly walk. The appetite and digestion were poor, and owing to the frequency and severity of the attacks she was confined to the house all the time, and to the bed most of the time. She did not comprehend anything that was said to her while in my office and had not spoken a word for three years. When six years old, while going to school, she began to have light epileptic seizures at irregular intervals. As these became more frequent and severe she had to stop school, and after the attacks had continued for about a year she stopped talking. In this case there was evidently an impairment of nutrition of the brain structures in addition to that causing epilepsy, for otherwise she would not have succumbed so rapidly to the epileptic seizures.

One of the greatest difficulties encountered in the treatment of this patient was due to the fact that her parents were Polish. Her mother could only comprehend a very few simple words spoken in English and the father was not much better in this respect. He was a carpenter with irregular employment and limited means. You can readily understand that ignorance and poverty produce an unfavorable environment for one of these patients and may often form a bar to successful treatment. While part of the time there was an interpreter, yet the mother could not intelligently carry out the instructions. The patient was given the bromide treatment and the attacks were arrested at once, but during the first year's treatment there was an occasional spasm due to inefficient management. Yet under the circumstances her improvement was remarkable. She gained rapidly in strength and flesh, in a few months began trying to talk again, and by the end of the year she could talk fluently enough, but not intelligently. The children she played with during the day talked English, while her parents at home only spoke in Polish and she was confused between the two. Soon after this time, however, and to improve the conditions, she was started to school, and under the instructions of the teacher in a little while could talk clearly and began learning very rapidly. The present improvement indicates that she will be permanently restored in due time.

Case V.—December 27, 1907, W. H., ten years old, was brought to my office for epilepsy, with which he had suffered for eight years. At the time he was having the attacks in series, usually five to ten spasms a day for two or three days, then a free interval of one or two weeks. The convulsions occurred both day and night. There was an arrest of mental and physical development; he was two or

three years below the average for his age and had always been frail and delicate, with appetite and digestion poor; bed wetting very bad. When eight months old he had several spasms with an attack of indigestion. Then about a year after this time he began to have little sick spells with choking sensations and there was a noise in his throat as if he were trying to swallow something. This condition recurred several times a day at irregular intervals. They proved to be light *petit mal* seizures, but a correct diagnosis was not secured until the second dentition, when epileptic convulsions developed.

The attacks gradually increased in severity and frequency until the above date, when he was given the bromide treatment, with an arrest of the spasms. While at the end of five months' treatment there had been no return of the convulsions, yet there was no improvement in his general condition, and by this time he was suffering so much from the toxic effects of the remedies, with several ulcers on both legs, that the bromides were discontinued and he was given brometone and chloretone, with the thyroid extract. The change in the adjustment of the remedies proved very beneficial and he soon showed an improvement in appetite and digestion, began to take on strength and flesh, and during the past eight months has grown six inches in height and has been going to school regularly since last September, something that he had never been able to do before. The indications are that he will be entirely restored.

Case VI.—June 10, 1886, Mrs. H. came to see the writer with her son Willie, aged twelve years. When seven years old he began to have little sick spells; he would have a vacant stare and seem dazed for a moment. Whatever he was doing at the time he would stop for an instant and then go on just as if nothing had happened. The seizures gradually became more frequent, returning many times every day, so that when ten years old he had to be taken out of school. Not only did the attacks become more frequent, but occasionally one would be prolonged, lasting several hours, and once continued for twenty-four hours. In this state when unmolested he would sit quietly and take no notice of those about him, but if aroused and asked questions he would answer intelligently. His condition while in this state was similar to a mild form of trance. There was an arrest of both mental and physical development, and at the time of his first visit he was having from two to three hundred of these light seizures daily, always worse early in the morning and during the forenoon. Under the proper treatment the attacks were immediately reduced to ten or fifteen a day. Then as he improved they gradually subsided, and he has now been well for more than twenty years. From a mental and physical degenerate, when the morbid bias was removed, he improved so rapidly that in a few years he became both mentally and physically superior to his parents, as well as to the other members of the family, and stood head and shoulders above them all.

Case VII.—September 1, 1886, Mrs. O. brought her ten-year-old daughter to the writer for a very complicated form of epilepsy with which she had suffered since infancy. At first she had infantile spasms, which after a while were recognized as true epileptic seizures. These would occur at irregular intervals, then she would have periods of irritability and perverseness instead of the spasms. She gradually grew worse and the seizures became complicated, so that she would have several spasms daily for a week, followed by a free interval. Then she would become delirious and for several weeks would pass through various forms of mania; at one time be violent and destructive, with homicidal and suicidal tendencies; at another, very profane, using such language as it seemed impossible for her ever to have heard. Then she would have a period of pyromania with a desire to set the house on fire and burn herself and everything else that she could. On one occasion when the delirium continued for eight weeks, the most prominent of many visions which she had were those of Indians and little devils. But she was always more afraid of the Indians than anything else. One day she said, "I am going to have a devils' funeral," and after that she was never troubled with the little imps. After another interval of relief, in which she would be fairly normal, she would pass into a condition of double consciousness—have two distinct and independent mental states, which would alternate with each other every two or three days. While in either she would know her family, behave fairly well and remember well enough all that had transpired in the last similar mental condition, but nothing that occurred in the other mental state. Of this she could tell nothing. This double consciousness would continue for two or three weeks, then subside, to be followed by some other morbid manifestation; always some change, never the same thing twice in succession. This great variability made the case an intensely interesting one. However, she was regarded as an unstable, degenerate epileptic. The spasms were arrested first and all the other morbid manifestations gradually subsided, and she made a good recovery.

One of her brothers was also an epileptic. He was treated at the same time and has now been well for more than twenty years.

For some years I have been the medical director of a colony for degenerate children. It is located on a small farm and is maintained by voluntary contributions. The colony is conducted for degenerate children only. No normal children are taken care of. Owing to the character of the children they are not sent out into homes, but are kept in the colony until they are grown. There is a school on the premises, and the boys work in the garden and on the farm and at the same time learn some useful vocation so as to be self-sustaining when they go out into the world, which they usually do when about eighteen or twenty years old.

The girls help about the housekeeping and assist in taking care of the younger children, and usually remain in the home a little longer than the boys. When a child is first received at the home it is given careful nursing and suitable feeding, so as to have it well cared for and well nourished. When a child shows a slight deviation from the normal it is subjected to a period of careful training to see if it is only a childish whim and can be corrected in this manner, or if it is the first indication of an underlying bias, perversion, or some of the early manifestations of degeneracy, before any medical measures are adopted. In many instances the vicious and degenerate tendencies begin to show in a marked degree by the time the child is two or three years old, and in some cases even before this time. Two or three cases will be selected from the colony.

Case VIII.—Buster was brought to the colony when about eighteen months old, and the first pic-

ture was taken soon after. He was the offspring of insanity on one side and crime on the other, the origin of the most dangerous class of criminals. The first picture, taken in connection with his disposition, indicates a criminal degenerate, a murderer in the making. He had an ungovernable temper, was fearless, cruel, and destructive to a remarkable degree, and had a perverted appetite with insatiable cravings. For a long time Buster was a terror to the other children, for when in a rage it seemed as if he would try to kill some of them. He was a mental and moral pervert, a little demon of destructiveness. Enuresis is often seen among defective children, but he was the worst case that I have ever encountered. He was wet all the time, both day and night, and this proved to be a distressing and difficult condition to correct. After a careful examination a line of treatment was adjusted at once, giving him sedatives, antiseptics, and eliminatives, and these were varied from time to time as needed.

In all degenerate children the first indications of improvement following the proper medical management are physical in character. Buster has now been under regular systematic treatment something over five years, and there has been as much, if not more, improvement in his mental and moral condition as there has been in his physical, as shown in the second picture. As he still shows vicious tendencies occasionally, especially along the lines of destructiveness, he will be kept under treatment until all of the morbid and defective manifestations have been entirely eliminated, for as the morbid elements and tissues are removed nature restores the normal. Now at seven years old he is very industrious, a great worker, and is doing well in school. His environment and training have assisted very greatly in his improvement, but they are secondary to the medical treatment. The normal nutritive processes of the brain are chemical in character and any marked impairment of the nutrition of the brain structures shows some chemical defects, and chemical defects are only corrected by the proper chemical measures.

When I first became associated with this colony there were ten youths between twelve and fifteen years of age, who had been living in the home for ten years, and they had had the full benefit of the environment, education, and training during all these years, and yet each one showed in a marked degree some of the mental, moral, and physical signs of degeneracy. The proper treatment was adjusted for each; they were kept under observation for five years. During this time all morbid manifestations were gradually eliminated, and since going out into the world they have all made good men and women and have proven self-sustaining. One case will be sufficient for the purpose of illustration:

Case IX. J. M. was brought to the colony when two years old. His father, now dead, was a member of a gang of railroad train wreckers and robbers and a criminal degenerate of the worst type. His mother unknown. The boy showed criminal degeneracy very early in life, and was regarded as the worst boy they ever had. He had been in the colony ten years when the writer became associated in the work, and soon after this a careful examination showed an arrest of mental and physical development. He was two or three years below the average for his age, with marked perversions of a dangerous character. He was utterly fearless, with intense ego-mania, dictatorial, cruel, destructive, and subject to periods of violence, when he was dangerous to those about him, especially the younger children. He was a petty criminal to the extent of the colony opportunities, stealing and hiding many things for which he could have no use, and was so perverse that he would often tell a falsehood when the truth would have been more beneficial. He was cunning and crafty, but disinclined to school work. During the first year's treatment an improvement in his condition began, at first physical in character. He grew taller and there was a corresponding change in the shape of his head and face, and the expression of his features from being morose became brighter and more animated. After this there was an awakening of his mental faculties with a complete moral revolution; he became very ambitious to learn, spent all of his spare time in reading and studying, and declared that he was going to be a preacher of the Gospel, as his grandfather had been; but of this latter fact he did not know. For some time following this there was a raging conflict within. For a while he would be able to practice self-control and cultivate his best mental and moral qualities; then the criminal demon would gain possession of him and for a short time he would have a period of violence, becoming cruel and dangerous. All this time he was treated in a scientific manner for his criminal degeneracy, and slowly but surely it was being eliminated. After being under treatment a little over five years he had a very favorable opportunity of going out to work, and as he was so near normal by this time, it was thought best to give him the benefit of it. The result has been most satisfactory. He has not only been self-supporting, but is helping to take care of some dependent relatives. He is a good mechanic, thrifty and industrious, and always has some money in the bank. It is now seven or eight years since he left the colony. This patient, and the same is true of his companions in the colony, had the same environment and training before as after adopting the medical management.

Owing to the variety, intensity and number of wayward and vicious emotions in degenerate children they require a more rigid discipline and careful training than do normal children. Notwithstanding the fact that these boys and girls had lived an out-of-door life on the farm, had the best quality of food carefully selected, daily religious instruction and were under the constant care and supervision of a most efficient disciplinarian, making a very favorable environment, and these conditions had existed for ten years during the period of greatest growth and development, yet everyone of them showed the mental and physical signs of degeneracy. These indications of degeneracy were due to chemical defects in the nutrition of the brain and nervous system, the effects of antecedent toxicogenic conditions, and they were not corrected until the proper chemical measures were used. While training and a favorable environment are important and necessary, yet the results here show that for degenerate children they are secondary in comparison with the proper therapeutic measures; and, on the other hand, the best results are only to be secured when the two are combined. The records of the colony show that environment, education, and training are not in themselves sufficient to correct the moral perversions of degenerate children, and without the proper medical attention these perversions will sooner or later develop into criminal acts.

6200 Monroe Avenue.

SURGICAL TREATMENT OF DIARRHEA.

WITH

A DESCRIPTION OF A NEW CECOSTOMY WHICH PERMITS FREE IRRIGATION OF BOTH THE SMALL AND LARGE INTESTINE.*

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Were you to ask the average medical practitioner if he could cure chronic diarrhea by dieting, medication, and rest in bed, on the spur of the moment he would reply in the affirmative. On the other hand, if you were to give him sufficient time to deliberate, and then ask him to state the percentage of permanent cures effected by such treatment, he would most likely be more conservative and say that he could usually diminish the evacuations and sometimes temporarily arrest the diarrhea, but that he could not recall the exact percentage of permanent cures obtained by the therapeutic measures named.

Personally, I doubt if more than ten per cent. of the persons suffering from chronic diarrhea are curable by means other than through bowel irrigation as practised through the anus, or from above through the appendix or cecum. Of those who do not respond to direct treatment of the colon, the cause of the trouble in a number of cases is located in the small intestine, stomach, liver, or pancreas. When diarrhea originates from disturbances located in the organs higher up, sooner or later the mucosa of the colon becomes inflamed or ulcerated as the result of irrigating discharges which must pass over it. Consequently, it is of the utmost importance to differentiate between gastric, enteric, pancreatic, and hepatic diarrheas as those caused by lesions situated solely in the large bowel. It is also necessary to treat the inflamed and ulcerated colon in these cases after the disease situated in the other organs has been corrected; otherwise the diarrhea may be expected to continue.

Chronic diarrhea, in the vast majority of instances, is caused by some one of the many forms of catarrhal or ulcerative colitis, and the lesions which are responsible for the diarrhea can be inspected through the proctoscope or the sigmoidoscope, but when the disease is located above the sigmoid flexure it cannot be discovered by instrumentation. To clear up the diagnosis in doubtful cases, the bowel should be thoroughly washed out daily with some stimulating antiseptic solution to determine whether the lesions are confined to the large bowel or involve other organs. When the ulcers are limited to the colon, effective irrigation will materially diminish or completely arrest the frequent stools, but when the diarrhea is caused by disturbances of the small bowel, stomach, liver, or pancreas, the manifestations arising from autointoxication will be improved in this way, but the effect upon the diarrheic condition will not be so marked, because the medication does not reach the principal seat of the trouble.

In some instances a macroscopical or microscopical examination of the gastric contents and the excreta will enable one to determine whether the diarrhea was caused by involvement of the stomach, liver, pancreas, or intestine, and, further, when the bowel is found to be the disturbing factor, it will aid us to find out whether the disease is located in the small bowel, in the colon, or in both.

Frequent evacuations and rectal tenesmus often result from a cancer, benign growth, stricture, angulation, invagination, volvulus, abdominal tumor, or disease situated in the ovaries, tubes, uterus, bladder, or prostate, which presses upon or narrows the lumen of the bowel; hence, before making a positive diagnosis in cases of chronic diarrhea it is necessary to determine whether or not the frequent stools are due to an obstruction located in the large intestine.

Chronic inflammation of the mucosa may excite frequent discharges of mucus, but it does not greatly increase the number of fecal evacuations; but when the mucous membrane becomes ulcerated, the frequency of the stools is immediately increased. When the ulcers are small and far apart, the daily movements will be few; on the other hand, when they are multiple and of large size, the evacuations will be frequent. If chronic diarrhea, as I believe in the vast majority of cases, is induced by ulcerative lesions situated in the colon, then it appears to me that the usual method of treating this complaint with drugs, internally administered, is wrong and should be discontinued.

I concede that medicines judicially used may lessen the number of evacuations and sometimes arrest a violent attack of acute diarrhea by drying up the secretions and quieting peristalsis, but in the chronic form I have rarely known them to effect a permanent cure, but have, on many occasions, witnessed a return of the diarrhea as soon as the effects of drugs had worn off.

Chemicals, like bismuth, chalk, opiates, intestinal antiseptics, mild astringents, and other remedies so frequently prescribed for the relief of this condition are harmful to the system in many ways; patients frequently become addicted to their use, and bismuth balls (enteroliths) often form and cause irritation or complete obstruction. For these reasons and because of the ineffectiveness of medicines administered by the mouth in healing lesions responsible for the frequent evacuations, they should be discarded in the treatment of chronic diarrhea, except when, for any reason, direct treatment of the bowel is refused or found impracticable.

In many individuals who suffer from diarrhea induced by chronic colitis, the lesions are more manifest in the rectum and sigmoid, and require topical applications of silver nitrate or pure ichthyol to make them heal more quickly while the irrigating treatment is being carried out. Much better results are obtained in the handling of this class of individuals when they are given to understand at the outset that several weeks' treatment will be necessary to effect a cure, and they must come to the office regularly and faithfully carry out the physician's instructions while at home, because nothing can be accomplished when the patient drops in to see the physician at his own convenience.

I have succeeded in curing a great many persons suffering from chronic diarrhea without an operation, by the daily irrigation of the bowel with different solutions. In fact, nearly all cases could be cured in this way if the entire diseased portion of the bowel could be reached by the fluid. Unfortunately, many physicians and nurses cannot successfully carry out high colonic irrigation, because they are not familiar with the technique of introducing the tube. Certainly the difficulties offered to its passage by the sphincter muscle, rectal valves, O'Beirne's sphincter, and angulation of the bowel near the

*Read before the American Proctologic Society at Atlantic City, N. J., June 8, 1909.

rectal sigmoidal juncture are very great, and require considerable ingenuity to overcome them. In all cases where diarrhea cannot be cured by irrigation through the anus, reinforced by dieting and rest, *surgical intervention* should be resorted to at the earliest opportunity. Fortunately for this class of sufferers, the methods indicated are usually effective, can be quickly performed, and are devoid of danger. The following procedures have been resorted to with more or less success in the treatment of simple and other ulcerative colitis inducing chronic diarrhea: (1) Resection, (2) intestinal exclusion, (3) colostomy, (4) appendicostomy, and (5) Gant's cecostomy with irrigation of the small intestine.

Resection of all or a part of the colon is occasionally justifiable in the treatment of colitis, and is indicated when the functionating power of the intestine is irretrievably lost as the result of exhaustion, extensive ulceration, cicatrices, strictures, multiple polyps, or adhesions.

I have elsewhere* reported a case of chronic diarrhea of years' standing, caused by colitis and multiple strictures, which was cured by excising the rectum, sigmoid flexure, and the descending and right half of the transverse colon. On numerous occasions, when making artificial and excising tumors, I have removed from six to twenty inches of the colon or more without apparent harm.

From my experience with these and other operations of a similar nature, I would not hesitate to remove the entire colon down to the rectum in deplorable cases of ulcerative colitis, because colostomy, appendicostomy, cecostomy, and other procedures do not offer to the patient any hope for permanent relief, while complete excision of the diseased bowel does, and, further, because the operation is not either difficult or dangerous.

Intestinal exclusion is a desirable procedure to employ in ulcerative lesions of the colon where the large bowel is utterly useless or needs rest, when resection or one of the milder procedures to be described are contraindicated. I usually divide the ileum three inches above the cecum, close both ends by a purse-string suture and then unite the proximal end of the ileum to the lower part of the sigmoid flexure (ileosigmoidectomy). Following the operation, the stools are fairly frequent and fluid, but gradually become fewer and more solid until after a few weeks, when they become normal in number and consistency.

Colostomy has been successfully employed many times in the treatment of chronic diarrhea due to intestinal ulceration, but this procedure has not, nor will it ever, become popular, owing to the difficulty encountered in making a satisfactory artificial anus, and, further, because of the danger which accompanies the operation for restoring the continuity of the intestine after the colotis has been cured. A colostomy may be made at any point along the large bowel, but, by preference, the opening should be established well above the disease, otherwise irrigation will be incomplete, the ulcers will not heal, and the diarrhea will continue.

In making an artificial anus in this class of cases, it is not necessary to make a perfect spur, as is done when the operation is performed for the relief of cancer or other pathological conditions causing obstruction, because the bowel can be made to heal by frequent flushings, in spite of the fact that the feces continue to occasionally pass over the ulcerated bowel. I mention this because it is very much easier to close a small opening in the intestine made for irrigating purposes than it is to make an end-to-end or lateral anastomosis and close an effective artificial anus.

The technique of colostomy has been greatly improved, and patients operated upon after the method suggested by me some time ago have a much better control over the artificial opening than was formerly the case, an advantage greatly appreciated by the patient where the opening is to be permanent. In 1892 Gibson suggested a novel way of performing right inguinal colostomy, which has been employed with some success in the treatment of diarrhea. This procedure is looked upon favorably, because it permits a thorough bowel irrigation and, in a measure, prevents the involuntary escape of feces. The point of vantage in this operation is found in the valve-like arrangement formed by three layers of Lambert sutures placed in the cecum, above and below the opening, which serve to invert the bowel about the catheter.

On one or two occasions I have observed feces and gas escape at the sides of the catheter when the bowel was not infolded. This has led me to modify Gibson's operation by forming a circular cone-shaped valve, which is done by introducing three or four serosmuscular purse-string sutures around the incision, which, when tied, invert the bowel equally on all sides about the catheter.

Appendicostomy is at present the most popular surgical procedure practised for the relief and cure of chronic diarrhea. I have elsewhere (*Boston Medical and Surgical Journal*, September 6, 1906) reported eight cases of chronic diarrhea of different types, treated by appendicostomy and through-and-through irrigation. Since then I have handled in the same manner thirty other individuals suffering from ulcerative colitis.

One of my earlier patients died as a result of extensive sloughing of the cecum in the neighborhood of the appendix. In the remaining thirty-seven patients the number of daily stools rapidly diminished immediately following the inauguration of through-and-through irrigation, and their general appearance improved correspondingly. At the end of a week or ten days, with two exceptions, they did not have more than two or three movements daily and had gained considerably in weight; at the end of from four to twelve weeks they had fully recovered from their diarrhea and the manifestations arising from the autointoxication. In the two patients who did not do well I was unable to reduce the evacuations below three or four in twenty-four hours, and these patients would occasionally, after experiencing abdominal discomfort, discharge a number of softer fluid movements and gas. A careful study of these subjects and their stools convinced me that they suffered both from catarrh of the small intestine and ulcerative colitis.

The appendical outlet was kept open in the different cases from five weeks to one year, and in the entire series of cases diarrhea did not return after the opening was closed, with but two exceptions. In both, the irrigation had been discontinued within two months of the time of operation. From this experience I have concluded that it is inadvisable to stop irritation or to remove the appendix sooner than six months, or longer, following the operation. Patients do not insist on early closure, as a rule, because the opening is small and they are rarely bothered with the involuntary escape of gas and

*See Intestinal Exclusion, Gant's Constipation and Intestinal Obstruction, 1909.

feces. In some instances the appendical opening remained free, but in others it was necessary to insert a small catheter to keep ti from becoming occluded.

After a cure had been effected, in a few cases the appendical opening closed spontaneously; in others the aperture was sealed by destroying the mucosa with chemicals, an electrical or a Paquelin cautery, and in the remainder, under local anesthesia, the appendix was freed, ligated, and excised without entering the free peritoneal cavity and the wound closed with plain catgut.

I have previously called attention to the good points of appendicostomy, but now I wish to point out some of its disadvantages. When the appendix is small, short, strictured, or firmly bound down by adhesions, it is useless for irrigating purposes; it occasionally has a tendency to slip into the abdomen during post-operative vomiting and

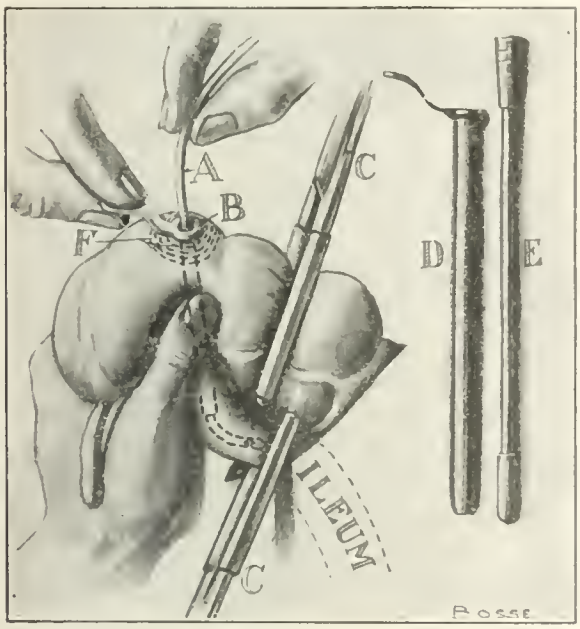

Fig. 1.

early attempts at irrigation; it has been known to become necrotic, and, in one case of my own, death followed from sloughing of the cecum, at the appendical attachment; the appendical opening sometimes requires considerable attention to prevent it from closing, and occasionally valuable time is lost in searching for and freeing the appendix from neighboring structures; finally, it is not a suitable operation to employ when there is both an enteritis and ulcerative colitis, which play their respective parts in causing diarrhea, because this procedure permits only of colonic irrigation.

Cecostomy.—I have employed this method fourteen times in the treatment of diarrhea. In six cases, the procedure of Gibson, which has already been described, was followed, and in the remainder Gant's cecostomy was employed. My cecostomy may be resorted to with success in all cases of cronic diarrhea which are suitable for appendicostomy and those which are not, because of the diseased or deformed condition of the appendix, and also in cases where both the small and large intestine are diseased. Formerly I was prejudiced in favor of appendicostomy, but a larger experience has convinced me that cecostomy, combined with small intestinal irrigation, has a much wider field of usefulness in this and other cases than appendicostomy, and that it should supersede irrigation through the appendix in many instances. Both cecostomy and appendicostomy are desirable procedures, because they are effective, are not dangerous, can be performed quickly, and leave few, if any, undesirable sequalæ. Personally, I have no more hesitancy in advising these operations for the relief of chronic diarrhea than appendicostomy for appendicitis.

I will now describe what I believe to be a new and effective way of irrigating both the small and large intestine through the same opening in the cecum—an operation which, for want of a better name, I have designated "cecostomy with an arrangement for irrigating both the small and large intestine." (Gant's cecostomy.)

The following briefly-described steps in the technique of this operation can be readily grasped by a glance at the accompanying illustrations:

1. Through a two-inch intermuscular incision made directly over the cecum, it and the lowermost part of the ileum are withdrawn and the edges of the wound covered with sterile gauze handkerchiefs.

2. The cecum is scarified and clamped with rubber-covered forceps to prevent soiling of the wound when the bowel is opened. (Fig 1 C.)

3. Four linen or silk seromuscular purse-string sutures are inserted in the anterior wall of the cecum at or outside the longitudinal band directly opposite the ileocecal valve (Fig. 1 F), when the bowel is quickly opened inside suture line by using the knife for the outer coats and the scissors for the mucosa.

4. The bowel is grasped at the juncture of the large and small intestine and held in such a way that the ileocecal valve rests between the thumb and fingers of the left hand (Fig. 1). A Gant catheter guide (Fig. 1, D and E) is then introduced through the incision and carried directly across the cecum, and then suddenly guided through the ileocecal valve into the small intestine by the aid of the thumb and fingers, placed there for this purpose. (Fig 1 B.)

5. The guide is then held by an assistant while the obturator is removed and a catheter, No. 12, is introduced into the small bowel. (Fig. 1 A.) The guide is then removed and the catherer is held by an assistant until it has been anchored to the cecum by a catgut silt suture to prevent its slipping out.

6. A short piece of catheter three inches long is then introduced into the cecum, beside the one which enters the small bowel, for an inch or more (Fig. 2), when both catheters are fastened together by a narrow band of adhesive plaster placed around them, on a level with the skin. (Fig. 2 B.)

7. The clamp is now removed from the cecum and the purse-string sutures (Fig. 2 F) are tied; this inverts the edges of the bowel about the tubes, each stitch in its turn causing a still further circular infolding of the bowel, all together forming a cone-shaped valvular projection all around the catheters, which effectively prevents the escape of the feces.

8. The cecum is scarified and anchored to the abdominal wall by through and through suspension sutures or by chromicized catgut stitches which include the peritoneum and fascia. The wound in the abdomen is closed by the layer method, after which the catheters are stitched to the skin or preferably retained in place by a narrow strip of adhesive plaster between them and attached to the skin. (Fig. 2 A.)

9. Ordinary five-cent cravat clamps (Fig. 2) are snapped over the ends of the catheters to prevent leakage, after which the operation is completed by

applying the ordinary dry dressings, which are held in place by adhesive strips.

Remarks.—One catheter should project further than the other, or they should be identified in some other way, in order that the interne or the nurse may know which is in the large and which is in the small intestine when the time for irrigation arrives. In order to avoid the danger of infecting the wound, irrigation is not begun until the fifth day, unless there is some special reason for it.

In order to avoid irritation to the cecum and skin, it is advisable to occasionally change the catheters. This is done by cuting the adhesive strips holding them together and withdrawing the one projecting into the colon. Gant's catheter guide is then passed over the other and into the small intestine, where it

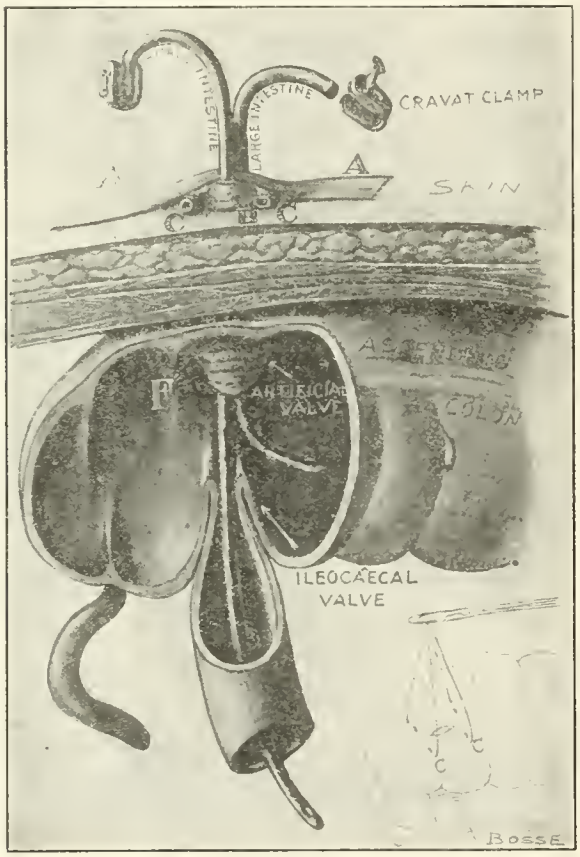

Fig. 2

is held until the old catheter has been removed and a new one inserted, when it is withdrawn. A second piece of catheter is then inserted into the cecum, and then both are prevented from slipping out by two adhesive strips placed around and between them.

Before deciding upon the above-described technic, I attempted irrigation of the small intestine by passing a silver catheter through the opening in the cecum and then the ileocecal valve each time the small bowel was irritated, to avoid the use of two catheters, but this practice was abandoned as impractical because of the difficulty encountered in locating and passing the valve, and, further, because the patient could not carry out this form of irrigation while at home.

I have often been asked if peristalsis had ever forced the soft-rubber catheter out of the ileum and into the large bowel, and wish to state that except in one instance I had no reason to suspect that this has occurred, and that in one case referred to the end of the catheter projected only two inches into the small bowel instead of several, as it should, which makes the accident unlikely. I feel confident that the catheter remained in position in the other cases, because (a) water injected through the pipe in the large intestine was evacuated much quicker than through the one in the small bowel; (b) when a minute quantity of a ten per cent. solution of methylene blue was injected through the colonic tube it manifested itself in the urine more quickly and pronounced than when introduced through the catheter in the small bowel, and (c) the catheter guide could be carried over the tube in the small intestine and it could be removed and replaced with a new one at will, and, further (d), fluid feces could be withdrawn more quickly and frequently through the pipe in the small bowel than through the colonic catheter. To those who fear expulsion of the catheter from the ileum, I advise the use of a silk, silver, glass or other stiff catheter. With such an instrument, the patient can irrigate himself while at home, and when he comes to the office after the colonic catheter has been removed, a double flow pipe can be guided over the tube in the small intestine and it can be thoroughly washed out by the attendant. Under such circumstances, the return flow can be made to discharge into the cecum through an eye in the irrigator or outside through its end.

After the diarrhea has been cured, and when spontaneous healing does not follow the withdrawal of the catheters, the opening may be closed by cauterization, or with sutures under local anesthesia and without the necessity of entering the peritoneal cavity.

Cecostomy with provision for small intestinal irrigation is also useful in the treatment of conditions other than diarrhea. It may be employed to advantage in the treatment of ordinary and pernicious anemias, autointoxication, ptomaine poisoning, diarrheas of children, or for intestinal feeding during the treatment of disease or following operations on the mouth, throat, esophagus or stomach, where rest of these organs is indicated. It can also be used for studying and treating the different parasitic and intestinal diseases, to note the amount and character of the intestinal juices and discharges, the nature of the feces, the direct action of the salines and other cathartics injected into the bowel, the results of hot and cold enteroclysis upon the blood pressure, and many other interesting problems too numerous to discuss in this paper.

There is always a marked improvement in the conditions of persons suffering from chronic diarrhea immediately following effective irrigation through the appendix, the cecum, or an artificial anus, irrespective of the type of colitis causing the trouble, but it requires a longer time to overcome a tubercular than other ulcerated lesions of the bowel. The diarrhea rapidly improves, irrespective of the nature of the solution used. Apparently much of the benefit derived from irrigation is due to the mechanical effect of the fluid in cleansing the ulcers and freeing the mucosa of toxins, irrigating discharges, and debris. Following the operation, the colon should be irrigated twice daily, but later on, in proportion as the ulcers heal and the diarrhea improves, the treatments should be diminished to once daily or two or three times weekly, according to indications. I have obtained good results following daily washing of the bowel with hot and ice water and solutions containing boric acid, common salt, quinine, ichthyol, formaldehyde, colorless hydrastis, krameria and soda, silver nitrates, and other agents too numerous to mention.

When ulceration is slight or moderate in degree, weak solutions do well, but when it is extensive, as indicated by very frequent evacuations containing considerable pus and blood, they should be used stronger until there is evidence of improvement. When there is considerable bleeding, I begin lavage with a solution of silver nitrate, 30 grains to the quart, and gradually decrease the amount of silver as healing takes place.

The stools of persons suffering from chronic diarrhea are often exceedingly offensive. In such cases, an occasional irrigation with a one or two per cent. solution of ichthyol will serve both to deodorize the movements and to heal the ulcers.

In conclusion, I wish to say that my large experience with the surgical treatment of chronic diarrhea has been so very satisfactory that I have no hesitancy in recommending this method above all others in the treatment of this common and distressing ailment.

43 West Fifty-Second Street.

A NOTE ON THE VILLAGE TREATMENT OF NERVOUS INVALIDS.

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Recent psychiatric study of many functional nervous disorders, such as hysteria, neurasthenia, and the like, has brought about a more comprehensive treatment of these diseases. While a strictly psychogenic cause of these disorders is far from proven, there can be no doubt the mental factors play no small rôle in the fixation and permanency of them. A larger view of the mental and physical causes of these neuropsychoses explains the frequency of relapse. It is no longer sufficient to correct a supposed autointoxication or some physical defect and expect the patient to remain well. Recent studies show that many of these diseases have an inherent defect in the personality, a predisposition which renders a breakdown possible with but little exciting cause. In a detailed search for the psychogenic factors in the development of the malignant psychoses of adolescence the all-embracing terms "hereditary predisposition," "neurotic temperament," and the like, are assuming a more definite and precise meaning. These general terms are being disentangled into their component mental characteristics and habits of thinking, and the reactive effects which such habits have on the physique. In this manner a better knowledge of temperaments, personalities, and the like mental characteristics advances our practical therapeutics for these borderland psychoses.

To overcome these personality defects environmental and social treatment is necessary. The patient must live under a thoroughly detailed plan of daily routine. He should have a community life not too dissimilar to his former life, which should be sufficiently simple that the process of training may be under full control yet stimulative. Many modern sanatoria have done excellent work along these lines. *Occupation* cures of to-day are replacing the *rest* cures of yesterday. The teacher in arts and crafts, the trainer and companion-nurse are superseding the bed-rest nurse. Most observers will admit that sanatoria are limited in treating these borderland psychoses. In such institutions too many mental invalids are thrown together and a diversified family and community life is not possible. The environment is too artificial and cramped to train the patient to the full measure of normal daily habits.

In endeavoring to solve the problem I have made use of the community or village treatment of these nervous invalids. We have in easy access to New York City many beautiful villages just suited to this purpose. The colonization of the insane and epileptic has had this principle in view. The working idea is still better shown in the excellent system of boarding-out the insane in Scotland and other countries; in the latter place the village and home life for social and environmental therapeusis is excellently shown. If the principle works to such advantage for the insane and epileptic, how much greater good should we not obtain for the borderland phychoses and neurasthenias. The sane and peaceful atmosphere of the village life with its good influences must exert a healthful correctional aid for character reconstruction in disordered personalities.

Life in the village of two or three hundred inhabitants gives us a sufficiently varied yet simple social environment to gain poise and healthy initiative for our patients. Colonies for the neurasthenic poor in Germany, Switzerland, and other countries are steps in the same direction, although they must fail in keeping many diseased personalities from too close contact with each other. A normal association of healthy individuals should be thrown about each case.

It has seemed to me, therefore, a wise plan to place a relatively small number of these nervous invalids in each community; not more than one patient and his trainer-companion should be located in one family. Most of these farm homes have gardens and the home accesories of farms—live stock, the care and training of which furnishes interesting and profitable employment. I usually select the farm cottages on the margin of the village, as they are quieter and more secluded. Here the patient can carry out a definite plan of daily work, exercise, and study. Each village can be made to support an arts and crafts shop, and an amusement-gymnasium for physical culture. This scheme requires no financial outlay. It does not commit any one to a great expense, as that which would be required were the whole village and its inhabitants interested in the maintenance of a spa or a large sanatorium town. The idea, if it continues successful, might form the basis of a philanthropic project for the neurasthenic poor, with a missionary order of nurse-trainers to carry on the work.

It is gratifying to note the rapidity with which the transplanted city patients adapt themselves to this village treatment. Morbid ideas and fears are easily uprooted and natural and normal life replaces them. The patient's life is as thoroughly detailed as in the rest cure at first. After a little the patient is given a partly "elective course" of treatment for certain hours of the day. Finally, the patient keeps his own records, reports to the physician direct, and at last he becomes thoroughly autonomous and learns to manage his own affairs, as in health. The somewhat formal and institutionalized homes of the cottage colonies of popular sanatoria are absent here; the plain Anglo-Saxon family life is wholesomely substituted. The family life in the several homes differs in small homely ways. The social note in certain families is thus used as so many special psychotherapeutic remedies.

The informal calls of the specialists give a closer insight into his patient's life which parallels the

position of the one-time village doctor. In not a few instances the violent psychoanalysis of the ultra-modern school may be dispensed with, and the natural confessional of a Dr. Lavender obtains instead. No doubt the result obtained in this manner is as beneficial to the physician as to the patient.

The easy-going, non-stratified village society makes for a diversification of individual influences. Habits of industry, thrift, and self-denial are daily standards in village life. A strict individual responsibility is demanded of all alike. The primitive and rural character of village livelihood makes for a diversified occupation not obtainable elsewhere. This plan of mine works no disadvantage to the permanent inhabitants. Aside from giving an income from the guests, it affords an excellent opportunity for sociologic and practical humanitarian endeavor right at home. Social settlement work and a practical missionary field are provided close at hand.

The type of cases suitable for this village treatment practically includes all the functional neuroses and borderland psychoses. It furnishes excellent opportunity for mental and physical training of individuals suffering from dementia precox and the maniac depressive psychoses in their remission and accessible periods. In brief, one may say that the plan is applicable to all nervous cases exhibiting disorders of personality, constitutional defect, or where mental or moral delinquency obtains.

84 East Fifty-sixth Street.

THE LIQUOR PROBLEM: SOME SUGGESTIONS FOR ITS SOLUTION.*

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It seems to me that the time has arrived when physicians who have given thought to all phases of the alcohol question should frankly and fearlessly discuss the practical side of the question, namely, the solution of the liquor problem insofar as it applies to the manufacture and sale of alcoholic beverages. The subject is certainly one upon which men who are earnest, honest, and sane may and do differ. I hope, therefore, for earnest discussion of these few remarks which are based upon personal investigation, conducted solely for the purpose of securing light. I would remind you at the outset that I am discussing the question mainly as it affects the State of New Jersey, though I believe that my conclusions will apply with equal force to other states having a similar cosmopolitan population. My time being limited, I will merely discuss the most important features of the subject.

The evils arising from the use of alcohol are too well known to require discussion. Were there no evils following the use of alcohol there would, of course, be no such thing as a liquor problem any more than there is now a soda water problem. This history of the liquor problem is the history of the world. There always was a liquor problem, and there always will be. For ages wise men have been preaching the doctrine of temperance and of total abstinence. The evil effects of alcohol upon the individual and society are well known to every enlightened person, and yet the number of total abstainers—real, true, total abstainers from alcohol—are but a handful to the tribe of those who prefer to slumber in its bosom. Hence the problem before us is, how can the liquor traffic be conducted with the least amount of injury to the individual and to society?

To me it is clear that many of the difficulties which arise from the use of alcoholic beverages are due to two great faults: (1) impure products, and (2) to our system of handling these products. Whether or not alcohol used in moderation is harmful is a question upon which authorities differ. One great class of skilled scientific observers contends that alcohol is always and under all circumstances harmful to the system; another group of equally skilled observers declares emphatically that alcohol used in moderation and under proper conditions is not injurious, and may indeed be of benefit. Everyone agrees, however, that impure and improperly prepared alcoholic beverages are decidedly injurious, and the excessive use of alcohol in any form has no defenders.

As for impurities, it would be of interest to learn how closely the manufacture of beer to-day corresponds with that of, say, fifteen years ago. The statement is made that the demand for beer is so great that the brewers are compelled to supply the consumer with a product which has not been properly aged or lagered, and that it is necessary to add certain preservatives in order to overcome this defect. That artificial bitters are added is also charged. If these statements are correct, we see a cause for much of the physical deterioration following the use of beer. Dr. Wiley tells us that good whiskey is at the present time almost unobtainable at any price. It is also said that the fancy liqueurs are almost all adulterated, and that the entire world does not grow enough grape to supply anything like the quantity of wine which is consumed. It is apparent, therefore, that much of the wine is made in chemical laboratories. We are led to believe that there is much truth in these assertions, as moderate drinkers tell us that they cannot stand the alcoholic beverages of to-day as well as they could those of a few years ago, and the topers complain that it is impossible to get "good stuff."

The first step in the solution of the liquor problem is, therefore, clear. It is the duty of the State to so strengthen and enforce the pure food laws that those who drink will receive pure goods, and know just what they are drinking. If this be done, the baneful effects of alcohol upon the system will be greatly minimized, and many of the evils attendant upon the liquor traffic would vanish.

As for our system of handling alcoholic products, it seems to me that the greatest evil lies in the American bar. That there are evils following home drinking and other modes of indulgence there is no doubt, but these fade into oblivion before the evils attendant upon the American bar. The bar system is especially vicious because it encourages men to drink when the stomach is empty, to drink hastily, and to drink more than they want. Here lies the great difference between the American and the German liquor problem. The Germans handle the liquor problem much more intelligently than we do, and, therefore, escape many of the evils which we encounter. They have no bars, and the efforts which have been made to introduce the bar system into Germany have met with failure. Germans do not stand up and drink, and each man pays for his own drinks; there is no treating. They usually take

*Read before the American Society for the Study of Alcohol and Other Narcotic Drugs, at Atlantic City, N. J., June 8, 1909.

a bite of bread or other food with their drinks, and they drink very slowly. They drink mainly beer or light wine, and very sparingly of whiskey or the strong liqueurs. Surely we can learn much from our German friends in our efforts to solve the liquor problem.

We should endeavor to do away with the bar system with its attendant evils, and this can gradually be accomplished if we will but take a commonsense view of the matter, and not expect to change in a few months a system which has been engrafted upon society over a long period of years. How can the bar system be done away with? A beginning can be made by permitting the sale of alcoholic beverages on Sunday in restaurants and hotels, but only with meals, and *only in places having no bars.* Some will say, if you do this, you will soon find our saloons turning into restaurants. I admit this to be my object, for we must do away with the bar if we wish to lessen the evils of the liquor traffic. If those persons who will drink will learn never to take alcoholic beverages without partaking of food at the same time, also to drink slowly, and to refrain from treating each other, a great deal will have been accomplished toward lessening the evils associated with the taking of alcohol. But the individual who has, or has had, the drink habit must avoid alcohol in every form, and under all conditions, if he is really desirous of overcoming the habit.

We should encourage the use of mild alcoholic beverages, such as beer and light wine in place of the stronger ones, such as whiskey. This can best be done by permitting the sale of the milder preparations under a much lower license fee than that charged for the sale of the stronger.

The campaign of education must continue with renewed energy in the hope of reducing the demand for alcohol, for alcohol, like every other commodity, obeys the law of demand and supply. Children especially should be taught the effects of alcohol upon the human body, so that they can see for themselves why it is best for them never to touch alcohol. We should lay greater stress upon the physical effects of alcohol than upon the moral effects, for we know that there is nothing so conducive to healthy morals as a healthy body. It will be easier to impress upon a child the wisdom of avoiding alcohol in every form if we make it clear to him that alcoholic beverages weaken the body and thereby reduce the chances of success in the great battle of life.

In theory the liquor problem is easily solved, but not so in practice. My prohibition friends think they can solve this great world problem by a word—Prohibition. I try to keep an open mind upon all subjects, and shall certainly be glad to welcome prohibition to New Jersey if in time it will prove to do for those states which have adopted it that which its friends claim for it. From my studies of its operation I am opposed to prohibition. My opposition is mainly because prohibition encourages the use of the stronger alcoholic beverages in place of the milder ones. Remember, if you please, that the specially injurious ingredient of all alcoholic beverages is the alcohol contained. The more alcohol taken the greater is the injury inflicted. A pint of light wine contains about one and one-half ounces of alcohol. A pint of whiskey contains about ten ounces of alcohol. Prohibition encourages the use of whiskey in place of wine or beer. This is strikingly shown in the report of Internal Revenue Collector Bittman, of Cincinnati, O., for the month of May past, from which we learn that there was in "dry" territory a slump of 15,000 barrels in the production of beer, and an increase of 50,000 gallons in the whiskey output!

In justification of prohibition, our Southern friends refer to the women of the South being exposed to the dangers of "booze-crazed" negroes. Is the "cocaine-crazed" negro any less dangerous, or is he more so? Is not prohibition driving persons of both races to the use of drugs which are far more harmful than is alcohol? If not, how can we account for the tremendous sale in prohibition territory of so-called temperance drinks containing cocaine? Dr. Spratling of Baltimore says that there are in the Alabama Insane Asylum four hundred negroes who have become insane through the use of cocaine.

Local option, as a remedy for the evils of the liquor traffic, is a misuse of the great American principle of majority rule. If the traffic is an evil one for one county, it is just as great an evil for the neighboring county. Local option tends to shift the responsibility for the traffic from one shoulder to the other. We will never solve the problem in that fashion. Local option means local prohibition and local strife.

High license is another remedy which has many supporters. Its friends claim that it will limit the number of saloons and will elevate the tone of the business. That the number of saloons should be limited according to the population is conceded by everyone. This, however, should be fixed by law, irrespective of the license fee. Aside from reducing the number of saloons, high license is of no value and may indeed work harm. It merely tends to wipe out the small saloonkeeper in the poorer sections who is doing a respectable family trade and who can manage to eke out a bare living only because he employs no help, doing all the work himself, or being aided by a member of his family. High license does not put out of business the dishonest saloonkeeper who sells impure goods, and who otherwise robs his customers by giving them short change or counterfeit money, or by overcharging them. The saloonkeeper who is a crook and whose saloon is a den of vice is perfectly well able to pay any license fee, no matter how high it may be.

In recapitulation, I would make the following suggestions in answer to the question, How can the liquor traffic be conducted with the least possible amount of injury to the individual and to society?

1. Teach the people, especially children, the wisdom and importance of leaving alcohol in every form severely alone.

2. Recognizing that, in spite of all teaching, the vast majority of people will drink alcoholic beverages, regulate the traffic by just and sensible laws, and enforce the laws.

3. Insure the purity of alcoholic beverages by strengthening and enforcing the pure food laws.

4. Discourage the bar system by encouraging the establishment of restaurants having no bars.

5. Discourage the use of the stronger alcoholic beverages by encouraging the use of the milder ones, such as beer and light wine, in their place.

6. Try to put a stop to the treating custom.

7. Treat, in properly equipped hospitals, or farm colonies, the victims of the drink habit.

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THE AMOUNT OF LUNG INVOLVEMENT AT THE ONSET OF PULMONARY TUBERCULOSIS.*

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Three years ago I showed that 50 per cent. of patients having pulmonary tuberculosis delayed consulting physicians for over seven months after the onset of symptoms, and that notwithstanding these delays, 46 per cent. of the patients were given an incorrect diagnosis by their medical advisers.[1] These statistics have been recently confirmed by Stoll.[2] If through education of laymen and physicians both these sources of delay in diagnosis could be eliminated, and all patients come under intelligent supervision soon after the onset of symptoms, how many would be suitable for sanatorium treatment? How many would be curable? How many would be sources of contagion to the community? In attempting to answer these questions it will be found that a knowledge of the amount of lung involvement at the onset of pulmonary tuberculosis is of considerable importance and that scant data on this subject are at present available. It is well recognized that persons frequently recover from slight tuberculous lesions in the lungs without ever having symptoms, but such cases cannot be considered in an inquiry of this kind. The statistical material which forms the basis of this article was derived from the records of 860 cases of pulmonary tuberculosis which have been admitted to the Rhode Island State Sanatorium since its opening.

Of the 860 patients only 120 were received within two months of the onset of pulmonary symptoms, and of these 33 were admitted within one month of the onset. In 87 of these 120 cases, records of the examining physicians were obtained, and in all of these the record of presumable duration coincided with ours. Fourteen other cases which did not coincide were excluded. In attempting to determine the exact date of onset it should be appreciated that the majority of patients greatly underestimate the length of duration of the disease. Histories taken by those who do not appreciate this fact, or who lack the time or inclination to put the patient through the most searching cross examination to avoid these errors, are almost valueless for this purpose. No pains have been spared to make these histories accurate in this respect. A considerable number of patients give a history of digestive disturbance, or of feeling tired for some time before the onset of the first pulmonary symptom, but as there must always be doubt as to whether these symptoms result from tuberculosis, and as neither laymen nor physicians can be expected to look for tuberculosis in such cases, it is not practicable to regard anything but the occurrence of symptoms pointing to pulmonary disease as an onset. In the great majority of cases the first symptom noticed is a cough, and yet a cough so frequently results from trivial causes, that if slight and unaccompanied by troublesome symptoms, it is unlikely to bring the patient to his physician within a month. Cases having hemorrhages or positive sputum may be recognized at once, but when, as frequently happens, the signs are very slight and the sputum absent, another month may elapse before the physician is able to make the diagnosis; so that two months may be set as a reasonable maximum time within which the intelligent patient who consults a well-trained physician should receive a positive diagnosis.

Of the one hundred and twenty patients, sixty-seven, or 55.8 per cent., had tubercle bacilli in their sputum on admission, and one additional case, or .8 per cent., had bacilli after admission. Of the fifty-two remaining patients, thirty-four reacted positively to the tuberculin test, and of the remaining eighteen, nine had had hemorrhages from the lungs, two had had pleurisies, two were complicated by glandular tuberculosis, and in the remaining five patients the symptoms and physical signs were held to be sufficient for diagnosis. These one hundred and twenty cases were classified according to the scheme of the National Association for the Study and Prevention of Tuberculosis, with the following result: Incipient, 31 cases, or 25.8 per cent.; moderately advanced, 78 cases, or 65 per cent.; far advanced, 11 cases, or 9.1 per cent.

The term, "moderately advanced," as defined by the National Association, is so broad that it includes many cases as favorable as the incipient cases, and others nearly as unfavorable as the far advanced cases. In order to give a better idea of the prognosis, it may be said that 85, or 70.8 per cent., were considered mild, and 35, or 29.1 per cent., were considered severe in their type. When classified according to Turban the following result was obtained: Class 1, 33 cases, or 27.5 per cent.; class 2, 52 cases, or 43.3 per cent.; class 3, 35 cases, or 29.1 per cent.

In thirty-three cases but one lung was affected, and in the remaining eighty-seven cases both lungs were affected. The number of lobes involved was: One lobe in twenty-five cases, or 20.8 per cent.; two lobes in thirty-six cases, or 30 per cent.; three lobes in twenty-seven cases, or 22.5 per cent.; four lobes in twenty-two cases, or 18.3 per cent., and five lobes in ten cases, or 8.3 per cent.

Dullness was present in 74.1 per cent. of the cases, and its presence was questionable in 10 per cent.; interrupted breathing was present in 18.3 per cent., bronchial breathing in 11.6 per cent., the apex was involved in 83.3 per cent., and cavity signs were present in 7.5 per cent. The first symptom noticed was: Cough in 89 cases, or 74.1 per cent.; hemorrhage in 13 cases, or 10.8 per cent.; pleuritic pain in 9 cases, or 7.5 per cent.; fever in 3 cases, or 2.5 per cent.; some one of the other symptoms in 6 cases, or 5 per cent.

The symptoms present during the first two months were as follows. Forty-eight and three-tenths per cent. of the patients claimed to have had fever previous to admission. After admission, 7.5 per cent. had fever (daily temperature above 100° Fahr.) for one week, 5.8 per cent. for two weeks, 3.3 per cent. for three weeks, and 13.3 per cent. for four weeks or over. The total number who had fever for these periods was 36, or 30 per cent. Eighty-five per cent. of the patients had had cough, 80 per cent. expectoration, 36.6 per cent. hemorrhage, 21.6 per cent. pleuritic pain, 2.5 per cent. pleuritic effusion, 33.3 per cent. dyspnea, and 57.5 per cent. loss of appetite; 85 patients had averaged 9.9 pounds loss of weight; 33 3-10 per cent. of the patients had had chills, 49.1 per cent. night sweats, 32.5 per cent. hoarseness, and 40 per cent. gave a history of marked exposure to infection.

Of the ninety-one patients who have left the

*Read before the National Association for the Prevention of Tuberculosis, May 15, 1909.

institution up to the present time, the condition on discharge was: Apparently cured, 15 cases, or 16.4 per cent.; arrested, 31 cases, or 34 per cent.; improved, 24 cases, or 26.3 per cent.; unimproved, 21 cases, or 23 per cent. Many of these patients have been discharged too short a time to judge fairly of the results of treatment, but of twenty-six patients having severe onsets, who could be traced, twelve, or 46 per cent., died within an average period of nine months after admission, and of the remainder, ten, or 38.4 per cent. are living, and but four, or 15.3 per cent. are well. If it be assumed that the results of treatment in this series of cases is the same as those obtained in other cases, only seventy-five of the one hundred and twenty patients would be economically cured two years after discharge.* In other words, only a little over 60 per cent. of patients having pulmonary tuberculosis can hope to have their working capacity restored even though the disease has been promptly diagnosed and the patients have been treated in sanatoria.

It is conceded that the statistics of a sanatorium having a waiting list, which enables it to exclude the acute febrile cases,would not furnish proper material for this study, but until recently the lack of a waiting list at Wallum Lake has almost invariably prevented the rejection of applicants with febrile onset and of short duration. It may even be feared that the willingness of patients having a severe onset to enter a sanatorium may have swelled the number of severe onsets. As early hemorrhage cases are usually of a mild type (thirty-two of the forty-four cases with hemorrhage previous to admission being favorable cases), it seems likely that the willingness of the mild cases having a hemorrhagic onset to enter the sanatorium has tended to preserve the normal balance. Tuberculosis dispensaries in large cities afford opportunities for the observation of all types of onset which should be made use of to collect data bearing on this subject.

A summary of the condition of one hundred and twenty cases of pulmonary tuberculosis examined within two months of the onset is as follows: (1) According to the classification of the National Association, 25.8 per cent. were incipient, 65 per cent. moderately advanced, and 9.1 per cent. far advanced; (2) following the classification of Turban, class 1 contained 27.5 per cent., class 2 43.3 per cent., and class 3 29.1 per cent. of the cases; (3) one lobe was involved in 20.8 per cent. of the cases, two lobes in 30 per cent., three lobes in 22.5 per cent., four lobes in 18.3 per cent., and five lobes in 8.3 per cent.; signs of disease in both lungs were present in 72.5 per cent. of the cases; (5) open lesions, causing the patients to be immediate sources of contagion, were found in 56.6 per cent. of the cases examined; (6) about 60 per cent. were economically curable, *i. e.* capable of being sufficiently restored to do a full day's work two years after discharge.

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1. *Journal of the American Medical Association*, Feb. 16, 1907, Vol. XLVIII, pp. 601-605.
2. *Yale Medical Journal*, March, 1909.

*Our records of 377 cases show that of all patients under treatment for a minimum period of three months, 85.7 per cent. of the incipient, 60.4 per cent. of the moderately advanced, and 26.6 per cent. of the far advanced were arrested or apparently cured, and that 85.7 per cent. of such cases were able to do a full day's work two years after discharge.

Twisted Pedicle in Parovarian Cysts.—Giuseppe Fessati says that in 27 per cent. of all parovarian cysts the pedicle becomes twisted. He cites 109 cases recorded in medical literature, and eleven personally observed. The twisting is favored by absence of adhesions, multiparity with consequent relaxation of abdominal walls, pregnancy from the same cause and from the changes in position of the uterus as it grows, etc. The twists may be from one to five in number, and on the number, tightness, and the size, thickness, and length of the pedicle depends the severity of the symptoms. The common symptoms are edema, congestion, diffuse hemorrhage, pain, hematoma, necrosis, and fatty degeneration of the tumor. Ascites is rare, as are crises accompanied by rise of temperature. Diagnosis is difficult during the crisis, but after that is over it may be made by the presence of a movable tumor separate from the ovary, partially fluctuating, and painful on pressure. Extirpation by median laparotomy is indicated, and the prognosis of the operation is good.—*Annali di Ostetricia e Ginecologia.*

Tuberculosis and Pregnancy.—V. Bué says that both mother and child must be considered in the treatment of tuberculosis with pregnancy. Careful out-of-door treatment may allow of the successful ending of pregnancy. The prognosis for the mother is generally bad. After labor there is pretty sure to be a renewal of the bacillary process even when it was stationary. The infant is generally born healthy, but should not be nursed by his mother. Tuberculous laryngitis is especially badly affected by pregnancy, and here artificial abortion is indicated.—*Le Nord Médical.*

Suprarenal Opotherapy in Obstinate Vomiting of Pregnancy.—T. Silvestri, starting from the fact that in Addison's disease incoercible vomiting continues for weeks at times, and from the results of the work of Tosatti with rabbits and guinea pigs in a state of pregnancy, has attempted the treatment of vomiting of pregnancy by suprarenal extract in a very severe case in which all other methods of treatment, hygienic, psychic, and medicamentous, had been tried without avail. Believing that the insufficiency of the suprarenal capsules might play an important part in this condition of autointoxication in pregnancy, he administered to the patient a preparation which contained all the substances contained in the suprarenal capsules, using tabloids of suprarenal capsule. An immediate amelioration of symptoms was noticed, and in two days' time the vomiting had stopped entirely. The patient continued well at the time of writing, taking one tabloid each day. The immediate effect showed that the treatment had reached the cause of the symptoms, which confirms the theory on which it was based.—*La Riforma Medica.*

Endemic Foci of the Febrile Variety of Infective Splenic Anemia of Infants.—Umberto Gabbi distinguishes two varieties of splenic anemia, the afebrile and the form accompanied by high temperature. The latter appears most frequently in male children from ten days to four weeks of age. The symptoms are profound anemia with edema, splenomegaly, and gastrointestinal disturbances. There are no glandular or osseous lesions accompanying it, nor stigmata of hereditary syphilis. This disease often attacks more than one child in a family; in none of the cases observed by the author were there any bone troubles, respiratory, or circulatory symptoms. The infants attacked were not the weak ones of the family; there were no symptoms of rickets or syphilis found in any of the author's cases. The parents were from the class of fishermen, sailors, and laborers. The author gives the histories of three cases in detail. These cases are not found in malarial regions, nor were there malarial parasites found in the blood on examination. They lived along the seacoast. All of them occurred in a short period of time, and more than one member of a family was affected. There seem to be foci from which the cases are all derived by contagion. All these facts seem to show the contagious nature of this form of the disease.—*Il Policlinico.*

Congenital Bronchiectasis.—Z. Capuzzo describes two forms of congenital bronchiectasis, one arising from a non-inflation of portions of the lung, the other arising during fetal life. The last named form may depend on an arrest of development after the third or fourth month of fetal life. The symptoms are cyanosis, dyspnea, and cough arising some weeks or months after birth. Nineteen cases have been published. There seems to be a combination of a passive mechanical action, due to the increase of fluid transuding from the capillaries and an active proliferation of the epithelia that is not truly neoplastic, but hyperplastic. The atelectatic form results from noninflation of a portion of the lung, the inflated portions becoming dilated by negative pressure occurring during inspiration. There is no sign of anthracosis or inflammation. This is extremely rare, only nine cases being reported.—*Rivista di Clinica Pediatrica.*

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THE PANCREATIC ACTIVITY.

DURING the past few years numerous methods have been advocated for the estimation of the secretory activity of the pancreas, most of which, though possibly useful in the laboratory, have proved of little value to the practising physician. Metabolism experiments, though of great value in research work, are much too complex and tedious for practical application; the Cammidge test requires a skilled chemist to carry it out; and Adolf Schmidt's nucleus digestion method, while reliable, is of qualitative value only and gives no quantitative indication of the activity of the gland. Recently, however, Wynhausen has been experimenting with a new test for which, in an article in the *Berliner klinische Wochenschrift* for July 26, 1909, he claims the two advantages of simplicity and quantitative accuracy. His method consists in estimating both the diastatic and the proteolytic power of the stools. The carbohydrate-splitting ferments of the digestive tract come from the saliva, the pancreatic secretion, and slightly from the secretion of the intestinal glands. The former is practically destroyed by the acid of the stomach and the latter is small in amount and acts only on the disaccharides, not affecting the polysaccharides, such as starch. Wynhausen's method is an estimation of the starch-splitting power of the feces.

The stool, which must be fluid, either from diarrhea or made so by cathartics, is filtered, and quantities are put into twelve test tubes, as follows: Of undiluted filtrate, 0.25 and 0.1 c.c.; of filtrate diluted ten times, 0.6, 0.4, 0.25, 0.16, and 0.1 c.c.; of filtrate diluted one hundred times, 0.5, 0.25, and 0.1 c.c.; and of filtrate diluted one thousand times, 0.5 and 0.25 c.c. To each tube is added 5.0 c.c. of a one per cent. solution of soluble starch. After twenty-four hours in the thermostat, the tubes are filled with distilled water nearly to the top, and to each is added one drop of a one-tenth normal solution of iodine. If any unchanged starch remains the solution turns blue; if erythrodextrin is present without starch, it becomes red; while if there are the lower digestive products only, no color is produced by the iodine. The author takes the colorless solution as the end reaction of his test, and adopts as a unit of digestion the number of cubic centimeters of starch solution which would be completely digested by 1 c.c. of the undiluted feces. For example, if 0.1 c.c. of the filtrate is required to digest the 5 c.c of starch solution the digestive power of the stool is considered to be of fifty units, while if 0.01 c.c. only is needed, it is of five hundred units.

In examining nearly two hundred patients Wynhauser found that the diastatic power varied as a rule between 500 and 20,000 units. Considering 50 units to be the low limit of the normal he found seven cases falling below this, among them one of obstruction of the pancreatic duct, two of hemorrhagic pancreatitis, and two of advanced cardiac disease, in which he believed that chronic passive congestion reduced the pancreatic secretions. Simultaneously with this diastatic test he ran twelve other tubes with similar dilutions of feces to which he added casein, to estimate the proteolytic power according to the common method of Fuld and Gross. As a rule the diastatic power of the stool and the proteolytic power were about equal, though variations occurred, in some cases one factor, in some the other, being the greater. The simplicity of the technique of this method speaks in its favor, as does the fact that it offers a fairly definite quantitative determination of pancreatic activity. If further investigations prove it to be reliable and accurate it should be a useful addition to the clinical laboratory, and a valuable aid in the diagnosis of some of the obscure abdominal conditions.

THE RETURN TO BREAST FEEDING.

IT is no recent discovery that no milk, however ingeniously "modified," can ever entirely replace in all essentials normal milk from the breasts of a healthy mother. Even before a scientific study of the composition of cow's milk with a view to its adaptation for infants was well undertaken, no less a person than Oliver Wendell Holmes declared that "a pair of substantial mammary glands were worth far more than the most learned dissertation from the shriveled forefinger of the most-learned professor." In a recent issue of *The Journal of the American Medical Association*, Ostheimer of Philadelphia enters what he calls a plea to physicians not to begin artificial feeding without first trying to help the mother maintain her milk supply. Too often at the urgent request of a mother or some member of the family the physician is induced to "dry up" what little milk the breasts were endeavoring to secrete and begin the discouraging task of working with top milk, boiled water, milk sugar, lime water, cereals, etc., prescribed as to the percentage of this or that which might start the baby properly on its fight for life. Too often also the physician has found a less scientific and more practical attendant succeeding him, and working wonders by calling in the right kind of a wet nurse when the marasmic baby seemed to be swiftly and surely sliding away from life. It has been recently shown that women are about as able in these days to nurse their offspring as ever they were, and that in general failure to do so has been the fault of inclination rather than ability. Even though the mother dislikes the task, persuasion, encouragement, good advice, and

perseverance have taught her at least to tolerate it, and have made her heart glad through the splendid health which her offspring, as infant and child, has thus secured. As in many other matters of medical management, preparation and prevention are watchwords to success.

Breast feeding influences favorably not only the stomach but other organs of the child, notably the skin. L. Duncan Bulkley, upon investigating mothers who declared their inability to nurse, frequently found metabolic errors which, when corrected, permitted the function again to be restored. In eczema of babies he treats the mother with arsenic and iron, stops tea and the taking of stout, and also directs the mother to drink eight ounces of milk with one-third hot water upon rising in the morning, and leaves the baby alone. He declares that in many cases the infantile eczema disappears.

Probably it is quite as important to analyze the mother's milk after labor as to examine the urine before labor. At any rate the child must live on milk, and it seems rational that we should know pretty definitely the exact percentages as well as the quantity secreted in twenty-four hours of that important fluid. Hitherto analysis of breast milk has been carried out chiefly by pediatrists, and the general practitioner has contented himself with knowing something of the microscopic qualities of the patient's secretion. It may be that closer attention to this essential would reduce infant mortality and do away with much vexatious figuring of bovine milk prescriptions.

Satinwood Dermatitis.

The various forms of occupation diseases are always matters of considerable interest, and often prove to be decidedly baffling to the physician on whom falls the duty of diagnosis. That this is especially true of conditions affecting the skin has been demonstrated recently by the fiasco in Washington of a worker in a pulp mill, poisoned by "black ash" being imprisoned for nearly a year as a supposed leper. In the number of the *Deutsche medizinische Wochenschrift* for August 12, 1909, Wechselmann of Berlin calls attention to a severe form of trade dermatitis, about which but little seems to have been written. The condition occurs among expert cabinet makers, and is due to poisoning from satinwood. A peculiar feature of the attacks is that the first does not occur until from ten days to two weeks after the original exposure to the satinwood dust. During this preliminary period there may be a slight sensitiveness of the skin and itching, but nothing more. At the end of the ten days, however, an acute erysipeloid inflammation appears, persists for several weeks, and is so intense that the patient is obliged to give up his work. On return to work, even if not directly handling the satinwood, and exposed only casually to the dust of it in the shop, there is a recurrence in a few hours, an experience which is repeated as often as the patient renews the exposure. This characteristic suggests that the idiosyncrasy to the poisoning is probably of the nature of a true anaphylaxis, whereas some workmen after the original period of itching, develop an immunity to the poison and have no further symptoms; in others the initial infection produces an anaphylactic hypersensitiveness which shows itself by a violent reaction to even the slightest grade of poisoning. In this the condition is probably very similar to the susceptibility of certain persons who, having considered themselves immune to the dermatitis of rhus toxicodendron, after once becoming infected, ever after are hypersensitive to the plant. In the case of the satinwood the poisonous symptoms are due to an alkaloid which can be extracted from the wood, crystallizes from ethyl alcohol, melts at 182° to 183° C. and combines with hydrochloric acid to form a salt with the formula $C_{22}H_{25}O_7NHCl$. A faint trace of this alkaloid when placed on the skin of a susceptible individual will produce the characteristic dermatitis.

The Action of Lecithin in Anesthesia.

Few subjects in medicine have caused more discussion among physiologists than the theories of the cause of anesthesia and the physiological action of those drugs which cause loss of consciousness. The theory of Meyer and Overton is possibly as widely accepted as any. This holds that the action of the anesthetic is upon the lipoid of the brain cells, that it forms a chemical combination with it, and thereby destroys temporarily the functioning power of the cell. Reicher further found that during anesthesia the amount of lipoid, and especially of lecithin, in the blood was greatly increased, and he believed that the action of the anesthetic was to dissolve out the lecithin from the brain. Taking these two theories as his basis, Nerking of Düsseldorf has recently investigated the effect of the administration of lecithin on the action of various local and general anesthetics, and has reported his results in the *Münchener medizinische Wochenschrift* for July 20, 1907. Working with considerable numbers of rats and rabbits and a few dogs, he injected lecithin in solutions of one per cent. intravenously and ten per cent. subcutaneously or intraperitoneally, before, during, and after the administration of ether, chloroform, morphine, morphine and scopolamine, and several of the newer substances used as local anesthetics. In each case a control animal of the same weight was used and given the same dose of the anesthetic. The results were strikingly uniform. When the lecithin was given before or with the anesthetic, much larger doses were required to produce narcosis than in the control animals which had not received the lecithin. When it was given following complete narcosis, in every case the animal became conscious many minutes before the control animal, and the after-symptoms were less severe and more transient. The action of the lecithin seemed to be equally prompt and definite whether the anesthetic were administered by inhalation, subcutaneously, or intravenously. The physiology of its action is believed to be that the injected lecithin either attracts the anesthetic which is bound to the brain lecithin, if Meyer and Overton's theory of anesthesia is correct, and so removes the poison from the brain; or else, if Reicher's theory is the true one, that it supplies new lecithin in the place of that which has been dissolved out by the anesthetic. These results are purely experimental and have not yet been applied outside of the laboratory. As lecithin is a harmless substance, it is probable that the practical use of it on man will soon be made, and if the experiment is successful it may give a valuable means of shortening anesthesia and relieving its disagreeable after effects.

The Blood in Rhachitis.

Some observers have thought a relationship existed between the pseudoleukemic anemia of infants and rhachitis, but no agreement has yet been reached on this point. Not a great deal of attention has been given to the study of the blood in rhachitis, and the results of the recorded observations have not been altogether concordant. For the purpose of harmonizing these apparent discrepancies Leonard Findlay undertook a clinical study of the blood in cases of uncomplicated rhachitis, and, according to his report published in the *Lancet*, found among other things that anemia is by no means the rule; on the contrary, the hemoglobin percentage and the number of erythrocytes were notably high in the majority of cases. He attributes these conditions to a reaction on the part of the economy in an endeavor to compensate for the deficient amount of oxygen and the defective respiration on which he believes the disease to depend. There was considerable variation in the size of the red blood corpuscles, but only occasionally poikilocytosis. Polychromatophilia was uncommon, and nucleated red blood corpuscles were rare. The leucocytes varied considerably in number, leucocytosis being present in a majority, although as a rule in but slight degree, leucopenia in a smaller number, and no numerical change in a few. A more characteristic feature was the high proportion of mononuclear cells, with metachromatic granulation. Enlargement of the spleen was rare. The facts noted clinically were in close agreement with the findings of experimental observations.

News of the Week.

The National Association for the Study and Prevention of Tuberculosis has issued a bulletin urging physicians not to send advanced and indigent cases of tuberculosis to the Southwest. It says that 7,180 hopeless invalids migrate annually to these States, fifty per cent. of whom are so far advanced in the disease that they cannot be cured in any climate, and sixty per cent. are so poor that they are unable to provide the ordinary necessities of life. It costs at least $50 per month for the support of a patient in this region, and to send out those with less than that insures their either dying of privation or starvation, or becoming objects of public charity in a country where the resources of the charitable institutions are already strained to the utmost.

Typhoid Fever in New York City.—The hospitals on the upper East Side of New York City are contending with an unusually large number of cases of typhoid fever. Most of the cases have come from the district between Fifty-ninth and Seventy-eighth streets and First and Second avenues, which is a congested tenement section. The source of the contagion has not been determined. At the beginning of this week 202 cases were reported as being in ten of the hospitals as follows: Bellevue, 32; Beth Israel, 20; Flower, 18; Fordham, 20; Gouverneur, 5; Harlem, 10; Lebanon, 8; New York, 20; Presbyterian, 38; Roosevelt, 31.

Annual Bridewell Report on Crime.—The thirty-seventh annual report of the House of Correction, Chicago, was recently published, and in it there is a comment on relation of disease to crime and a recommendation for a city hospital for alcohol and drug addictees. During 1908 the House Physician (Dr. C. E. Sceleth) wrote that "12,427 inmates were received; 576 cases of delirium tremens were treated in the hospital; 1,018 alcoholics or 'drunks' were treated in the cell houses; fifty-one cases of drug habitues who had been 'fiends' for years and were using from fifteen to sixty grains of morphine a day were given treatment and relieved of the habit in two weeks; 342 persons were received who had been using cocaine, smoking opium, and using nostrums containing false stimulants and sedatives, who only needed to be deprived of the drug to recover." After mentioning that Chicago has no hospital for such cases and that they are refused by the county hospital, the physician urged that the city build a hospital on the grounds and accept remuneration from those patients to help pay for the charity cases.

The Queen Alexandra Sanatorium for tuberculosis patients will be opened early in the autumn at Davos, Switzerland. This institution, though founded by English charity and considered as national in character, is to be open to all members of the English speaking races, whether British subjects or citizens of the United States. The sanatorium will accommodate fifty-four patients at first in private rooms. It will, however, be greatly enlarged if the present plans are carried out. The requirements for admission are that the patients belong to an English speaking nationality, be medically suitable, and be able to show evidence of inability to afford treatment in private sanatoria and hotels.

County Tuberculosis Hospitals.—Following the passing of the new law in New York State, permitting counties to establish hospitals for tuberculosis, active steps are being taken in the counties of Onondaga, Oswego, Cayuga, and Schenectady to found such institutions. Oneida County has such an institution on the grounds of the almshouse at Rome. The labor unions of Rome have raised money for an extra pavilion for those who will not go to the almshouse. Ontario County has already made an appropriation for such a hospital. Ex-Governor Odell has endowed a hospital for Orange County at Newburgh. Elmira received a similar gift from Mr. and Mrs. Rapelyea. Poughkeepsie has a model day and night camp. Buffalo, Rochester, and Brooklyn have made special provision, and many other localities are strongly agitating the question.

New Dispensary in Milwaukee.—The Catholic Colored mission has opened a medical dispensary in its headquarters, 530 State street, Milwaukee, with Dr. W. V. Nelson acting as physician in charge.

The Missouri State Board of Health has opened official headquarters at Jefferson City, Mo., with offices in the old Supreme Court Building. Dr. Frank B. Hiller of Kahoka, secretary of the board, will be in charge. Under an act of the last Legislature the State Board of Health is required to open an office in Jefferson City and gather vital and mortuary statistics. The board has taken steps to put the vital statistics law into operation. A committee will cut the State up into convenient districts and arrange for the appointment of registrars in each district so created. This will mean the appointment of not fewer than 10,000 men to collect and make a report in their districts each month of all births and deaths and forward their reports to the State registrar at Jefferson City. Some of

these will be physicians, although anybody is eligible. Under the law the registrars will collect a fee of 25 cents for each birth or death reported. The Districting Committee will report to the board at a meeting to be held at Kansas City on September 20. The appointment of the registrars will be made by December 1, and the law made operative by January 1, 1910. The statistics will be collected and kept in conformity with the regulations prescribed by the United States Census Bureau.

New Polyclinic Hospital.—The trustees of the New York Polyclinic Hospital have purchased a plot of ten lots on the north side of Fiftieth street and the south side of Fifty-first street between Eighth and Ninth avenues as a site for a hospital that will be among the largest in the city. The property secured for the building has a frontage of 153.4 feet on Fiftieth street and 40 feet on Fifty-first street. The hospital will be twelve stories high and will cost about $1,000,000. It will be the tallest hospital in the city and will be modern in every respect. The new building will be used as the headquarters of the institute and the old building on Thirty-fourth street just east of Third avenue will be continued as an east side branch.

Appointments.—Dr. Henry M. Bascom, Ottawa, Ill., has been appointed Chief Surgeon of the Illinois Traction System and of the Hospital Association of that system; Dr. John M. Phifer, Stewardson, Ill., has been appointed Assistant Surgeon of the Atcheson, Topeka, and Santa Fé Hospital, Topeka, Kan. Dr. H. Gideon Wells has been appointed Assistant Professor of Pathology of the University of Chicago, and Dr. A. J. Carlson has been appointed Associate Professor of Physiology in the same institution. Dr. Julius Wenglesky, chief of the medical staff of the Illinois Eastern Hospital for the Insane, has been appointed acting superintendent of the institution in place of Dr. J. L. Greene, who has resigned to take the place of alienist on the State Board of Control. Dr. Allen J. Smith has been elected dean of the Medical Department of the University of Pennsylvania in the place of Dr. Charles H. Frazier who has resigned. Dr. Joseph Walsh has been appointed consulting physician in the department of tuberculosis at the Philadelphia General Hospital. Dr. John B. Stetson has been appointed third assistant bacteriologist to the Philadelphia Bureau of Health, in succession to Dr. Mortimer Herzberg, who has resigned to accept the chair of Pathology and Bacteriology in the University of South Dakota, and the directorship of the State Hygiene Laboratory.

The International Dental Congress, which was held in Berlin during the week ending August 27, seems to have been nearly wrecked on the shoals of professional jealousy. A dispatch to the *New York Times* says that, in order to bar the local American dentists from active connection with the congress, the management adopted a sweeping rule that admission should be extended only to American dentists practising their profession in their own country. This provision effectually slammed the door in the faces not only of the 150 American dentists who practise in German towns and cities, but of several hundred others who are practising in England, France, Austria, and other European countries. When the United States delegation, headed by Prof. T. N. Brophy of Chicago, arrived on the scene and heard of the ban placed upon their compatriots residing in Europe, they caused the management to understand that a painful scene might ensue on the floor of the congress if the rule was enforced. It was thereupon formally relaxed, but those at whom it had been aimed refrained, of course, from accepting the tardy hospitality of the congress. There was much disappointment over the inability of Prof. Brophy of Chicago to take part in the congress, owing to a painful fall which he suffered in his apartment at the Hotel Kaiserhof. Among American participants in the congress were Dr. Frank J. Haessler of Chicago, Dr. Jackson of New York, Prof. Gaskill of Philadelphia, Dr. Crawford of Nashville, Dr. Hoff of Ann Arbor, and Prof. Potter and Prof. Boardman of Harvard University. The American delegation was entertained at a banquet by the local American dental club on Wednesday evening, and Thursday at noon there was a reunion at luncheon of all the Harvard dental graduates attending the congress.

The Colorado State Medical Society will hold its thirty-ninth annual convention at the Hotel Stanley, at Estes Park, Col., on September 14, 15, and 16, 1909. The president of the society is Dr. P. J. McHugh of Fort Collins, the secretary, Dr. Mellville Black, Majestic Building, Denver, and the chairman of the arrangement committee, Dr. J. Nichol Vroom of Denver.

Physician Shot by Patient.—Dr. Shirley N. C. Hicks of Jamaica, N. Y., was shot in the thigh recently by a neurasthenic patient. While Dr. Hicks was making a professional call on the patient she left the room, and a moment later Dr. Hicks, hearing a shot, followed. In an effort to wrest a revolver from the hand of the overwrought patient it was accidentally discharged and Dr. Hicks received the bullet in his thigh. The woman then shot herself in the chest, shattering the sternum. Dr. Hicks' wound is not dangerous.

Memorial to Dr. J. Edward Turner.—The Society for the Study of Alcohol and Other Narcotics has issued an appeal for funds to erect a monument at the grave of Dr. J. Edward Turner at Wilton, Conn. Dr. Turner was a pioneer in the modern crusade against alcoholism and was the founder of the first inebriate asylum in the world, at Binghamton, N. Y. He died penniless and his grave is unmarked. The chairman of the committee in charge of the memorial is Dr. T. D. Crothers of Hartford, Conn., and the treasurer Dr. L. D. Mason, 171 Joralemon street, Brooklyn, N. Y. Each subscriber to the fund, which it is hoped will reach $600 to $700, will be presented with a copy of Dr. Turner's book "History of the First Inebriate Asylum in the World."

Obituary Notes.—Dr. Radcliffe Crocker of London, England, died on August 22, 1909, at Engelberg, Switzerland. Dr. Crocker was a graduate of the University of London in 1875, and had been a Fellow of the Royal College of Physicians since 1887. At the time of his death he was Physician to the Skin Department of the University College Hospital and one of the best known dermatologists of England. He was vice-president of the British Medical Association and a corresponding member of most of the leading dermatological societies of the world.

Dr. Albert Beach Whitney of New York City died at his home on August 30, 1909, of pneumonia and heart failure, at the age of 71 years. He was a graduate of Columbia College in 1861 and of the Pennsylvania Medical College in 1863.

Dr. James O. Ackerman of Fond du Lac, Wis., died on August 25, 1909, aged 68 years. He was a graduate of the Hahnemann Medical College of Chicago in 1877 and had practised in Fond du Lac for twenty-eight years.

Dr. John A. Allendorf of Charlestown, Mass., died at the Carney Hospital in Boston on August 24, 1909. Dr. Allendorf was a graduate of the Harvard Medical School in 1902.

Dr. Villanova M. Burdick of Dexter, Me., died at his home August 23, 1909, as the result of taking medicine from the wrong bottle while delerious. He was 58 years of age. He was a graduate of the University of Vermont in 1879.

Dr. Robert W. Erwin of Bay City, Mich., died at Washington, Mich., on August 13, 1909, aged 67 years. He was a graduate of the Bellevue Hospital Medical College in 1870, and was a member of the Bay-Arenac-Iosco Counties Medical Society, the Michigan State Medical Society, and the American Medical Association.

Dr. A. M. F. McCullough of Los Angeles, Cal., died at the Pacific Hospital, in that city, on August 19, 1909, aged 56 years. Dr. McCullough was a graduate of the Jefferson Medical College in 1877. He had practised in Wachita, Kan., until 1894, in which year he moved to Los Angeles.

Dr. John W. Rasmussen of West Allis, Wis., died at his home on August 27, 1909, aged 37 years. He was a graduate of the medical department of the University of Wisconsin in 1897.

Dr. George Francis Shears of Chicago died at his home on August 27, 1909, aged 62 years. He was a graduate of the Hahnemann Medical College in 1880. In 1889 he became Professor of Surgery and in 1900 president of that institution. He was also president of the Clinical Society, the Chicago Homeopathic Society, and the Illinois Homeopathic Medical Society.

Dr. Stephen H. Weeks of Portland, Maine, died at the Maine General Hospital on Sept. 1, 1909, aged 74 years. Dr. Weeks was a graduate of the medical department of the University of Pennsylvania in 1864. He was the founder of the Maine State Sanitarium, and a member of the Cumberland County Medical Society, the Maine Medical Association, and the American Medical Association.

Dr. Charles T. Wilber of Kalamazoo, Mich., died on August 23, 1909, aged 74 years. He was a graduate of the Berkshire Medical College, formerly of Pittsfield, Mass., in 1860, and was a member of the Kalamazoo County Medical Society, and the Michigan State Medical Society.

Dr. Hamlet Sharp Garland of Oskaloosa, Iowa, died August 27, 1909, of appendicitis, aged 26 years. He was a graduate of the Kentucky University Medical Department in 1904, and a member of the Mahaska County Medical Society, and the Iowa State Medical Society.

Dr. Mark Davis of Beatrice, Neb., died at his home August 26, 1909, aged 95 years. Dr. Davis practised medicine for many years in Indianapolis and other cities of Indiana, but since moving to Nebraska, in 1880, has lived in retirement.

Dr. Nicholas T. Glenn died at Philadelphia on September 1, at the age of 25 years. He was a graduate of Jefferson Medical College in the class of 1907.

Dr. Franklin Allen Gauntt of Burlington, N. J., died September 7. He was graduated from Jefferson Medical College in the class of 1886.

Sixteenth International Medical Congress.

(Special Cable Report to the Medical Record.)

Budapest, September 4.—At the general session, held September 1, Professor Jacques Loeb of California delivered an address on "Artificial Parthenogenesis and Its Bearing upon the Physiology and Pathology of the Cell." In this address he took the stand that in chemistry was to be found an explanation of all vital phenomena, and he hazarded the assertion that there was no inherent impossibility in creating life in a mass of inert organic matter by means of chemical processes. He related how he had succeeded in hatching out the non-fecundated eggs of the sea-urchin by immersing them in certain solutions, and described a series of experiments he had made in artificial fecundation in the endeavor to fathom the secret of the physio-chemical nature of this process.

At this session the announcement was made that Dr. Louis Livingston Seaman of New York City had made an offer of one hundred pounds ($500) to the Congress to be given to the author of the best essay on the "Military Sanitary Service," the award of the prize to be announced at the Seventeenth International Congress. This offer was accepted by the Congress, and it was stated that the details as to the conditions of competition would be announced later.

At the Common Session, held this day, there was a general discussion on "Immunity," all the papers on this subject which had been offered in the different sections being brought together here. The principal speakers were Gruber of Munich, Bordet of Paris, and Detre of Budapest. Among the other papers on the program for this most important and interesting session were contributions by Bezredka of the Pasteur Institute, Paris, Ehrlich of Frankfort, Fränkel of Vienna, Kraus of Vienna, Landsteiner of Vienna, McArthur of Chicago, Morgenroth of Berlin, Neuberg of Berlin, and Neufeld of Berlin.

A gala performance was given in honor of the Congress at the National Theater, and a reception was held by Archduke Joseph, acting in place of the Emperor, at the Royal Palace in Buda.

One of the most interesting discussions was that held at the Common Session, on Thursday, September 2, on "Appendicitis." At this meeting were collected all the papers on this subject offered to the sections on Surgery, Gynecology, and Internal Medicine. The discussion became one in which conservative Europe was arrayed against radical, or rather progressive, America. The continental physicians, led by Sonnenburg of Berlin, in a paper entitled "The Early Operation in Appendicitis," contended that operation was seldom called for, certainly not so frequently as American writers would lead us to suppose. Sonnenburg reported on 300 cases of undoubted acute appendicitis in which the attendant had refrained from operation and in which a perfect recovery had been obtained. He maintained that early operation was not essential in acute appendicitis and that the patient's condition in recovery following the conservative plan of treatment was much better than it was when the appendix had been removed. The surgical, or operative, side was taken by John B. Murphy of Chicago and Robert T. Morris of New York, who spoke strongly

and with emphasis of the duty of operating in the early stages, before such extensive damage had been done as seriously to jeopardize the life of the sufferer or to expose him to the dangers attendant upon a recurrence of the inflammatory process at a time or in a place when skilled surgical help could not be obtained. The speaker quoted the statistics put forth by the advocates of both methods of treatment and showed that those of the Americans, in cases in which early operation had been resorted to, were more favorable than the European figures of the results of the so-called conservative or expectant plan of treatment.

At the general session held this day Laveran of the Pasteur Institute, Paris, the discoverer of the blood parasite of malaria, delivered a long but interesting address on Exotic (Tropical) Pathology. Following this the presidents of the different sections entertained the members of their sections at private soirées in their homes.

On Friday, September 3, Professor Max Gruber of Munich delivered, before the general assembly, an address entitled: "Heredity, Selection, and Hygiene."

The closing session was held in the great banquet hall of the large and imposing Moro-Romanesque "Redoute Building," on Saturday, September 4, at 10 A.M. It was then announced that the Committee, consisting of the presidents and secretaries of the national committees as well as of the president and general secretary of the Congress, meeting on Tuesday, had selected London as the place of meeting of the Seventeenth International Congress, Professor F. W. Pavy having been nominated to the presidency. It was decided also to establish a permanent International Committee, to meet at The Hague, to decide on matters relating to future international congresses.

Count Albert Apponyi, Hungarian Minister of Public Instruction, addressed the Congress on behalf of the Government, speaking in warm and appreciative terms of the work done by the members. He said the people of Budapest and of Hungary were grateful for the large attendance of foreign physicians, regarding their presence in such large numbers as a graceful compliment to their city and country. The usual speeches of farewell were then made by the official delegates of the various countries, who, speaking for their respective governments, thanked most warmly the Hungarian Government and the authorities of Budapest for their hospitality and for all they had done to render pleasant and instructive the stay of the foreign members and to forward the success of the Congress.

This Congress, while marked by no startling or sensational announcement, may be said to have been a decided success; the general sessions as well as the section meetings were well attended, the papers were in general good though not extraordinary, and the entertainments were most enjoyable.

Abdominal Myomectomy.—S. Pozzi gives the indications for abdominal myomectomy thus: In young women when the fibroma is single, not very large, does not penetrate the uterine cavity, and when the adnexa are healthy; myomectomy may also be done when there are several small myomata; in older women it may be done if the other genital organs are healthy; it should be preventive and complementary to other operations in young women, even if the nodules have given rise to no symptoms; it should rarely be done in pregnancy on important indications, and with the greatest care.—*La Presse Médicale.*

Correspondence.

THE TWELFTH INTERNATIONAL ANTI-ALCOHOLIC CONGRESS HELD IN LONDON.

To the Editor of the Medical Record:

Sir:—The Twelfth International Anti-Alcoholic Congress, which was held in London from July 18 to 25, 1909, was chiefly remarkable for the Government recognition of the alcoholic problem and the number of leading physicians who took part in the exercises. It was a surprise in diplomatic circles to know that the intensely conservative Government of Great Britain should not only invite the Congress to hold a session in London, but take a very active part in promoting and recognizing it as a national event. The Duke of Connaught was made honorary president. Among the officers were over thirty leading physicians and medical teachers of the country, and a host of lords, bishops, and members of Parliament. The Home Secretary sent formal invitations to sixteen different nations of the world to be officially represented by delegates to this conference. They all responded. Most of them sent leading medical men and Government officials. Of those appointed by this country the following medical men were present: T. D. Crothers of Hartford, Conn.; C. H. Hughes of St. Louis; Reid Hunt of the Public Health and Marine-Hospital Service, and Surgeon Pleadwell of the U. S. Navy. Temperance societies, church organizations, reform movements from all over the world were represented by the very best men and women of these organizations, and the number registered was between 1,400 and 1,500, making it the largest gathering for the discussion of the alcoholic problem ever held.

The central purpose of this Congress is to discuss the alcoholic problem as a sociological hygienic, medical, statistical, economic, and scientific one. No resolutions or conclusions concerning disputed facts are endorsed by the Congress as a whole, but the Congress is simply a gathering for the study of the subject and not for the teaching or promotion of any particular dogma, theory, or set of facts. The term "anti-alcoholic" expresses the plan and purpose of the Congress to consider the evils from the use of alcohol and the methods of prevention, together with such possible causes as may be neutralized and overcome by hygienic measures. No questions of morals or ethical theories are endorsed or made prominent. Each person is free to express any personal opinions and the reasons for them, as a simple contribution.

The interest manifested by the English Government was displayed in receptions given to the delegates by one of the home secretaries, the Lord Chief Justice, the Lord Mayor of London, the Bishop of London, and other dignitaries.

The Congress consisted of morning sessions in Kensington Town Hall and the reading of formal papers, followed by free, open discussions, carried on in French, German, and English and interpreted from the platform. Several afternoon and evening sessions were devoted to scientific papers and technical discussions of alcohol, which were very largely attended. Among the many medical papers that presented facts that were new was that of Dr. Holitscher of Karlsbad on "Alcohol in Lobar Pneumonia and Enteric Fever." His studies were based on statistics of forty-seven hospitals, in eighteen of which a plan was followed of the alternate use of alcohol in similar cases, in order to determine in which the progress was the best and the mortality the least. In 238 cases of pneumonia treated with alcohol the death rate was 24 per cent.; among 248 cases treated without alcohol there was only 21 per cent. mortality. Of 47 cases complicated with delirium tremens 21 were treated with alcohol and 15 died; of 26 patients of the same class treated without alcohol the mortality was only 0. Of the 161 typhoid fever cases 80 were treated with alcohol, of whom 15 died; in 81 treated without alcohol the death rate was only 12. This paper was discussed at some length by many leading physicians.

The Norman Kerr lecture on "The Influence of Alcohol on Immunity" was given by Dr. Laitinen, the director of the Hygienic Institute of the University of Helsingfors. This was based on the result of experiments on 223 persons to determine whether alcohol increased or diminished the resistance of the human red blood corpuscles to serum and toxins, also whether

the use of alcohol conferred any immunity on the person who used spirits. His conclusions were that the normal resisting power of the blood serum was less in the case of alcohol drinkers than in that of abstainers, also that the bactericidal power of blood serum against typhoid bacteria was much less in drinkers than in abstainers. He concluded that alcohol in small doses exercised a prejudicial effect on the perfected mechanism of the human body. Prof. W. H. Rivers of Cambridge described the effect of alcohol on the human body in health, when given in disguised form. The object was to show whether there was a greater increase of energy and stimulation from its effects. The results of his studies were negative and simply showed a reaction which could not be called stimulation or increase of energy. Dr. Clouston of Edinburgh, in a paper on "The Resistive Power of the Human Brain Against Alcohol, and its Limitations," showed that while in healthy, sound brains the resistance was very pronounced, it was very uncertain and doubtful in defective and abnormal conditions; also that no one could determine what the resistance was, hence the great danger of using alcohol in any form.

Prof. Henschen of Stockholm, in a paper on "Alcoholism and Tuberculosis," concluded that there was unmistakable evidence of an intimate relation between the two, and that alcohol could never be used as a remedy without increasing the fatality. He presented elaborate statistics and conclusions in support of his view.

Dr. Lagrain, the superintendent of the Insane Asylum at Paris, in a paper on "Alcoholism and Insanity," concluded that alcohol was more poisonous than lead or phosphorus and was both directly and indirectly responsible for a large amount of dementia and mental feebleness. Dr. Crothers of Hartford followed in a paper on "The Insanity of Inebriety," in which he urged that habitual users of alcohol should be considered as insane. Dr. W. F. Mott, the pathologist of the London Asylum, in a paper on "The Effects of Alcohol on the Nervous System," illustrated by the screen, showed that structural changes of the brain and spinal cord in which digestion, assimilation, excretion, and circulation were disturbed were the direct result of alcohol. He also showed that alcohol favored the production of toxins which combined and produced conditions in the highest degree destructive to the brain integrity, and this was possible from small quantities of spirits.

A very elaborate paper on "Criminal Inebriates" was read by Prof. G. Aschaffenburg of Cologne. He described the damage to the brain circulation from small quantities of spirits, the danger from these transient derangements becoming permanent, particularly where there was inherited mental inferiority, and urged that the damage which alcohol produced on the brain should be studied in the question of treatment and legal penalties.

The Lord Chief Justice of England declared, at a reception, that his forty years' experience at the bar and ten years as a judge had proven beyond question that 90 per cent. of the crime could be traced to alcoholic drinking, and that he was convinced that no single agent was more active as a cause than this.

A number of other papers were devoted to questions of heredity, the action of alcohol on the offspring, and alcohol and its effects on children and on the home.

Miss Stoddard of Boston, the head of the Scientific Federation Bureau, described at some length the effect of teaching the dangers of alcohol in the common schools, and a number of continental physicians followed, giving some startling facts and urging that this phase of the subject be made more prominent.

Abstracts of each paper were published in two different languages, so that it was possible to follow every reader and get a fair idea of what he was talking about. The daily press gave very large space to the various subjects, and there was something startling in the fact that so large a gathering of men and women should spend a whole week discussing topics that as a rule are only heard in reform circles. The dominant idea through all the addresses, papers, and discussions was that alcohol should be regarded as a narcotic and depressant in its effects on the body, and not as a stimulant, and that as a beverage it is extremely dangerous. Beyond that, its effects as a remedy are still uncertain, with a rapid accumulation of facts from laboratory studies and clinical experience which point out its prominence as an active cause of disease.

Another fact which was brought out indirectly was that the evils of alcohol could be prevented, and from a larger knowledge of the subject it was possible to eradicate and break up many of the great degenerations which follow from this cause.

A volume of transactions will be issued containing all the papers, many of which are already appearing in the various journals. The medical journals gave a very candid review of the proceedings and all were impressed with the fact that this was the beginning of a great new movement that was destined to occupy a very large place in the scientific development of the future.

The Queen of Holland formally invited the next Congress to hold a meeting at The Hague in 1911. This was accepted. The real significance of this Congress was the beginning of a revolution in public sentiment concerning the use of alcohol, particularly in continental Europe, where spirits have been used from the earliest times. It was pleasant to note that all the great leaders of this movement recognized and acknowledged the advanced work done in America, and the tremendous efforts to overcome some of the evils that are prominent.

T. D. Crothers, M.D.

Hartford, Conn.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RED CROSS SOCIETIES AND TERRITORIAL FORCE—CHLOROFORM DANGERS—CONFERENCE ON THE BLIND—EARLY NOTIFICATION OF BIRTHS—UNPAID MEDICAL PUBLIC SERVICES—ANGLO-AMERICAN MEDICAL SOCIETY—DARWIN EXHIBITION—OBITUARY.

London, August 20, 1909.

The Red Cross Society and the St. John's Ambulance Association are to be affiliated to the Territorial Force, and the members of both seem to be gratified with the decision of the Army Council. To the men's voluntary aid detachments will be assigned the duty of converting farms, houses, and buildings into temporary hospitals, of preparing carts and stretchers for the removal of patients, of fitting up rolling stock for the transport of the wounded by rail, of making local arrangements for transporting the sick and wounded from the railway stations to the hospitals, and of disinfecting buildings. Women's voluntary detachments will be employed in forming railway rest stations, in preparing and serving meals and refreshments for the sick and wounded on the journey from rail to hospital, and in taking temporary charge of cases too severe for removal. They will also look after the cleanliness of the hospitals and render any nursing service that may be needed. It is pointed out that there are numerous ways in which all classes of the community willing to organize and train themselves during peace may give patriotic aid whenever actual need arises. The scheme is really in existence in skeleton form in the Red Cross Society and its branches throughout the Kingdom, already 90 in number. There is a branch, too, in Canada, and another at the Cape. Each member undertakes a certain financial guarantee, and the fund thus available at present exceeds £12,000, which, in emergency, would no doubt be enormously increased by donations.

Several deaths from chloroform have occurred lately and have led to numerous comments and questions as to the relative dangers of various anesthetics. At an inquest on a child who died in the Ormond Street Hospital it was stated by the house surgeon that the patient recovered quite normally from an operation, but on the following day symptoms appeared which were suggestive of delayed chloroform poisoning and proved fatal. It was also stated that the *post-mortem* showed that death was due to heart failure, resulting from that cause. The Coroner remarked that these cases were very rare, as only about one in two years came to his notice. A little while ago society was greatly perturbed by the sudden death during anesthesia of a lad of 13, an heir to a title. He had been carefully examined before administration, and nothing abnormal was discovered except the adenoids, which were to be removed. A mixture of two parts of ether to one of chloroform was used, and the little fellow said: "This is nice. I like it." Just as the operation was completed breathing ceased, and every known method was tried to restore it, but with no effect. The autopsy was made by Dr. Trevor, the pathologist of St. George's Hospital, who ascribed the death to status lymphaticus, about which he admitted little is known; but it produced instability of the nervous

centers, and any injury was likely to cause death in patients suffering from it. He had never seen so decided a case as this.

Dr. D. S. Thompson took the view that all children with adenoids were inclined more or less to the status lymphaticus, and regarded removal of adenoids or tonsils as serious operations in them, on account of the obstruction to the respiratory passages. The accustomed lowered breathing reduced the vitality. I quote this case, although the death was thus attributed solely to the operation, because many medical men may doubt whether the anesthesia is to be altogether exonerated. It is also suggested to me that adenoids may be removed without anesthesia; indeed, I have been informed by a well-known specialist that he does not resort to the administration of any anesthetic in the performance of this operation.

At another inquest, held at Guy's Hospital on the 30th ult., the Coroner, Dr. Waldo, stated that out of 41 deaths from anesthesia into which he had had to inquire 33 were due to chloroform, or to etherial mixtures containing it; the other eight to ethyl chloride. The figures are suggestive, but we have to consider in what number of cases the two anesthetics were employed before we can determine their relative mortality. No doubt ether is used at Guy's. Dr. Waldo has not had one inquest in which it was used there; but the authorities might very well let us know how often it is employed. Some of our anesthetists have almost entirely discarded chloroform for ether, and, although more trouble and skill may be demanded to attain equal results, none of them would be unwilling to devote his energy to the safer drug if they were quite convinced of its relative safety. The question is increasing in importance, and some are asking how it is that in Ireland, where the use of ether is almost always resorted to, deaths are very rare, while fatalities are more common in London, where chloroform is so much more frequently given.

The committee appointed last year at the International Conference on the Blind has issued its report. It concludes that the early notification of births is an urgent matter; that "ophthalmia of the newborn" should be added to the compulsory notifiable diseases; that more definite teaching on the seriousness of eye diseases in children should be given to midwives; that the Central Midwives' Board should issue more stringent instructions on the danger of "whites" in lying-in women. The committee also suggests that more definite returns be made in the census in regard to the causes of blindness.

No doubt early notification of births is desirable in this as in other cases. It is compulsory where the local authority adopts it; but it may be administered with a zeal that leads to injustice. This was seen last week in Paddington district, where a dozen parents were summoned for not notifying within 36 hours. They all pleaded ignorance that the law had been adopted, which seems to indicate that the Council had not made its action fully known. The lawyer for the prosecution suggested that it would be a good plan to summons the doctors, as the inconvenience to them would perhaps make them take the trouble to notify themselves. Lawyers never seem ashamed of insulting suggestions; but it is surprising to notice that the magistrate seemed to agree with this one. If notifications of all sorts, which have been brought about by the recommendations of the profession, are to be used to further such oppression it may lead to a refusal on the part of the profession to agree to any more gratuitous services to the State.

This question of payment for medical services rendered to the State was, I hear, pretty fully discussed at Belfast in reference to the treatment of school children found, on inspection, to be in need of it. Different proposals were made, that of establishing school clinics being supported by a considerable number. On the other hand, the plan of utilizing hospitals and dispensaries was pretty freely condemned by the general practitioners, although hospital men were not altogether opposed. It seems obvious that if the educational authorities subsidize voluntary charities the honorary officers must do the work, and if paid their offices will not be honorary, and the neighboring practitioners will be injured. Now the London County Council has begun this plan with regard to "a small number" to see how it answers. We may therefore expect to see it extended. As arranged, some children are to be treated for nothing; others for a small sum, and there is no attempt to solve the problem which is held to be so important to parents and the rate-payers. It was stated that in some parts parents with incomes of £200 to £300 a year sent their children to the board schools. It may well be asked by the profession at large, as well as by those immediately interested, whether such persons are to receive gratuitous medical treatment while the doctors living near them starve on a less income?

Mr. Overy proposed a resolution, expressing a hope that the staffs of hospitals would do all in their power to prevent abuse of voluntary charities, but no one seems to expect much from this, for the staffs appealed to have never helped the general practitioners in their campaign against "hospital abuse." So with the committees of management, always ready to take financial aid from any source. But in this case they may be restrained by a fear that the County Council, if it contributes to any sensible amount, is certain to demand representation and eventually exact control. Sir Victor Horsley, who always speaks his mind decisively, said the attempt of the County Council was ridiculous, and its folly was shown in the fact that only a few hundred cases had been provided for out of the 70,000 to 80,000 children in need of treatment. Another speaker said that at Cardiff no less than 38 per cent. of defectives were treated at the infirmary. This seems a manifest case of the abuse of voluntary charity, and such facts lead to the assertion by many that parents who can pay should be made to pay, and those who cannot should be referred to the provision of the Poor Law.

At the annual luncheon of the Anglo-American and Continental Medical Society, which was held at Belfast, some of the members from your side were present. Professor Osler took the chair, and in proposing the chief toast, said the society was a valuable bond of union between us; but still more, it gave members the names of physicians abroad to whom they could confidently entrust their patients. Regarding the latter point, however, one observer has remarked that after all the membership of a society of this kind can scarcely be recognized as a guarantee of the ability of a practitioner or his general fitness for undertaking every traveling patient's case.

The centenary of Charles Darwin is being commemorated by an exhibition at Natural History Museum. A very large collection of objects connected with the life and work of the great naturalist has been gathered, and was opened on Tuesday. It is not intended in any way to support his opinions or otherwise, but to illustrate the facts he accumulated and commemorate his devotion to science. Many of the exhibits are more relics of the man than anything else, and excite great interest. It so happens that the centenary occurs at the time when many maintain that his views are under the shadow with which time so often covers theories. German scientists like Dennert and Goette have for some time talked of the collapse of Darwinism, and some of our own have followed them, though with more hesitation.

Sir William Howorth, president of the Archæological Institute, addressing the Cambrian Association on Tuesday last, on taking the presidency in succession to Professor Sayce, said most inquirers still held that man was linked to a great procession of living animals which had marched out of the recesses of time by some process of evolution, but that was nothing more than a working hypothesis. So, to solve the problem of man's origin, we must postulate for him stupendous antiquity. He denied not merely the fact but the possibility of the ice age as usually put forward. Local glaciers might have been larger than now, but as to their traveling and depositing boulders he denied the possibility, and the climatic changes implied were equally impossible to assign to such a cause. He added that the effects usually attributed to the action of ice were the result rather of rapid, violent movement of enormous masses of water. But whether caused by ice or water the drifts were subsequent to the origin of man.

Lieutenant-Colonel V. Doig, late of the Army Medical Department, died recently. He qualified in 1863 and entered the medical service of the army the same year, obtaining promotion in 1873. He served in the Ashantee war, 1873-1874, for which he was awarded the medal, and retired from service in 1883 as surgeon lieutenant-colonel, receiving further the honorary rank of brigade surgeon.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 26, 1909.

Heart Disease in Infancy and Childhood.—John Lovett Morse calls attention to the fact that the volume and weight of the heart relative to the body weight are greatest in the new-born, sink rapidly in the first and second years, increase again for a time, are smallest in the years before puberty, and increase rapidly during puberty. The caliber of the arteries in early childhood is relatively large in comparison to the volume of the heart. The diameter of the veins in relation to that of the arteries is smaller in childhood than later in life. These peculiarities explain low blood pressure, rapid circulation, and frequent pulse of infancy and childhood, and also the fact that cardiac physical signs vary very materially at different periods of infancy and childhood. The cardiac impulse is rarely visible and frequently not palpable in early infancy. Percussion is best performed in infants in the recumbent position and comparisons must always be made with the child in the same position. It is impossible to determine accurately the area of dulness in infancy, the usual mistake being to make the area too large. Great care must be exercised in diagnosing an accentuation of the second pulmonic sound. Reduplication of the second sound is not uncommon under normal conditions. If this alone occurs it is not necessarily pathological. Among the general peculiarities in the physical signs of cardiac disease in infancy and childhood are prominence of the precordia. Murmurs are often heard over large areas. Thrills are more common than in later life. Cardiac disease interferes with the growth of other organs and retards development in general. The tendncy to recovery is greater in earlier than in later life. The presence of cardiac disease in infancy or early childhood without the history of some disease likely to cause cardiac disease is strong evidence in favor of a congenital lesion. Cyanosis and clubbing of the extremities without signs of venous congestion in other organs and without heart murmurs or other evidences of disease sufficient to cause them are strong evidence in favor of congenital lesions, as, also, are loud murmurs without enlargement of the heart. Diastolic murmurs are practically never congenital. Contrary to general teaching, anemic and functional murmurs are not uncommon in infancy. When the murmurs are anemic there is no enlargement of the heart and no thrill. The treatment of congenital heart disease is entirely symptomatic. Insufficiency of the heart muscle calls for digitalis. Severe symptoms are treated as in acquired heart disease. Sudden attacks of suffocation and convulsions are best avoided by the use of bromides. In diagnosing acute endocarditis the murmurs most often mistaken for those of acute endocarditis are the cardiopulmonary. They are to be differentiated by their variability with respiration and with the pressure of the stethoscope. Slight pressure increases them; strong pressure stops them. The one important thing in the treatment of this condition in childhood is rest; stimulants are seldom needed. Children with chronic valvular disease must be kept under constant observation. Every detail of their lives should be regulated, the fundamental principle being that there shall be no prolonged strain. When compensation is failing the treatment is the same as for adults. In myocarditis and myocardial insufficiency the one important thing, both as a prophylactic measure and after their development, is rest. Alcohol is useless. Strychnine helps some. Digitalis cannot act on a degenerated muscle. Nitroglycerin is dangerous, predisposing to vasomotor paralysis. Massage of the abdomen, ice to the abdomen, caffein and adrenalin subcutaneously are most useful. Functional disturbances of the heart are liable to appear at the time of puberty, and it is important to bear in mind that there is often an enlargement of the area of dulness and murmurs, probably due to relative insufficiency of the mitral valve, which, added to the usual signs and symptoms, make it easy to mistake the condition for organic disease. Acute pericarditis is very unusual in infancy, is less frequently secondary to pneumonia and more often tuberculous than in later life. The tendency to effusion is greater than in adults. The symptoms are surprisingly latent in infancy and early childhood. The treatment is essentially the same as in later life. Chronic adhesive pericarditis is far more common than is usually supposed. It most often follows plastic rheumatic pericarditis, but is occasionally tuberculous in origin. There is nothing distinctive about the symptoms of this condition; it causes in some instances a peculiar form of cirrhosis of the liver.

Work for Patients as an Immediate and Ultimate Therapeutic Factor.—Frederick L. Hills describes a system of work which has been in operation for several years at the Massachusetts State Sanitarium at Rutland, and gives some of the results of this system. For economic reasons the patients were expected to do a certain amount of light work. During the first week of residence no work is allowed, and the pulse and temperature are carefully watched. After the first week if the temperature is normal a short walk of ten or fifteen minutes once or twice a day, if attempted, and the amount of exercise gradually increased until the patient is taking an hour twice daily. All patients who can exercise to this extent are expected to work from one-half hour to two hours daily at light tasks, heavier tasks being gradually imposed as the patient demonstrates his ability to perform them. At present some degree of work is done by 51 per cent. of the patients. In this way a large part of the working force of the institution is recruited. Dr. Hill believes that they have demonstrated the value of work as a therapeutic measure to be even greater than as an economic measure. During the past five years, in 27 patients, who played baseball in addition to their work, and in whom the disease was incipient in 12 and moderately advanced in 15, and whose condition at the time of discharge showed 3 apparently cured, 11 arrested and 13 improved, the subsequent history shows that 81.4 per cent. are to-day doing full-time work, two have had relapses and are working on part time, and three are dead—two because of intemperate habits. The subsequent history of 30 patients who worked four and one-half hours during their sanatorium residence shows that 70 per cent. are doing full regular time work, 16.6 per cent. have had relapses, and four are dead. In comparison with these the subsequent history of 365 patients discharged in 1905 shows that 56 per cent. are now working. Of 25 board working patients discharged during the same time 68 per cent. are now working. Although the comparison is not entirely fair, as the workers are picked ones, the figures help to demonstrate the ultimate result of work in building up the resistance of the patient. Relapses among this class are comparatively infrequent. Success in the therapeutic application of labor cannot be obtained without system and careful supervision. Obedience, supervision, and graduation must be the watchwords. The tendency of the "rest cure" is to make dependents of our patients; but by carefully prescribed labor we can return a greater number to their homes independent and self-supporting citizens.

The New York Medical Journal, August 28, 1909.

Tuberculosis of the Knee Joint.—Irving D. Steinhardt states that in regard to tuberculous disease in bone and joints, knee joint disease comes third, tuberculous disease of the spinal column and the hip joints being respectively first and second. About 50 per cent. of the cases of tuberculosis of the knee joint occur from the second to the sixth year; its occurrence is quite frequent up to the twelfth year and not infrequent up to the twentieth year. The seat of the disease is usually in the epiphysis of the femur or tibia and less often in the synovial membrane. The salient features of the disease which help us in a proper diagnosis are: (1) A limp developing from no apparent cause, such as a fall or injury; (2) pain and sensitiveness without redness and immediate large swelling in the knee joint only and without the constitutional reaction of a rheumatic nature; (3) change of contour in the joint, and particularly if accompanied by atrophy; (4) slow and insidious development of a flexion deformity; (5) "night cries" (unguarded movements that cause a sharp sudden pain, accompanied by an involuntary cry of suffering); (6) persistent morning stiffness confined to one knee joint; (7) a sudden disposition of the patient to avoid activity and to guard the limb against quick change of position; (8) the appearance of these symptoms after infectious disease, or after trauma; (9) a positive tuberculin reaction in a suspicious but doubtful case in a child under five years of age where other tuberculous lesions can be practically excluded; (10) a positive *x*-ray picture. At present stronger evidence of real serious tuberculous disease must be found to condemn a patient than merely a positive tuberculin test. Tuberculous disease of the knee joint must be carefully differen-

tiated from rheumatism, gonorrheal arthritis, scurvy, hemathrosis, hip disease, injury, rachitis, synovitis, syphilis, Charcot joint, Still's disease, new growths, and nervous affections. With no tuberculous involvement except the knee joint the prognosis as to life is very good; but with pulmonary disease or tuberculous lesions elsewhere the patient is in greater danger. If there is any doubt as to the diagnosis of the case, treat it as a positive one, as early treatment is very important. The best prophylactic measure is correct hygiene during infancy and childhood. The treatment of tuberculosis of the knee joint in children is usually conservative, whereas in adults, in early cases in particular, excision of the tuberculous area is in vogue. Where long continued suppuration is a menace to life amputation may be practised. This latter would be true in children also. As yet our best remedial agent has been old Dame Nature, assisted by allies in the form of plaster of paris and braces of various kinds. Dr. Steinhardt is at present experimenting with tuberculin injections, but is not prepared to praise or condemn this treatment. Conservative treatment consists in immobilizing the knee joint as completely as possible. Experience has shown that the more complete the immobilization the better the chances of preserving joint motion. Plaster of paris and braces may be combined in certain cases. The Bier treatment (hyperemia) should always be used as an adjunct to both methods of conservative treatment. When abscesses occur Dr. Steinhardt uses the circular rubber bandage to cause a general hyperemia of the part, cups the sinus openings with suitable Bier's cups, after which he applies the following ointment to the joint: Ichthyol, 25 per cent.; iodine, 5 per cent.; lanolin, 20 per cent.; petrolatum, q.s. 100 per cent.

Contribution to the Study of Blood Pressure in General Paresis.—A. Schmiergeld has measured the blood pressure of 40 patients suffering from paresis, taking the pressure in each individual from five to seven times, and accepting the number which figured most frequently as the right one. Among 13 paretics younger than forty years of age, nine had a low pressure, one a normal, and only three had arterial tension above the supposed normal; among 21 paretics, whose ages were between forty and fifty years, nine had a low pressure, six a normal, and only six a high one; finally, among the six paretics older than fifty years four had a low pressure and only two a high pressure. From his observations on this series of cases, Dr. Schmiergeld concludes: (1) To estimate the blood pressure of an individual it is necessary to measure it several times. (2) The blood pressure in general paresis is very variable. (3) In the majority of cases, however, it seems lower than in normal individuals. (4) There exists no relationship between the mood of the paretic and the arterial tension: elated paretics can have a high pressure and depressed paretics a low one.

Journal of the American Medical Association, August 28, 1909.

Molluscum Contagiosum.—F. C. Knowles reports an epidemic of 59 cases of this disease that occurred during the year 1908 in the St. Vincent's Home, containing about 350 children. He gives a study of the literature, including brief résumés of the already recorded similar institutional epidemics, and the inoculation experiments that have been performed. His own experiments in this line were two in number. One of them was absolutely negative and the other, while at first apparently typical, soon dried up and disappeared. In the culture experiments made by him, two organisms were found, one the *Bacterium aerogenes*, and the other apparently the *Micrococcus salivarius*. His summary of the study is given as follows: "Molluscum contagiosum usually attacks the face, in a majority of the cases on, or in close proximity to, the eyelids. Children are more susceptible to the disease than adults. It is difficult to explain the present or other epidemics on any other theory, except that the disease is contagious. The cause of the disease is, unfortunately, still to be determined; although a microorganism, usually a coccus, has been found in a few cases. The incubation period is undetermined; from the experiments so far carried out, from a few weeks to many months. The skin apparently does not have to be broken for the infection to occur, but this point is still undecided."

Staphylococcus Inoculation.—H. R. Varney reports on experiments with polyvalent staphylococcus serums in cases of staphylococcus infection, which he has found to be efficient, especially in multiple furunculosis and carbuncle. Rarely has a new lesion developed after the first inoculation. His conclusions are substantially as follows: Polyvalent staphylococcus stock suspensions given in appropriate doses have a decided value in certain localized rebellious infections of the skin. Their administration is practically safe, causing prompt cessation of the active infection and immunizing the patient against its recurrence for a more or less prolonged period. Clinical observations serve as guides as to the time for reinoculation and simplify the difficulties met with in opsonic methods. The appropriate standard for size and frequency of doses have been previously established from opsonic estimations on laboratory patients with light infection. Failure to immunize the patient artificially may be due to an abnormal condition of the skin, non-specific bacterial suspension, or incorrect dosage. Much time is saved in the use of these stock suspensions by the elimination of opsonic indices and by the assistance derived from other therapeutic measures. Less suffering, less deformity, less danger of systemic infection, and less liability to recurrence are the advantages from the use of bacterial suspension as a therapeutic agent.

Chloroform in Phthisis.—J. Walsh objects to the use of ether in tuberculous cases, especially active tuberculosis of the lungs. During the past six years he has never allowed his patients thus affected to be operated on under ether if he could possibly prevent it, and he has never seen any bad results that could possibly be attributed to chloroform in these cases. During the same period he has seen a number of patients manifesting active tuberculosis of the lungs, which activity appeared from the history to be due either to the operation or to the ether. He reports several cases in which chloroform not only did no harm but seems rather to have a beneficial effect, and one of nitrous oxid gas anesthesia which has a similar outcome. Two cases of damaging after-results from ether anesthesia are also reported. While a mere statement of the cases makes it appear that chloroform might be even somewhat curative, as asserted by Holmes and Woodcock of London, he is not ready to advocate it as such. He does, however, believe that in case of necessary operation with anesthesia in all cases of tuberculosis of the lungs, or where it may be suspected to exist, chloroform and not ether should be the anesthetic.

The Tonsils.—C. M. Robertson describes in detail the anatomy and development of the normal tonsil and its variations and relations, and also gives the facts as known as to its physiology. At birth the tonsil is so small as to be unimportant. It attains its full development by the sixth or eighth year and then begins to atrophy. By the age of twelve or fourteen it should have disappeared and should show only as a cicatricial mass between the palatine pillars. Any tonsil that is markedly visible after that age may be considered pathological. Clinically, nearly all children at six have adenoids and enlarged tonsils, and at eight probably 85 per cent. have them. When they exist, pathologically, all kinds of infections may occur. Some authors claim that the tonsil has a part in digestion, but experiment does not prove this and Stöhr claims that they have a phagocytosis action, which the author does not credit. If the normal tonsil is removed *in toto* there is no disastrous after effect, but rather an improvement in health owing to an increased freedom of respiration. Robertson thinks that the function of the tonsil is an ancestral or developmental one, and if it has any function it must be one which is active only during the first part of a child's life between the sixth and eighth years, at which limit the gland has passed its acme of usefulness and normally should disappear by atrophy. If it remains, he holds that, after the sixth or eighth year, tonsils are pathologic and only detrimental, in rendering the individual the less able to combat infections. He recognizes the fact that he is making rather a sweeping statement, which may be criticised by some, but he thinks the investigations, so far as published, of the physiology of the tonsil, having been made on pathologic glands, have been from an erroneous standpoint.

Diseased Tonsils.—F. Mayer says that the conditions of the faucial tonsil which call for operative interference are: (1) Simple hypertrophy interfering with breathing; (2) diseased conditions of the tonsils themselves, causing local or constitutional infection. He

takes up these causes in order and gives an account of the results of the giving of attention to the enlarged tonsils in school children in New York City. Some of the children, after operation, showed an improvement of 100 per cent. over their former ability to work and in behavior, from the simple removal of hypertrophied tonsils. Within six months 76 out of 81 operated on at one time had been promoted and were doing well in the advanced grades. Passing to the second cause, he speaks first of the affections of the tonsil itself that indicate the need of extirpation and secondly the constitutional disturbances connected with its disease. The most common of all these in the first category is acute lacunar or follicular tonsillitis, of which the recurrences are sometimes so frequent as to make the children lose much time from their school work. He goes over the literature to a considerable extent of the other various nonmalignant tonsillar diseases, enumerating the various forms. The second class of cases are then mentioned, and he says that the list has become a very formidable one. A careful study of the voluminous literature of the subject does not at all change his opinion, formerly expressed, as to the tonsils as the portal of infection of a large number of very serious conditions which can be averted by prompt extirpation of these organs. He concludes with the statement that it is imperative on the physician to advise thorough extirpation in all cases of unusual hypertrophy, recurrence of inflammation, or any diseased condition.

British Medical Journal, August 21, 1909.

The Infection of Consumption.—C. Theodore Williams examines the various sources of infection in pulmonary tuberculosis and ascertains to what extent they are elements of causation or spread of the disease. In one out of three cases where consumptives married three wives, one wife survived, and out of nine cases where consumptive husbands married twice the last wife survived in three instances, giving a total of thirteen husbands to thirty-one wives, of whom twenty-seven died and four lived in apparently good health. Though it is improbable that inhalation is the principal means of lung infection, there is every likelihood of some infection taking place through the upper air passages, and that the bacilli enter the lymphatics of the mouth and infect the lymphatic glands of this region and the tonsils, which are often the seat of tubercle. The frequent occurrence of strumous submaxillary and cervical glands may be due to this cause. The possibility, and, indeed, probability, of the lungs and lymphatic system being infected through the intestines is proved without doubt, and the converse—that is, the improbability of lung infection by inhalation—is shown by an instructive experiment by Vansteenberghe and Grysez, who submitted rabbits and guinea pigs to an atmosphere laden with fine carbon particles by keeping them in a glass cage in which a lamp fed by turpentine was burning. These observers were justified in their conclusions that physiological anthrocosis is due in such cases to intestinal absorption of particles arrested in the nasal and pharyngeal passages and afterwards swallowed with the saliva and nasal mucus, to be carried to the pulmonary parenchyma by the blood stream. Infection through the skin and mucous membrane by wounds is not a common method of infection, but sundry cases are on record which prove its possibility, and indicate an undoubted danger from that source. He gives the statistics of the Brompton Hospital medical staff resident since 1882. Among the resident medical officers there were no cases of consumption; among the assistant resident medical officers one (from inoculation), and among the house physicians none was affected during residence. Two subsequently died of acute phthisis, when holding resident appointments in hospitals where cases of consumption were admitted, and one was attacked by consumption fourteen years after he had left the hospital and recovered. Concerning the sources of infection, ingestion of tuberculous material by the intestines is the commonest, inhalation by the air passages comparatively rare, except that which occurs in the upper air passages, affecting the lungs through the lymphatics. Infection through wounds of the skin and mucous membrane is not common, but occurs among those who handle sputum and other tuberculous material where proper precautions are omitted. Infection by coition is rare. All infection from consumptive patients can be avoided if the well-recognized precautionary measures are adopted and carried out thoroughly.

Light, Pigmentation, and New Growth.—Wilfred Watkins-Pitchford says that the increase of cancer within the last seventy-five years is perhaps due to diminished protection from light and increased exposure to illumination. Woolen garments have been largely replaced by cotton, and black and brown clothes by those of a light color. Narrow streets and dark houses are no longer tolerated, and suburban life has largely replaced that of the city. Artificial illumination has become greatly more actinic in its character. The habit of snuffing has yielded to the vastly more prevalent usage of smoking tobacco by means of a pipe. A manifest deduction from the principles advanced is that cancer may be prevented by efficient protection of the body from light. Natural protections, such as hair upon the face, should be encouraged. The clothing should be absolutely light-proof. The ventral surface of the thorax and abdomen should be specially protected. The tobacco pipe should be discarded at the age of thirty-five.

Berliner klinische Wochenschrift, August 9, 1909.

Polyserositis.—v. Marenholtz reports a case of this disease in a young man, aged twenty-two years. He was healthy until eighteen. Family history negative. No history of alcoholic excess. At eighteen the disease began with shortness of breath and swelling of the legs, scrotum, and abdomen. He was operated on for supposed tuberculous peritonitis, but no signs of tuberculosis were found. The ascites continued so that the patient was tapped frequently, and finally a puncture wound discharged for many weeks. Pleural effusion occurred, requiring thoracentesis. Serodiagnosis for syphilis in the fluid was negative. He died in collapse. The autopsy showed ascites, hydrothorax, hydrops of the knee, anasarca, atelectasis and compression of the lung, concretio pericardii, cirrhosis of liver, and parenchymatous nephritis. The liver showed the characteristic perihepatitis of polyserositis. The etiology of the case was obscure.

The Etiology of Congenital Torticollis.—Max Böhm says that congenital torticollis may be due to birth trauma of the sternocleidomastoid or to intrauterine shortening of the muscle. In the latter case there may be no evident change in the muscle, and Böhm asks why this shortening occurs. He says that besides a muscular torticollis there may be one due to osseous abnormalities. He says that the condition of transitional vertebræ may occur between the atlas and occiput, causing an ankylosis between the skull and spinal column. This may be of four grades: (1) The mildest grade shows the presence of exostoses which unite the atlas and the occiput. (2) In the second grade the ring of the atlas is more or less fused with the rim of the foramen magnum. (3) The third grade shows, besides a fusion, a partial disintegration of the atlas. (4) In the highest degree the atlas appears merely as a ridge on the surface of the occiput. If these processes of fusion and disintegration occur asymmetrically the result is a torticollis. The author reports several such cases, photographs of the bones being shown. The condition may be diagnosed by the use of the *x*-ray.

Causes of Error in the Estimation of the Opsonic Index.—A. Strubell and Felber have taken up the question as to whether the ideal results obtained by Wright are attainable by others who have not learned the technic direct from Wright or one of his pupils. They acknowledge the great difficulty in estimation of the accurate index, and admit that industrious investigators, even if good bacteriologists, may easily make mistakes. This is especially so when the investigator has not learned the tricks of the technic either directly or indirectly from Wright. As a result of their investigations, however, they do not think the difficulties are insurmountable. Above all things, for overcoming the difficulties, besides a thorough knowledge and familiarity with the tricks of the method, a sufficient degree of technical skill is required, in order to check and control the results. The control must be made from several healthy persons. The limits of variation of the index in normal individuals seem to be narrower than Wright originally stated. In 75 per cent. of the cases it varied from 0.95 to 1.05, and in 95 per cent. from 0.9 to 1.1. The differences between the counts of two sources from the same mixture varied less than 10 per cent. in 92 per cent. of cases. The tuberculoopsonic index of normal individuals varied less than 10 per cent. in 94 per cent. of the cases. One of the most important sources of error is the occurrence of isoagglutinins of the washed corpuscles.

Book Reviews.

Lectures on Hysteria and Allied Vasomotor Conditions. By Thomas Dixon Savill, M.D., Lond.; Physician to the West End Hospital for Diseases of the Nervous System, Welbeck Street, London, and to the St. John's Hospital for Diseases of the Skin, Leicester Square, London; formerly Medical Superintendent of the Paddington Infirmary and Workhouse; Examiner in Medicine in the University of Glasgow; Assistant Physician and Pathologist to the West London Hospital. New York: William Wood & Co.; London: Henry J. Glaisher. 1909.

The author of this book states in his preface that he has taught the views therein expressed for the past twenty years, and that the principal object of its publication is the "elucidation of the pathology of hysteria and the discovery of a rational explanation of its various phenomena." The author has become known to us chiefly through his "Clinical Lectures on Neurasthenia," and we are glad to welcome his views on a subject so little understood as hysteria, a subject, too, on which there are such opposing opinions. Lack of space prevents us from an extended review and criticism. With some of the prevailing opinions of the psychogenesis of hysteria and what constitutes the disease the author evidently does not coincide. Those, for example, of Freud, on the sexual origin of hysteria, he differs from on the ground of his experience of cases not bearing it out, and he condemns Freud's analysis procedure as "hazardous, harmful, and wholly unjustifiable." Then, again, Babinski's limitations of hysterical symptoms to those admittedly psychogenic he disagrees with, believing rather that all the skin, vasomotor, circulatory, and other symptoms "regarded for centuries" as hysterical, are interchangeable with psychogenic hysterical phenomena, and must be considered as together forming one complete entity. The specialist, who finds little trouble in discovering hysterical manifestations and in separating them from those of true organic conditions, is not appealed to so much in the book as are the student and general practitioner, for whom the subject often presents difficulties. The latter will find suggestions, in regard both to diagnosis and treatment, of a helpful nature, together with numerous illustrative cases introduced to make the explanations more clear and applicable to use. The theories of the author respecting the pathology of hysteria are very interesting, though not entirely new and not altogether convincing.

The Philosophy of Long Life. A Translation from the French of Jean Finot, by Harry Roberts. New York: The John Lane Company, 1909.

This book, if it is serious—and there is no internal evidence to show that it is not so intended—must prove invaluable to the psychologist who is making a study of the mental processes in the different races of men. To the dull Anglo-Saxon mind the jubilance with which the author contemplates the feasting of the worms on the dead body is utterly incomprehensible and nauseating. This he calls immorality in the transformation of human flesh into the substance of crawling larvæ in the grave—and he opposes cremation on the ground that thereby the worms are cheated of the feast which is their due. Finot also believes, apparently, in the possibility of man creating living things, and writes at great length, as though more than half inclined to believe in them, the tales of automata and of sentient and living mannikins created by alchemists. Indeed, the writer is apparently ready to believe anything, especially if printed in the newspapers, except the immortality of the soul, for which he gleefully substitutes the immortality of the chemical constituents of the body. After reading this book from cover to cover in the endeavor to find something of scientific or philosophical interest, one is amazed to learn that the French original has passed through fourteen editions.

Common Disorders and Diseases of Childhood. By George Frederic Still, M.A., M.D. (Cantab.), F.R.C.P. (Lond.); Professor of Diseases of Children, King's College, London; Physician for Diseases of Children, King's College Hospital; Physician to Out-Patients' Hospital for Sick Children, Great Ormond Street; Honorary Member of the American Pediatric Society. London: Oxford University Press, 1909.

In this volume Dr. Still has not attempted to give the world a new textbook of pediatrics. Rather he has written out in book form the points in the diagnosis and treatment of the diseases of childhood which have appealed to him during many years of experience in private practice, and with clinical opportunities such as possibly no man in America has been able to obtain, namely, as senior out-patient physician in the oldest, the largest, and probably the most active children's clinic in the world. To those who have had the pleasure of knowing Dr. Still and of watching him at work, each page of this little book will recall the man's personality and remind one of the lightning speed with which he examines his patients, the rapidity with which he brings out and sets aside the common and well-known points of the case, and the clearness, comprehensiveness, and enthusiasm with which he discussses the odd symptoms, the fine points in diagnosis, and his own personal experience in treatment. This same spirit the author has incorporated in this book. It is not systematic and it is not complete. Much of it—that part which the physician with any experience with children already knows—is put in as few words as possible, consistent with perfect clarity, while other parts, and those on the subjects on which one is apt to be in doubt and especially desirous of enlightenment, are gone into in a manner so complete and extensive that little is left to be desired. The articles on treatment are especially full and valuable, as they do not simply lay down the ordinary textbook rules, but tell, and that in detail, the results which the author has obtained and those that have been obtained by his personal colleagues in London. The entire book gives one the impression that a man who has seen much and has done much is telling what he himself has seen and has done, not what he has read of the doings of others. The book is purely clinical, for Dr. Still's work is clinical. The more obscure scientific aspects of disease, which fill most of the German works on pediatrics, are left out. The book is written in a clear, fluent English, which makes it delightful reading. It is in every way a volume which would be a valuable addition to a physician's library, and one which, if once bought, would be apt to spend more time on the reading table than on the book shelf. In the matter of the bookmaker's art, this little book is quite up to the standard of the other products of the Oxford medical publications, and more praise than that is superfluous.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. Part VIII. By Prof. Dr. H. Strauss, Professor of the Third Clinic, Royal Charity Hospital, Berlin. Authorized American Edition. Translated under the direction of Nellis Barnes Foster, M.D., Associate Physician to the New York Hospital; Associate in Biological Chemistry, College of Physicians and Surgeons, Columbia University. New York: E. B. Treat & Co., 1909.

This short monograph is divided into four chapters, as follows: The Differentiation of Gout, the Pathogenesis of Gout, Symptoms of Uricacidemia, and the Therapy of Gout. The book gives in a concise manner the modern conception of the nature and treatment of gout. The author has confined himself to what he considers the most essential points that have a bearing on the practical treatment. As each case of gout has to be treated individually, Dr. Strauss has indicated the different measures that may be of benefit in the management of the disease. Colchicum and its preparations still head the list in the drug department of an acute attack.

Gynecology. Volume IV. of the Practical Medicine Series. Edited by Emilius C. Dudley, A.M., M.D.; Professor of Gynecology, Northwestern University Medical School; Gynecologist to St. Luke's and Wesley Hospitals, Chicago, and C. von Bachellé, M.S., M.D., Assistant Professor of Obstetrics, Chicago Policlinic and College of Physicians and Surgeons; Gynecologist to the German Hospital, Chicago. Series 1909. Chicago: The Year Book Publishers, 1909.

The advance in gynecology during the past year has been along the line of more accurate diagnosis and better and more scientific treatment, both medically and surgically. The book is divided into six parts, dealing respectively with General Principles, Infections and Allied Disorders, Malformations and Tumors, Traumatisms, Displacements, Disorders of Menstruation, and Sterility. The question of the liability of malignant complications or changes in fibroid tumors of the uterus was pretty thoroughly threshed out about two years ago in the section of gynecology and obstetrics of the New York Academy of Medicine. The decision arrived at was that malignant disease was just as apt to take place in a patient without a fibroid tumor as in a patient with one. Yet according to the statistics in this book, the danger of malignant change in fibroid uteri increases very rapidly in a person over forty years of age. Quoting from the book: "The probabilities are that malignant change will result in one case in every twenty between the ages of forty and fifty, one case in every eight between the ages of fifty and sixty, and in one case in every four between the ages of sixty and seventy."

Society Reports.

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-fifth Annual Meeting, Held in New York, May 27-29, 1909.

THE PRESIDENT, DR. S. WEIR MITCHELL OF PHILADELPHIA IN THE CHAIR.

Thursday, May 27—First Day.

President's Address.—Dr. S. WEIR MITCHELL of Philadelphia delivered this address, saying that he would first discuss some matters of general interest to the association and then take up the questions of the nature of nerve force and the deep reflexes, dwelling especially on reinforcement and the theory of overflow. There was a comparative rarity in the proceedings of the Neurological and other associations of matters of therapeutic interest. The present was the triumphant hour of diagnosis, which was the parent of logical, legitimate therapeutics. He said that he would suggest that the association appropriate a single hour or more, as they might desire, for discussion of therapeutic measures. This might be readily done, and in an interesting fashion, by choosing one subject, as the treatment of epilepsy or some other form of disease, or perhaps two or three diseases. It might be found advisable to have each man discuss the subject for two or three minutes and so fill in the hour. For example, how did the members treat their ordinary cases of epilepsy? He would like to know the measures employed for chorea, or what the members did to treat the spastic conditions that followed apoplectic seizures. There might be some ingenuities of thought of which all the rest were not aware. It would be better than listening to so many papers which were chiefly diagnostic or merely observational, without a single thought that was not surgical on the subject of therapeutics, for, after all, what we did in our clinics and consultation rooms was to tell people to do something. He wanted to know what the members said to people about certain diseases. The physiology and pathology of the negro should receive more attention from the neurologists. There was a rarity in the negro of this country of such diseases as chorea, tabes, migraine, and exophthalmic goiter. Considering the relation of the black skin to heat and light rays, there must be in the negro some automatic compensative mechanism for regulating the body temperature other than that which we possess. Therefore, we needed for the negro a new and complete study of the blood in order that we might get clearer ideas as to his immunity from such diseases as yellow fever and malaria. The physiology of persons who had lost large parts of the body by multiple amputations was a subject worthy of a commission of investigators. Long ago he had studied diseases of stumps and the psychics of lost limbs, but the subject in recent years had been neglected. He next took up one of the two main subjects of his address—neural energy, its nature and modes of transmission. He used the term neural energy without committing himself to any special theory. The rate of transmission of nerve energy in the ameba and lowest forms of animal life in which it was a general diffusion was only about three feet per second, whereas in the higher vertebrates, where it moved along chosen pathways, it reached as high as 150 feet per second. There was an enormous output of energy relative to the small size of the productive sources of supply, as shown by Dr. H. H. Donaldson's contributions. In the adult human brain of 1360 grams the weight of the nerve-cell bodies was less than 27 grams.

There were nine thousand two hundred million nerve-cell bodies in the newborn babe, and the same number in the adult. Two per cent. represented the proportional volume of the cortical cell bodies, including all the dendrons. Many agencies affected the delicate responsive neural conductors and their related centers, those which were most common being related to variations in atmospheric pressure and storm conditions. The next question was that of the chemical changes which accompanied the transmission of neural energy along nerves. These living wires, the nerves, ate, drank, and ejected, and were fed and did work, and therefore must undergo chemical changes through loss and for repair. Certain excitocontractile impulses were found in plants, and these were probably identical with those observed in animals, as was evidenced by observations upon the mimosa. He could well imagine a neurotic crusade against cruelty to plants after watching experiments on the mimosa. The analogue of the irritocontractile muscle of animal life was in the plant cell walls, which, contracting, expelled fluid and thus caused in the leaves mechanical changes of position. Numerous observations and experiments had been made upon plants, especially the mimosa, with a view to determining the analogies between the movements of such plants and those occurring in the living animal. He next directed attention to some facts and theories regarding what he designated the "symptom signals," called reflexes. As regards the reinforcement of reflexes, the researches of Mitchell and Lewis, Bowditch, Howells, and other American contributors to this subject showed that not only the hand grasp and other coarse movements tended to increase the muscle-muscle and the skin-muscle response, but that nearly every distinct sensation increased them. Sudden light or sound, remotely applied heat, abrupt cold, a pinch, the pull on a single hair, added to the response. The explanation of these reinforced phenomena appeared to be that the afflux of energy giving increase of the reflex was due to the liberation of energy far in excess of the functional needs of the active organ—that is, an overflow of energy, as was shown by observations and investigations. Speaking of the practical applications of this study of overflow, was it not conceivable that there were acquired conditions of the body, neurasthenic and hysteric, in which these endless normal overflows might be mischievously felt and might account for suddenly visible symptoms of nervous excitement? An interesting clinical phenomenon which he believed illustrated the subject of overflow was to be seen in the case of violent facial neuralgia, in which to talk, to laugh, to chew, evoked maddening pain. Were we not in such cases in the presence of an example of reinforcement from overflow of related motor centers affecting a sensory ganglion excitably ready to call forth the phenomenon called pain?

A Study of Errors in the Diagnosis of General Paresis.—Dr. E. E. SOUTHARD of Boston read this paper. He said that 247 cases of mental disease had passed through the daily clinics of the Danvers Insane Hospital and later come to autopsy during the years 1904-1908. Sixty-one of these had been diagnosed clinically with more or less certainty as cases of general paresis, and forty-one of the sixty-one as absolutely certain. Thirty-five of the forty-one had been confirmed by autopsy, and two more had appeared at autopsy, although unsuspected during life. These two unsuspected cases and the six erroneously diagnosed cases had been specially studied. Tabes and cerebellar arteriosclerosis, in the presence of mental symptoms, had been shown to be in two main causes of error in the positive diagnosis.

A Critical Study of the Sensory Functions (Especially Stereognosis) of the Pre-Rolandic Area.—Dr. HERMAN HOPPE of Cincinnati read this paper, saying that the object of his paper was to show how often astereognosis occurred in lesions of the motor zone, and whether the loss of stereognosis was in any way distinguishable from the loss of this function due to lesions of the parietal lobe. His first case had been one of loss of stereognostic sense

combined with loss of muscle sense and sense of position. Autopsy had shown a noninfiltrating tumor the size of a hen's egg situated subcortically in the superior parietal convolution. His second case had been one of subcortical solitary tubercle, involving the arm center in the ascending frontal convolution and the neighboring frontal lobe, demonstrated at operation. Prior to operation there had been some astereognosis in the right hand; after operation, which involved the tumor site, astereognosis in the right hand had been marked. His third case had been one of left brachial monoplegia following Jacksonian seizures without any loss of sensation prior to operation. At operation no gross lesion had been found, but, after locating the center for flexion and extension of the hand, this center had been excised. Following operation there had been complete paralysis of the left arm, with complete astereognosis, all other qualities of sensation being intact. The question which arose was whether astereognosis unassociated with loss of tactile and muscle sense would indicate a lesion of the motor zone and astereognosis with loss of tactile sense, muscle sense, and sense of position indicate a lesion of the parietal lobe. This question could not be decided by a study of recorded cases, although his cases seemed to answer in the affirmative.

Dr. Morton Prince of Boston said that the whole question of stereognosis was a matter of fact and not of induction. Dr. Hoppe's cases were extremely interesting, and they opened a new discussion on the subject. If there was a disturbance of muscle or tactile sense it was impossible for any one to determine what an object was. There were a number of cases on record of asymbolia and astereognosis, meaning by asymbolia loss of power to recognize objects where there had been no loss of tactile sense. The important thing was to determine whether or not there was loss of the sense of position, localization, and so on. Very accurate and careful tests must be made, and they must be made by precise methods.

Dr. C. K. Mills of Philadelphia said there were several interesting points in Dr. Hoppe's communication. A number of things in the paper seemed to contradict the views which some others as well as himself held personally. In cases we had to take information on various points before deciding as to their absolute value. The operative cases could not be absolutely depended upon with regard to the exact extent of the absolute section and also with regard to the extent of the influence of that section. We had to take into consideration the physiological reaction along certain anatomical-functional lines. Undoubtedly the motor region was connected by association fibers with the stereognostic region if it existed, and also doubtless with sensory regions in the post central convolution. We had in these cases the abeyance or the loss of such a sense as stereognosis. Very rarely cases existed in which astereognosis existed without impairment of the muscle sense or sense of position. To a certain extent it proved, not that there was no astereognostic center in the parietal lobe, but that by the destruction of entering tracts astereognosis might be produced.

Dr. William G. Spiller of Philadelphia said that Dr. Hoppe had said that these disturbances of stereognosis with pain had been present only for a short time after operation. They had not persisted. Dr. Hoppe had considered the results carefully. We must be careful after operation on the brain in reaching conclusions. Not only was there disturbance of associated areas, but there was also disturbance from handling the brain; there was disturbance in function of that part; and, what was more serious, in excising any portion of a brain it was necessary to tie the veins supplying that portion. As a result of this tying the circulation was disturbed in adjoining areas of the brain, and softening might occur from this, even if no great number of vessels were tied.

Dr. B. Sachs of New York City stated that an experience he had recently had might throw a little light on this subject. A young woman had had the general symptoms of brain tumor with very slight involvement of the upper extremity. Aphasia had been complete and there had been not only asymbolia, but absolute loss of all sense of the muscular movements. In this case the aphasia had been by all means the most pronounced symptom. The paresis had been so slight that except for detailed examination it might have escaped altogether. Basing the location on that fact he had suggested that the surgeon go in over the arm center, but that he keep as far posteriorly as possible. There was found a tumor which extended to the central fissure and invaded a considerable portion of the cortex into the parietal region. Within 24 hours of the time of operation the aphasia had disappeared entirely. The paresis, however, had remained exactly the same as before the operation, and was practically the same to this day.

The Type and Distribution of Sensory Disturbances Following Cerebral Lesions.—Dr. Carl D. Camp of Ann Arbor, Mich., read this paper, stating that dissociation of sensation frequently followed cerebral lesions. The type of dissociation was not constant, but probably depended on the location of the lesion. The disturbances of sensation were usually confined to one side of the body, but some cases apparently showed that there was rerepresentation in the cerebral cortex of the sensory distribution of spinal segments. A case which he had observed showed marked dissociation of sensation and strongly suggested spinal segmental sensory representation in the brain.

Inversion and Interlacing of the Color Fields an Early Symptom of Brain Tumor.—Dr. Harvey Cushing of Baltimore read this paper, saying that the report was a preliminary one and was based upon observations made in conjunction with Dr. James Bordley, Jr. The history of most brain tumors extended over a period of years rather than months. It was, perhaps not, surprising to find that almost every patient brought for operation after the diagnosis of brain tumor had been finally certified by the often long-delayed ophthalmoscopic changes, had at an early stage of the trouble been regarded as hysterical or the subject of some psycho-neurosis. Following Charcot an impression still held sway that more or less contraction of the field for form with partial or complete color reversal (dyschromatopsia) was the great "essential sign of hysteria." These alterations of the visual fields were no less characteristic of brain tumors. We had found no definite relationship between the contraction of the field for form and that of the color field. Some patients had shown the typical hysterical concentric contraction with color reversal, but in many of them there had been a prompt return to the normal relations after a simple decompression. Other cases had shown peripheral limitations greater in fields for form than in color fields, the red being less affected than the blue. There had been other cases in which contraction for colors and form went hand in hand, though the blue was usually much more affected than the red field. The prominent feature of most of the authors' charts was not so much the preservation of the red field as the alteration of the blue. In several instances there had been a total achromatopsia and a more or less definite hemiachromatopsia for blue alone. The process seemed to be one related in some way to increased intracranial tension, the relief of which usually caused an early subsidence of the dyschromatopsia. These visual disturbances did not seem to be dependent upon neuroretinal edema, since in a number of patients they had preceded any appreciable ophthalmoscopic changes.

Exhibition of a Number of Lantern Slides Illustrating Interesting Pathological Conditions.—Dr. M. Allen Starr of New York presented these slides, for which he

was indebted to Dr. Larkin. The first was a section of the spinal cord from a case of anterior poliomyelitis, in which death had occurred on the fifth day of the disease. In this specimen could be seen enormous infiltration of the gray matter and distention of the capillaries. The motor cells of the cord had practically disappeared. The next specimen was a section from the first lumbar level of the spinal cord of anterior poliomyelitis in a child who had died six months after the onset of the disease, and showed bilateral infection of the anterior horns and a remarkable rarefaction of the anterior horns, resembling syringomyelia. The next was a section of multiple sclerosis of the spinal cord, the sclerotic patches being visible here and there and invading, also, the anterior horn of one side. Multiple sclerosis was a rare lesion. In Dr. Starr's clinic he had found but 51 cases of multiple sclerosis in 31,000 consecutive cases. The next specimen was from a patient dying 12 days after the onset of "grippe." There was a condition of acute hemorrhagic infiltration of the cord, with enormous distention of the capillaries everywhere and exudation from the capillaries of red blood corpuscles which were present throughout the entire cord, causing a disintegration. He showed a specimen of the spinal cord from a patient who had died suddenly after coming from a caisson. The rapid change from the atmospheric pressure of four or five atmospheres to the ordinary pressure was accompanied by the evolution of gas in the blood-vessels, and also by apparently the same effect both in the blood and in the tissues generally seen in champagne when it is uncorked; there was a sudden evolution of gas. This was the condition that occurred in this man's spinal cord, practically blowing up his spinal cord and disintegrating it absolutely. The next condition shown he had never seen described in the books or pictured; it had been found by Dr. Larkin a number of times in autopsies of patients who had died in the alcoholic wards of the Bellevue Hospital apparently from alcoholism. There was an infiltration beneath the pia mater of blood in small amounts, without any rupture of any visible blood-vessel. If the pia was picked off no clot was found under it; it was simply infiltrated everywhere with blood. Another case was that of hemorrhage into one of the lateral ventricles. The interesting feature of this case was that no rupture of any blood-vessel could be found; it seemed to have been a gradual infiltration of blood into the ventricle secondary to a condition of leucocythemia. The next was a case of abscess of the temporal lobe subsequent to ear disease, showing that caries of the petrous portion of the temporal bone might give rise to a pretty extensive abscess. The next was an abscess of the frontal lobe of the brain subsequent to operation upon the nose. The next was a rather extensive tumor of the middle lobe of the cerebellum, with a cyst in the center. This had been diagnosticated, but no attempt was made to operate, as the patient's condition did not warrant it. The next specimen confirmed a statement that Dr. Spiller had made not very long ago, to the effect that extensive hemorrhages in the brain might occur without causing sudden death. This was a hemorrhage which involved nearly half of the left hemisphere of the brain, occurring just above the level of the basal ganglion, near to the corpus callosum, and the patient had lived three and one-half days after the onset of the disease. At autopsy cases of gumma as extensive as the one shown were not often found; it covered the whole half of the brain cortex, and could easily have been stripped up and taken off by an operation. It would be difficult to absorb as large a thing as that by mercurial inunctions and iodide of potassium. He saw no reason why in well-marked tumor of the brain in syphilitic individuals, if a very marked improvement was not obtained in the course of two months, it would not be perfectly legitimate to go down and remove a gumma just as would be done with any other tumor of the brain. The next picture was one of an enormous aneurysm of the basilar artery pressing upon the base of the brain and the medulla oblongata, and it would have been supposed that it would have involved some of its nerves. The interesting feature of the case was its history. The patient who had owned that brain had not been the patient of anyone. He had been organist in one of the large churches, 45 years of age, a man who had been known to the vestrymen as being a man in very good health. He had never failed at the rehearsals or services, and last Easter Sunday he had presided at the organ and had given an elaborate musical service. He had come out after the musical service and dropped dead on the street, and had been taken to the Morgue. An enormous aneurysm of the basilar artery had been found, though he had presented absolutely no symptoms during life. The next was a large cystic tumor of the brain, involving the area of the pituitary body, which must have been of embryonal character. The man who owned the tumor was a longshoreman, in perfect health, who had done his work in loading and unloading the White Star steamers. One day he had sat down on the edge of the dock to take his luncheon. His associates had not missed him that afternoon, but two days later he had been found sitting there, and that was what he had had in his head.

Clinical Report of a Case of Sarcoma of the Motor Area of the Left Hemisphere.—Dr. C. Eugene Riggs of St. Paul read this paper, saying that a woman, aged 48, awakened from a sound sleep on the night of December 25, 1906, and found herself unable to speak for about five minutes. She had tonic spasm of the right side of the face, accompanied by a peculiar, unintelligible noise. Afterwards she had spoken of her tongue as feeling thick. There had been four similar seizures in March and one in June, continuing irregularly until October, after which there had been almost complete cessation for months. Troubles in speech had been first noticed in October. Also a poor memory and sluggish mentality. The latter part of March, 1908, there had been first noticed paresis of right hand and arm, which rapidly spread to the entire side; also marked double optic neuritis. The patient had never suffered any pain. An exploratory operation showed an infiltrating mass involving the left motor area, which rendered a radical operation impossible. The mass proved at autopsy to be sarcomatous.

Friday, May 28—Second Day.

Dr. Pearce Bailey of New York City in the Chair.

Mongolian Idiocy.—Dr. William N. Bullard of Boston exhibited a number of *x*-ray plates of cases of Mongolian idiocy to show the condition of the bones and cartilages. The plates included the hand, foot, and head. The principal thing shown in these cases was the remarkable difference in size between the brain of the Mongolian idiot and that of the normal child of the same age. A peculiarity in this class of cases was that the bones and cartilages differed simply in size and very little in structure.

A Case of Subcortical Auditory Aphasia, with Description of the Anatomical Lesion.—Dr. Albert M. Barrett of Ann Arbor, Mich., presented this paper, in which was reported the disturbances of speech in a man who, following an attack of apoplexy, had become unable to understand spoken words, and to repeat mechanically. Reading and writing had been preserved. Spontaneous speech was intact, except for a very slight paraphasia. Post-mortem findings were softening in the right and left first and second temporal convolutions. The lesion was largely subcortical. There was preservation of the cortex of the inner half of the middle part of the left first temporal convolution and the entire root of this convolution.

Distinction Between the Psychoneuroses Not Always Necessary.—Dr. G. L. Walton of Boston read this

paper, saying that much confusion existed regarding the classification of cases presenting nervous symptoms without known organic basis. In well-marked cases there was little difficulty. Such symptoms as aphonia and anesthesia indicated hysteria; flight of ideas and pressure of activity, alternating with retardation of thought and profound depression, were easily recognized as meaning manic-depressive insanity, and so with all well marked cases. But there was a large class of patients showing symptoms which were common to manic-depressive insanity, hysteria, hypochondria, and neurasthenia. Much unnecessary effort was made to place each of these cases under one or the other category. The textbooks attempted without success to make clear the distinction between mild forms of these disorders. It should suffice to class these mild cases simply under the term psychoneurosis, unless definite symptoms developed. Nothing was lost by including under this term most of the cases classed under neurasthenia, a misleading term, since it implied an asthenic condition not always present, whereas "psychoneurosis" indicated the essential state of all patients now included under neurasthenia.

Dr. Adolf Meyer of New York demonstrated a number of illuminated glass reconstructions of brains and discussed a case of transcortical sensory aphasia with integrity of the transverse temporal gyrus and of the auditory radiations, and a case of complete word-deafness with destruction of these parts.

The Organic Basis of Emotional Expression Illustrated by Cases of Involuntary Laughing and Weeping.—Dr. Charles K. Mills of Philadelphia read this paper, saying that the main object of his paper was to demonstrate the probable cerebral mechanism of emotional expression, or, in other words, to prove the existence in one of the basal ganglia of a reflex, emotive or mimetic centre related by connecting tracts to both exciting and inhibiting emotive centres in the cerebral cortex, and by emissive tracts to the centres for facial expression in the bulb, and to spinal centres for movements of the limbs concerned with the expression of emotion. He referred to a series of cases, some without and some with necropsy, to illustrate the arguments advanced. He exhibited photographs illustrating various phases of the subject, as the appearance of pain and anguish in the face, and the facial contortions in cases of involuntary weeping and howling; the expression in a case in which, because of bilateral lesions, the patient's expression was that of a perpetual grin; and a case in which the ability of the patient to contract the muscles on either side of the face voluntarily was present, while only the left side was set in motion in the act of laughing. Some of the conclusions which he believed to be warranted by the study of these cases were: (1) In the thalamus or lenticula, or in some undetermined region at the base of the brain, a center for mimetic expression was located, although von Bechterew's view as to the thalamic center could not be regarded as absolutely demonstrated; (2) This center was connected with a prefrontal cortical evoking center, and also with an inhibitory motor center; (3) The pathway from the prefrontal center was probably by way of the anterior limb of the internal capsule and one of the segments of the lenticula; (4) The pathway for the motor inhibitory center was probably by way of a tract at or near the knee of the capsule; (5) The emissive tract from the basal emotive center to the nuclei of the bulb and spinal cord was probably independent of the pyramidal tracts, although passing in close contiguity with this tract; (6) The cortical centers, evoking and inhibitory, concerned with emotional expression were more highly developed in the right cerebral hemisphere than in the left, in this way contrasting with the speech centres with their high development in the left hemicerebrum.

Dr. Morton Prince of Boston stated that attempts had been made by psychologists and neurologists to solve this problem, but it was so large and had so many aspects that it was a very difficult one. Recently Roussi had undertaken to reinvestigate this whole problem and, if his experiments stood, the optic thalamus would have to be eliminated as a center.

Dr. M. Allen Starr of New York said he hoped that in the review of the literature Dr. Mills would give due credit to Dr. Seguin, who had published a paper which had been reprinted in his Opera Minora, and which contained almost every fact that Dr. Mills had presented. Clinically he divided cases of disturbances of emotional expression into (1) the cases to which Dr. Seguin had called especial attention, of emotional disturbances connected with the pons Varolii, with or without involvement of the optic thalamus; and (2) the cases that showed emotional disturbance where the lesion was above the level of the crus where we had distinct hemiplegia, usually transient and leaving a lack of emotional control.

Dr. Ernest Sachs of New York said that during the past year and a half he had been engaged on some experimental work on the thalamus in the laboratory of Sir Victor Horsley and some of this work might throw light on the question Dr. Mills had raised. There was evidently a distinct connection between the thalamus and the cortical facial center, for a lesion in the lower part of the lateral nucleus of the thalamus led to degenerations which go exclusively to the facial center, while the region dorsal to this sent fibers to the arm and leg centers. Furthermore, his work had shown that only the lateral part of the thalamus, that portion outside of the lamina interna, was connected with the cortex. The median and anterior nuclei were only connected with the caudate nucleus. The center median seemed to be only an association center among the thalamic nuclei, and gave origin to some of the fibers of the posterior longitudinal bundle. The hypothalamus was not intimately connected with the thalamus, as heretofore supposed, but bore a much closer relation to the globus pallidus of the lenticular nucleus. As to the functions of the thalamus, much still had to be done, but certain points already seemed to be disproved. There was no evidence of any lachrymation arising from thalamic stimulation, as the Russians under v. Bechterew had claimed. Screaming, when it did occur, was pronounced only when the termination of the fillet fibers were irritated, and this should probably be interpreted as meaning that the current had produced a strong sensory impulse in response to which the animal screamed. The motor phenomena in the median part of the thalamus were mainly concerned with movements of the eyes usually conjugate in type, and this might be a superior peduncle response.

Dr. James J. Putnam of Boston had seen the bulbar patients act in the manner described by Dr. Starr, yet with no particular emotion. There was a fairly close resemblance in some stages between the movements which went with pleasure and those which went with grief, and one seemed to be an intensification of the other.

Dr. Hugh T. Patrick of Chicago said this group of symptoms was more apt to occur in bilateral or multiple lesions. One of the principal elements was probably a lack of inhibition.

Dr. Charles L. Dana of New York said that he had studied lately the syndrome of optic thalamus lesions, and that we knew now quite definitely what happened in ordinary optic thalamus lesion. It seemed to him that the old idea that the thalamus had something to do with expression was not correct, and certainly not unless the thalamus was injured on both sides. Acute lesions of the pons were associated with explosive laughter and crying. In his experience, the location of the lesion when there was an explosion of laughter or crying had been almost always in the lenticular zone. The disturbance was often associated with disturbance of speech, as certain forms of jargon aphasia.

So far as clinical and pathological investigations went, we had to point to the lenticular zone and pons as being the places which were anatomically localized as the most important seats for the mechanism of expression.

Dr. C. K. Mills said that he had already in his notes given full recognition and consideration to the writings of Seguin and Roussi. His own views were that the part the mechanism had in evoking the control of emotion was a complicated one; that a center, concentrated part of the neural mechanism, did reside at the base of the brain. He was not sure that it was in the thalamus. He was inclined to think that it was in the lenticular zone.

A Contribution to Our Knowledge of the Idiopathic Otalgias and Their Surgical Treatment: Tic Douloureux of the Facial Nerve with Cure by Physiological Extirpation of the Geniculate Ganglion.—Dr. L. Pierce Clark and Dr. Alfred S. Taylor of New York presented this communication. Dr. Clark said that it had been fairly well proved that the facial was a mixed nerve, that its sensory ganglion was the geniculate ganglion and its sensory root the pars intermedia of Wrisberg. This ganglion was of the spinal type and, therefore, eligible to inflammations, as, herpes zoster, and degenerations, as, tic douloureux. It was probable that not a few neuralgic conditions of the ear were derived from disease of the sensory part of the facialis and not, as commonly supposed, of reflex origin from the teeth, nose or throat. The neuralgic area of the facial as concerns otalgia was the anterior wall of the external auditory canal and the skin just in front of the ear. This was also supplied by a branch of the trifacial, but if all other parts of the trifacial were unaffected pain in this area doubtless had its seat in the facial. When all other antineuralgic measures had been exhausted without relief it was logical to assume that, as in trifacial neuralgia, operation should be done, consisting in case of the facial of physiological extirpation of the geniculate ganglion by cutting the pars intermedia. A patient of his, Mrs. E. L., aged 28, had begun in February, 1907, to have stabbing pain just in front of the left ear, which later became of daily occurrence and lasted two to three hours. Ear, eye, throat, and general medical examination had given negative results, hence the conclusion had been reached that the pain was a true tic douloureux of the geniculate system and physiological extirpation of the geniculate ganglion had been recommended. This had been performed by Dr. Alfred S. Taylor, whose report follows.

Dr. Taylor said that the patient had been referred to him by Dr. Clark, with the request that the geniculate ganglion be removed, but researches on the cadaver had shown this to be impracticable on account of the danger of doing injury to surrounding structures; therefore, it was decided to cut the sensory root in the posterior fossa of the skull. An osteoplastic flap was turned down in the occipital region, the dura incised with the base of the flap toward the midline and its upper border just below the lateral sinus; the cerebellum was retracted and the pars intermedia exposed at the internal auditory meatus, and the seventh nerve and the upper part of the eighth nerve cut. The result was a complete facial palsy and deafness of the left ear, but the patient had complete relief of pain. The facial palsy was slowly improving and hearing had been completely restored.

The Reflexes in Hysteria.—Dr. Philip Coombs Knapp of Boston said that Babinski had claimed that hysteria was incapable of modifying the tendon reflexes, and some of his followers had also contended that the skin reflexes were not altered. This was contrary to the old teaching that the skin reflexes were diminished over the anesthetic area, and that the tendon reflexes were often exaggerated on the paralyzed side in hysterical hemiplegia. He had studied the reflexes in 100 cases of hysteria in which there had been a diminution of sensibility on one side of the body. He took exceptions to Babinski's claim that such a hemianesthesia was due to unconscious suggestion by the physician. He had found some exaggeration of the tendon reflexes in 86 cases and considerable exaggeration in 41; a greater percentage than was found in normal persons. He felt very skeptical as to the existence of true ankle clonus, loss of knee-jerk or Babinski's reflex due to hysteria. The reflexes had been found to differ on the two sides in 76 cases. In 57 cases the tendon reflexes had differed on the two sides, the knee-jerk differing in 37 and the ankle-jerk in 30. In 38 cases the tendon reflex had been greater on the anesthetic side, in 19 on the sound side. The plantar reflex had been absent in only 2 cases out of 24, and the abdominal reflex had been diminished or lost in the anesthetic side in 24 cases out of 51. These cases, therefore, showed that hysteria apparently modified both the skin and tendon reflexes.

Primary Degeneration of the Pons, Cerebral Peduncles, Medulla, and to a Less Extent of the Cerebellum, Associated with Primary Degeneration of the Cortico-Spinal Tracts; with Autopsy.—Dr. T. H. Weisenburg and Dr. S. D. Ingham of Philadelphia presented this paper. Dr. Weisenburg, reading, said that a man of 42, with an unimportant family history, had developed a tremor of his entire body, with staggering and uncertain gait, headache, and dizziness, followed by increasing weakness and spasticity of the lower and then the upper limbs, and a gradual difficulty in talking, eating, and swallowing, with involuntary laughing and crying. There had been weakness of the tongue, palate, and facial muscles, but no fibrillary tremors or atrophy. Ataxic movements of the eyeballs had been present early. The reflexes had been everywhere increased with bilateral Babinski. The autopsy had shown a primary degeneration of the pons, cerebral peduncles, medulla, and cerebellum. There had been, besides, a primary degeneration of the cortico-spinal motor fibers.

Thrombosis of the Cervical Anterior Median Spinal Artery; Syphilitic Acute Anterior Poliomyelitis.—Dr. William G. Spiller of Philadelphia presented this paper and said that, with the exception of the case reported in this paper, he knew of no instance in which thrombosis had been demonstrated by necropsy to be confined to a small portion of the anterior cervical supply. The case was a contribution to syphilis as a cause of acute anterior poliomyelitis; to the position of the fibers of pain and temperature in the anterior part of the lateral columns and of the fibers of tactile sensation in the posterior columns; and to the pathology of brachial paraplegia. It demonstrated that occlusion of a limited portion of the anterior arterial system of the spinal cord or medulla oblongata produced a symptom-complex that should be capable of diagnosis even without necropsy. The case was as follows: About four years previous to his paralysis the patient had what was supposed to be spinal meningitis, from which he had recovered. He had been in excellent health, and was employed at the time the paralysis occurred in an ice house, and with another man had been lifting blocks of ice weighing about 100 pounds. Fifteen or twenty minutes after lifting the last block he had begun to have pain between the shoulders, and felt numb and weak in the upper extremities. Ten or fifteen minutes later he had felt weak and numb in the lower limbs. He had gradually recovered the use of the lower limbs, although they had remained somewhat spastic. He had normal sensation of touch everywhere. Sensations of pain and temperature had been much affected in the lower and upper limbs, and these limbs had been much wasted. The microscopic examination had shown that the lesion was thrombosis. The whole anterior part of the cord, from the fourth cervical to the first thoracic segment, inclusive, had been much degenerated. The pyramidal tracts had been only slightly

affected. The lesion affected the blood supply of the anterior part of the cord. The thrombosis had probably been syphilitic in origin.

Pathogenesis of Tabetic Arthropathies Based Upon the Anatomical and Histological Study of Two Cases.—Dr. Alfred Gordon of Philadelphia read this paper, saying that a degenerative state of the peripheral nerves was an essential element in the causation of the arthropathy, yet another factor was necessary, and this was trauma. In view of the hypotonia, loss of tendon reflexes, and loss of sensations, traumata of the joints might occur very readily and pass unnoticed. In two of his cases slight traumata had become the starting points for later arthropathies. The smallest nerve branches distributed within and around the affected articulations (knees and foot), also the blood vessels had been carefully examined microscopically. Identical nerve branches and blood-vessels had been taken from the unaffected side of the body and equally examined for the purpose of control. Degenerative conditions were found in the nerves on both sides; very slight changes were found in the blood-vessels. The conclusion was that, while degeneration of peripheral nerves was a *sine qua non* in the genesis of tabetic arthropathies, trauma was an indispensable element.

Saturday, May 29—Third Day.

Dr. F. W. Langdon, Second Vice-President, in the Chair.

Pain in Tabes Dorsalis an Important Differential Diagnostic Point from General Paresis.—Dr. E. D. Fisher of New York read this paper, saying that the pains of tabes were lightninglike and distributed in the peripheral nerves either in the upper or lower extremity; girdle or bandlike, and of a duller character either in the lumbar or dorsal region; or in the form of the paroxysmal crises of pain involving the various visceral organs, as the stomach, bladder, heart, etc. These pains in typical cases of general paresis were rare, though we had general paresis of the tabetic type; that is, with irregular spinal symptoms in which pain was present. He drew attention to this one symptom to emphasize his opinion that we had two distinct diseases in general paresis and tabes dorsalis.

The Surgical Treatment of Athetosis and Spasticities by Muscle Group Isolation.—This paper was prepared by Dr. Sidney I. Schwab and Dr. Nathaniel Allison, St. Louis, and presented by Dr. Schwab. Athetoid and spastic conditions of organic origin were essentially similar processes due to several factors; the essential mechanism was nervous in origin. The term "muscle group isolation" implied the isolation of the muscle or group of muscles at fault in the production of contracture deformity or athetosis. It was made effective by cutting off from the central nervous system the connection along which the abnormal impulses, active in causing spasticity or athetosis, were transmitted. This was done by isolating the nerve and injecting it with an alcoholic solution. There resulted an immediate paralysis of the physiologically stronger group of muscles, without interfering with the free muscular use of the antagonists. At this point physiological exercises, planned to strengthen further the antagonists, might be used.

Dr. B. Onuf of New York said he had observed that athetosis was essentially a symptom of diseases which had been acquired at a very early age. He had not seen a single case of athetosis in which the lesion which caused it had been acquired in adult life. He explained this to himself theoretically by assuming that there was an interruption in the pathways between the cortex and lower centers at an early date, and then these lower centers acquired a certain independence, and movements were acquired which were entirely independent of the will. If this was the case, then, if the offensive muscles were paralyzed for a period of six months, these lower centers might again forget and the cortical centers again gain their ascendancy.

Dr. Schwab said that in case of athetosis we not only paralyzed the muscles, but their sensory supply totally, because there was a theory that athetosis also depended upon the abnormal sensory impulse as well.

Hereditary Spastic Paraphlegia, with Report of Seven Cases.—Dr. John Punton of Kansas City, Mo., read this paper, saying that hereditary spastic paraplegia was comparatively rare. In the seven cases he reported heredity had been the chief etiological factor and had been of great diagnostic and prognostic value. The first group consisted of four cases, viz., the mother, aged 59, in whom the disease had had its onset after her marriage at the age of 23; a son, aged 34, in whom it had its beginning at 16; a son, aged 32, in whom it had begun at 15; a son, aged 24, in whom it had begun at 14 or 15. The second group consisted of three cases, viz., the mother, aged 43, in whom the disease had begun at 33; a daughter, aged 7 years, in whom it had begun at six years; a daughter, aged 5 years, in whom it had begun in infancy. As the disease was incurable, the only measures to be taken were prophylactic and consisted in discouraging marriage in persons with a tendency toward this disease.

Occupation Neuritis of the Thenar Branch of the Median Nerve; a Well-Defined Type of Occupation Atrophy of the Hand.—Dr. J. Ramsay Hunt of New York read this paper and said that a well-defined clinical type of atrophy of the hand resulted from an occupation neuritis of the thenar branch of the median nerve, which was induced by a compression of small motor branch of the median nerve, as it emerged from beneath the anterior annular ligament of the wrist. This thenar branch was purely motor, and innervated the abductor pollicis, opponens pollicis, and the outer head of the flexor brevis pollicis. This group of cases was characterized clinically by a sharply defined atrophy, confined to the distribution of this nerve. The thenar eminence presented a "scooped-out" depression, lying between the outer border of the first metacarpal bone and the inner head of the flexor brevis pollicis. There were present well-marked reactions of degeneration in the affected muscles, and objective sensory disturbances in the distribution of the median nerve were absent. This type of atrophy interfered very little with the usefulness of the hand, as all the other muscle groups were normal. He also called attention to another well-defined type of occupation atrophy of the hand, described by him, which was dependent upon an occupation neuritis of the deep palmar branch of the ulnar nerve as it passed between the tendinous origins of the abductor minimi digiti, and the flexor brevis minimi digiti. In this type all the intrinsic muscles of the hand were paralyzed, with the exception of those which are supplied by the median nerve, and here, as in the thenar type of occupation atrophy, sensory disturbances were entirely absent, the deep palmar branch of the ulnar being a purely motor nerve. The importance of these two types of occupation (motor) neuritis became immediately apparent from the resemblance which they bore to the Aran-Duchenne type of spinal atrophy. This resemblance was enhanced by the well-known fact that progressive muscular atrophy, beginning in the small muscles of the hand, not infrequently developed with occupations necessitating an over-activity of these members. There was no question but that cases which belonged to one or the other of these two groups of occupation atrophies without sensory disturbances were not infrequently erroneously diagnosed as spinal atrophies. Hence their clinical and diagnostic importance.

Horizontal Oscillation of the Eyeball in Paralysis of the Orbicular Branches of the Facial Nerve.—Dr. L. Pierce Clark and Dr. H. H. Tyson of New York presented this paper, saying that it was fairly well known

that in Bell's palsy the upward and inward or outward rotation of the eyeball was a physiological act, and was not pathognomonic of any special type of palsy, as it might be shown in a normal person. Schlesinger had reported one case of horizontal oscillation and a few other observers had noted the same phenomenon. It consisted of a see-saw oscillatory movement of 40 to 60 vibrations a minute when a persistent, forceful attempt was made to close the lids, the opposite eye participating in the movement. They reported three cases. The explanation was as difficult as that for ordinary nystagmus.

How Should the Paroccipital Fissure Be Represented in Fissural Diagrams?—Dr. BURT G. WILDER of Ithaca, N. Y., presented this paper, saying that commonly this and the parietal fissure were interpreted and represented as, respectively, the occipital and horizontal components of the intraparietal fissural complex. In apes and monkeys, young and adult, they were always; the fetal conditions were unknown. In the human fetus they always commenced independently and remained separate in about 40 per cent. of hemicerebrums, but united sooner or later in the other 60. In many, perhaps most, of the cases of superficial continuity the original isthmus might be recognized as a more or less deeply submerged vadum or shallow, and it was a fair question whether cases in which the fissure at this point was less than one-half the greatest depth at either side should not be regarded as cases of separation rather than continuity. Superficial continuity was two or three times as common as separation on the left side, but on the right separation was more common, about 55 per cent. In the light of existing knowledge, the writer concluded that fissural diagrams should include the dorsocaudal aspect of this region, with continuity of the two fissures on the left and separation on the right; when only one lateral aspect was shown the fissures should still be separate, but there should be a statement as to the conditions in the lower primates and in the human fetus and average adult.

The Herpes Zoster Oticus: A Study of the Zoster Zones of the Geniculate Ganglion of the Facial and the Jugular Ganglion of the Vagus.—Dr. J. RAMSAY HUNT of New York presented this paper, in which he called attention to the herpetic inflammations of the geniculate ganglion of the facial nerve, a syndrome described by him before the association three years ago. The present study was an attempt to define more accurately the zones of the geniculate area and to differentiate the geniculate zone from the zones of the glossopharyngeal and the jugular ganglion. Three kinds of evidence were considered: anatomical, embryological, and clinical. The latter was based on the analysis of twenty-five cases of isolated herpes oticus, which included six personal observations. In consideration of this evidence, he believed that the geniculate area was represented on the following anatomical landmarks of the ear: The external meatus, concha, tragus, antitragus, antihelix, fossa of the antihelix and the external surface of the lobule; that the zones for the jugular ganglion of the vagus and the petrous ganglion of the glossopharyngeal were represented on the posterior portion of the tympanic membrane, and the posterior wall of the auditory canal, as well as a cutaneous strip on the posteromesial surface of the auricle and the adjacent mastoid region. The other portions of the auricle, anteriorly and posteriorly, corresponded to the Gasserian and cervical zones, respectively. Attention was also called to the occasional occurrence of an eruption on the anterior two-thirds of the tongue and soft palate in cases of facial palsy. It was very probable that the facial nerve had a vestigial sensory innervation within the buccal cavity in these distributions, and it was quite possible that such cases were to be explained by herpetic lesions in the geniculate ganglion, although a neuritic origin for this distribution could not be entirely excluded. It was especially emphasized that this attempt to differentiate the zones of the auricle was entirely a preliminary one, and that at the present time, with the material at hand, it was quite impossible to do more than to indicate their probable areas. The clinical importance of herpes zoster oticus was indicated, and the significance of the "zoster" method in determining the zoster zones of the seventh, ninth, and tenth nerves in the auricle. Attention was also directed to the facial palsy and auditory disturbances which so frequently accompanied herpes oticus; also the possibility of pneumogastric disturbances which so frequently accompanied herpes oticus; also, the possibility of pneumogastric disturbances in this group of cases. He also believed that the ganglia of the auditory nerve, the ganglion of Scarpa, and the ganglion spirale, might be primarily involved in zoster symptoms of Ménière's disease.

Dreams as a Diagnostic and Therapeutic Aid.—Dr. B. ONUF of New York read this paper and stated that aid might be obtained from the study of the amalgamation, or mixture, of two or more different characters into one which occurred in a dream; also by noting the reversal of roles played by different characters of real life in dreams. Assistance in treatment of certain conditions might be secured by suggesting a dream to take place in a hypnotic or post-hypnotic condition. For example, in case of a woman who had had an aversion to beans and sweet cabbage, which appeared to be purely psychic, it had been suggested that she dream in a hypnotic state that she was eating these articles with great relish. The result was temporarily what was desired.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY.

June 15, 16, and 17, 1909.

ANATOMY.

Answer any ten questions, but no more.

1. What change takes place in the vascular system at birth?
2. Describe the structure of the arteries and give their nerve and blood supply.
3. How are the saphenous veins formed and where do they empty?
4. Give blood and nerve supply of the tonsils.
5. Describe the renal blood circulation.
6. Describe the sphincter ani externus.
7. How may the fissures of the Sylvius and Rolando be approximately mapped out on the surface of the skull?
8. What would be the collateral circulation if the brachial artery were ligated *below* its profunda branches?
9. Describe the dura mater, and mention the processes and sinuses of it.
10. What nerves form the pharyngeal plexus?
11. Give origin, course, and distribution of the nerves of the palm of the hand.
12. Mention a muscle which moves (*a*) the thumb outward, (*b*) the head forward, (*c*) the foot inward.
13. Give origin, insertion, blood and nerve supply, and action of any one of the following muscles: Gracilis, pectoralis major, semimembranosus.
14. Give a general idea of the internal structure of the cerebrum.
15. Outline on the chest wall (*a*) the lungs, (*b*) the vena cava superior, (*c*) the arch of the aorta, (*d*) the left pulmonary artery.

PHYSIOLOGY.

Answer any ten questions in this paper, but no more.

1. Name the uses of the bile.
2. Name the circulating fluids of the body, and state the functions of each.
3. Define tidal and residual air, and state their normal quantity.
4. Define hemoglobin: state its functions and where it is found.

5. What effect does diet have upon the secretion and quantity of milk?
6. State the functions of the thyroid body and the effects of its removal.
7. Why does blood coagulate? Does lymph coagulate, and, if so, why? What chemical change is essential in either case?
8. Where is the respiratory center? What nerves are given off from it? What does each do?
9. State in order of importance the tissues in which animal heat is generated and by which it is given off.
10. Which of the following are secretions and which are excretions? Aqueous humor, tears, bile, cerebrospinal fluid, urine, perspiration, prostatic fluid.
11. State the immediate and remote effect of cutting the sciatic nerve.
12. State the causes of bodily fatigue.
13. What is a superficial reflex? What is a deep reflex? Name four examples of each.
14. Why does heat prostration occur more readily in a humid atmosphere than in a dry one?
15. State functions of the anterior and posterior spinal nerves. How many pairs are there?

MATERIA MEDICA AND THERAPEUTICS.

Answer any ten questions, but no more.

1. Name (*a*) the officinal preparations of aconite, (*b*) adult dose of each, (*c*) medicinal uses, and (*d*) therapeutic effects.
2. State (*a*) the indications for the use of strychnine, (*b*) dosage for adults, and (*c*) symptoms and treatment of poisoning.
3. What purgatives act (*a*) on the small intestines, (*b*) on the large intestines, and (*c*) dosage of each?
4. (*a*) Enumerate the arsenical preparations used in medicine; (*b*) state their therapeutic properties with adult dose of each.
5. Write a prescription based upon a diagnosis of acute ptomain poisoning.
6. (*a*) Explain the difference between galvanic and faradic current; (*b*) mention the classes of cases for the employment of each.
7. Specify the effect on the arterial system of (*a*) nitroglycerin, (*b*) aconite, (*c*) digitalis, (*d*) veratrum viride, and (*e*) strophanthus.
8. Describe (*a*) the Widal serum test and (*b*) state its value and purpose in diagnosis.
9. Compare (*a*) the physiological action and (*b*) the dosage of podophyllin, cascara sagrada, and aloin.
10. Discuss the therapeutic uses and effects of (*a*) acetanilid, (*b*) heroin, and (*c*) terebene; give dosage of each.
11. Specify (*a*) the method and (*b*) the effects of administering oxygen in pneumonia.
12. Differentiate the symptoms of poisoning by morphine, carbolic acid, and arsenic.
13. Give (*a*) the source, (*b*) therapeutic effect, and (*c*) dosage of pilocarpine.
14. Mention (*a*) three vegetable and (*b*) three mineral astringents with therapeutic employment and adult dose of each.
15. Discuss calomel in respect to (*a*) source, (*b*) effects, (*c*) dosage, and (*d*) incompatibilities.

CHEMISTRY.

Answer any ten questions, but no more.

1. Give the composition and properties of urea.
2. Mention the chemical reason for using lithia and its salts in cases of uric-acid diathesis.
3. What is the normal composition of urinary calculi?
4. Define fermentation, putrefaction, decay.
5. Mention the chemical name for white arsenic, properties and uses.
6. Explain the atomic theory.
7. What is the chemical composition of bone?
8. Name the principal pigment of normal urine.
9. What may very high or very low specific gravity of urine indicate?
10. Give the chemistry of respiration, showing what is inhaled, what is exhaled, and how the gases enter and leave the blood.
11. Define specific gravity.
12. What are the properties of bile? Give the chief constituent.
13. Explain the meaning of the terms reaction and reagent.
14. Give Marsh's test.
15. What is the difference between vegetable and animal life from the chemical standpoint?

HISTOLOGY, BACTERIOLOGY, AND PATHOLOGY.

Answer only ten questions, and not less than three on each branch.

Histology.

1. Name the varieties of muscle, and what are the differences between them?
2. Describe the general characteristics of epithelium.
3. Describe non-medullated nerve-fibers and tell where they occur.
4. How do veins differ from arteries?

Bacteriology.

5. State briefly a method of obtaining a pure culture.
6. Describe a process by which bacteria multiply.
7. Give Koch's rules in regard to the bacterial cause of disease.
8. Why does the air contain more bacteria in Summer than the air in Winter?
9. Differentiate between the bacillus coli communis and the bacillus of typhoid fever.
10. Define immunity; susceptibility.

Pathology.

11. Describe the lesions of the kidney cortex in acute diffuse nephritis.
12. Describe the microscopic appearances of the tissues affected in tuberculous pleuritis.
13. What are the lesions in infantile scurvy?
14. Give the pathology of chronic interstitial hepatitis.
15. Give the pathology of gastric ulcer.

PRACTICE OF MEDICINE.

Answer any ten questions, but no more.

1. Describe autointoxication.
2. Describe ulcerative keratitis.
3. Describe a case of cholelithiasis.
4. Differentiate melancholia and dementia.
5. Describe Widal's serum test and its value.
6. Describe a case of cerebrospinal meningitis.
7. Describe a case of incipient tuberculosis of the lung.
8. How does paralysis of the third nerve effect the eye?
9. Describe (1) functional and (2) organic heart murmurs.
10. Describe râles and give the location and significance of each.
11. Describe renal casts and give the location and significance of each.
12. Describe, (1) vesicular and (2) bronchial breathing, and in what condition does the latter replace the former?
13. Describe, step by step, an uncomplicated case of lobar pneumonitis terminating in recovery.
14. Describe the eruption of (1) measles, (2) scarlet fever, (3) smallpox, (4) chickenpox, and (5) typhoid fever.
15. Differentiate the coma of (1) opium poisoning, (2) alcoholism, and (3) compression of the brain from fracture of the skull.

SURGERY.

Answer any ten questions, but no more.

1. How would you treat fracture of the internal condyle of the humerus?
2. Give indications for inguinal colostomy. Describe the operation.
3. Accidents of anesthesia? How guarded against? How treated?
4. Diagnosis and treatment of varicocele.
5. Give diagnosis and treatment of empyema.
6. Diagnosis of cancer of the stomach.
7. Define volvulus; give treatment.
8. Describe how you would close the abdomen after median section.
9. Symptoms and treatment of dislocation of the semilunar cartilages of the knee-joint.
10. Diagnosis of renal tuberculosis.
11. Discuss septicemia.
12. Give treatment of ophthalmia neonatorum.
13. Give causes, symptoms, and treatment of mastoiditis.
14. Describe technique of operation for carcinoma of the breast.
15. Treatment of syphilis.

OBSTETRICS AND GYNECOLOGY.

Answer any ten questions, but no more.

1. Describe pelvimetry, its uses, and name five of the most important measurements.
2. Tell the method of diagnosing (*a*) ordinary pregnancy, (*b*) multiple pregnancy, (*c*) ectopic pregnancy.
3. Name the various uses to which the tampon may be

put in obstetrical practice and the kind and method of use in the several conditions for which you advise it.

4. Describe the third stage of labor, the dangers which attend it and outline your method of conducting it.

5. Describe the urinary changes during pregnancy.

6. Through what agencies may puerperal infection occur?

7. Describe the principal varieties of puerperal infection and briefly outline laceration.

8. Describe the operation for immediate repair of a complete perineal laceration.

9. Describe three operative measures for the relief of prolapsus uteri.

10. Describe uterine curettage and name three conditions which call for it.

11. Describe the operation for (*a*) ventral suspension of the uterus, (*b*) ventral fixation.

12. What is the Alexander operation and the reasons for or against it?

13. Name the different types of uterine hemorrhage and their causes.

14. Outline treatment for any one type of uterine hemorrhage.

15. What causes pyosalpinix, and what is the proper treatment?

HYGIENE AND MEDICAL JURISPRUDENCE.

Answer any ten questions, but no more.

1. Define disinfectants, deodorants, and germicides. What disinfectants are efficient where spores are found?

2. How do you calculate the annual birth and death rate of a given community? Give illustration, *e.g.:* Last year there were 1,324 deaths and 1,075 births in Trenton, having a population of 90,000; give rate there.

3. Give Pettenkofer's method of determining the percentage of carbon dioxide in the air.

4. What do you mean by hard water? Give tests for relative hardness of water.

5. Describe good milk; give test for same. What sophistications and adulterations are usual?

6. Name the usual quarantinable disease and requirements for each at quarantine.

7. Give directions for making cultures in suspected cases of diphtheria.

8. (*a*) Describe hygiene and sanitary science.
(*b*) Subdivisions of hygiene.
(*c*) Development of hygiene.
(*d*) Uses of hygiene to the public.

9. Describe and give uses of the barometer, thermometer, hygrometer, psychrometer, and anemometer.

10. Give influence of humidity, wind, clouds, and climate upon the health.

11. Define the duties of a school physician.

12. How would you proceed to prevent or overcome malaria in any district?

13. Give different systems of house heating, with advantages and disadvantages of each.

14. Describe potable water; give natural sources and varieties of water with characteristics of each.

15. What impurities are found in water? What are their effects upon the animal economy?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY.

June 15, 16, and 17, 1909.

ANATOMY.

1. *The changes which take place in the vascular system at birth:* The hypogastric arteries become obliterated; the foramen ovale closes; the Eustachian valves atrophy; the ductus arteriosus and ductus venosus atrophy and become impervious; umbilical vein becomes obliterated.

2. Nerve supply of arteries: Nervi vasorum.
Blood supply of arteries: Vasa vasorum.

3. The SAPHENOUS VEINS are formed from the dorsal venous arch.

The *internal saphenous* begins at the inner end of this arch, on the inner side of the foot; it passes upward in front of the internal malleolus, then upward and backward with the internal saphenous nerve, behind the internal condyle of the femur, then upward and outward to the inner side of front of thigh, through the saphenous opening, to empty into the femoral vein.

The *external saphenous* begins at the outer end of the arch, on the outer side of the foot; it passes upward behind the external malleolus, up along the outer side of the tendo Achillis, with external saphenous nerve, to the popliteal space, where it enters the popliteal vein.

4. TONSILS. *Blood supply:* Ascending palatine, tonsillar, ascending pharyngeal, descending palatine, and dorsalis linguæ arteries.

Nerves: Tonsillar plexus, formed from glossopharyngeal and pharyngeal plexus.

7. To locate the *fissure of Sylvius*, draw a line from a point one and a quarter inches behind the external angular process of the frontal bone and the same distance above the zygoma, to a point three-quarters of an inch below the most prominent part of the parietal eminence. (a) The main fissure will correspond to the first three-fourths of an inch along this line; (b) the horizontal limb will correspond to the rest of this line; (c) the ascending limb will correspond to a line one inch long, going upward (parallel to the coronal suture) from the junction of (a) and (b).

Draw a straight line over the top of the scalp from the inion to the glabella; bisect this line, and half an inch posterior to the midpoint draw a line downward and forward at an angle of 67.5° for a distance of three and one-half inches. This line will represent the location of the *fissure of Rolando.*

8. If the brachial artery is ligated below its profunda branches, the collateral circulation is carried on by the branches of the superior and inferior profunda arteries anastomosing with the recurrent branches of the radial, ulnar, and interosseous arteries.

9. DURA MATER. *Processes:* Falx cerebri, falx cerebelli, tentorium cerebelli, and diaphragma sellæ.

Sinuses: Superior longitudinal, inferior longitudinal, straight, lateral, occipital, cavernous, circular, transverse, superior petrosal, inferior petrosal.

10. The *pharyngeal plexus* is formed by filaments from the pharyngeal branches of the glossopharyngeal, pharyngeal branches of pneumogastric and sympathetic nerves.

12. (*a*) Extensor ossis metacarpi pollicis; (*b*) Rectus capitis anticus major; (*c*) Tibialis anticus and posticus acting together.

PHYSIOLOGY.

1. The uses of the bile are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach, and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

2. The circulating fluids of the body are blood and lymph.

The *functions of the blood as a whole* are: To distribute nourishment, oxygen, and the internal secretions to the tissues of the body; to remove carbon dioxide and other waste matters from the tissues so that they may be excreted by the lungs, kidneys, and skin; to regulate the body temperature. In addition, the *white corpuscles* serve as a protection to the body from the incursions of pathogenic microorganisms; they take some part in the process of the coagulation of the blood; they aid in the absorption of fats and peptones from the intestine, and they help to maintain the proper proteid content of the blood plasma.

The *functions of the lymph* are: To provide the tissues with material necessary to their functional activity, growth, and repair; to receive from the tissues their waste products, and to convey the products of digestion and absorption to the blood current.

3. *Tidal air* is the air which is constantly passing in and out of the lungs during ordinary calm respiration. It measures about 30 cubic inches.

Residual air is the air which still remains in the lungs after the deepest expirations. It measures about 100 cubic inches.

4. *Hemoglobin* is the coloring matter of the blood; it is found in the red corpuscles; it is crystalline, reddish in color, very complex, and contains iron. Its function is to carrry oxygen from the lungs to the tissues of the body.

5. Too little food decreases both the quantity of milk and the percentage of solids. An ample diet increases both the quantity of milk and the percentage of solids. Abundance of proteids in the food increases the fat in the milk; so also does fat in the food, if it is well digested. Watery food increases the amount of milk, but diminishes the percentage of solids.

6. The *function of the thyroid* is not definitely settled; (1) it has some trophic function, regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the

sexual functions; (2) it is supposed to antagonize toxic substances; and (3) it produces an internal secretion.

Removal of the thyroid gland causes mental and bodily dullness and apathy, tremors, twitchings, overgrowth of the connective tissues, and development of fat; the hairs fall out, and the patient becomes unwieldy and clumsy in both body and mind. The complete removal causes death in most animals, and it is not considered justifiable in man.

7. The coagulation of the blood is due to the development in it of fibrin. In the plasma a proteid substance exists, called Fibrinogen. From the colorless corpuscles a nucleoproteid is shed out, called Prothrombin. By the action of calcium salts prothrombin is converted into fibrin ferment, or Thrombin. Thrombin acts on fibrinogen in such a way that two new substances are formed; one of these is unimportant and remains in solution; the other is important, viz., Fibrin, which entangles the corpuscles, and so forms the clot. Lymph also coagulates, but less rapidly, because there is much less fibrinogen present.

8. The *respiratory center* is in the medulla, at the apex of the calamus scriptorius. (Subsidiary centers are also found in the spinal cord.)

9. *Heat is produced in the body* by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord.

Heat is given off from the body by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.

10. They are all secretions, but urine is also (and chiefly) an excretion; perspiration and bile are also excretions.

11. *Immediate effects of cutting the sciatic nerve* would be: Loss of motion in all the muscles below the knee; also in biceps, semimembranosus, semitendinosus, and adductor magnus; anesthesia in same parts; vasomotor disturbances (the limb becoming first hyperemic, later colder and with diminished blood supply).

The remote effects would be: The divided ends retract and become bulbous; Wallerian degeneration occurs in the peripheral part; the affected muscles atrophy and the "reaction of degeneration" is observed; trophic changes occur in the skin.

12. *Causes of bodily fatigue:* Presence of sarcolactic acid and acid potassium phosphate in the muscle; using up of the material from which the energy is obtained, and accumulation of waste products.

13. *Superficial reflexes* are such as can be elicited by stimulating the skin. *Four examples:* The cremasteric reflex, plantar reflex, gluteal reflex, and abdominal reflex.

Deep reflexes are such as are elicited by stimulating tendons or muscles. *Four examples:* The patellar reflex ankle clonus, Tendo Achillis reflex, and triceps reflex (elbow jerk).

15. The *anterior* roots of the spinal nerves are efferent and motor, and cause contraction of the muscles to which the nerves are distributed.

The *posterior* roots of the spinal nerves are afferent and sensory, and are distributed to the skin.

There are thirty-one pairs of spinal nerves.

MATERIA MEDICA AND THERAPEUTICS.

1. ACONITE. (*a*) and (*b*) *Official preparations, with adult dose:* Fluid extract, ♏j; tincture, ♏x. (*c*) *Medicinal uses:* For fevers, some inflammatory conditions, in high arterial tension, in nervous palpitation of the heart, and congestive dysmenorrhea; also externally for neuralgia, pruritis, herpes, chilblains, etc. (*d*) *Therapeutic effects:* First stimulates and then paralyzes heart and also sensory nerves; lowers blood pressure; dilates peripheral blood vessels; is a respiratory sedative; reduces body temperature; is a diuretic and diaphoretic.

2. STRYCHNINE. (*a*) *Indications for use:* Impaired digestion, cardiac weakness, pneumonia, phthisis, amenorrhea, dysmenorrhea, impotence, some forms of paralysis, chorea, epilepsy, neuralgia, insomnia, alcoholism. (*b*) *Dosage:* 1/64 grain. (*c*) The *symptoms of poisoning by strychnine* are "a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes, and death in from five minutes to six hours, usually within two hours."

Treatment: "The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out and the patient is to be kept as quiet as possible."—(Witthaus' *Essentials of Chemistry.*)

4. The official preparations of arsenic, with their doses, are: Arseni trioxidum, gr. 1 30; Liquor acidi arsenosi, ♏vij; Arseni iodidum, gr. 1 20; Sodii arsenas, gr. 1 6; Sodii arsenas exsiccatus, gr. 1/20; Liquor potassii arsenitis, ♏vij; Liquor sodii arsenatis, ♏v; Liquor arseni et hydrargyri iodidi, ♏vij.

7. (*a*) *Nitroglycerin* dilates the arteries; (*b*) *Aconite* dilates the arteries; (*c*) *Digitalis* constricts the arteries; (*d*) *Veratrum viride* dilates the arteries; (*e*) *Strophanthus* constricts the arteries.

8. See below: PRACTICE OF MEDICINE, question 5.

9. *Podophyllin* is a slow, drastic, cholagogue cathartic; dose, gr. 1 4.

Cascara sagrada is a simple laxative; dose, gr. xv.

Aloin is a cholagogue purgative, acting mainly on the large intestine; dose, gr. j.

13. Pilocarpine hydrochloride is derived from Pilocarpus Jaborandi. The dose is gr. 1 5. It causes increase of saliva and of perspiration; increased peristalsis; it increases and then diminishes blood pressure and heart action; it causes the pupil to contract, and depresses the nervous system. It is used in Bright's disease, uremia, and whenever a prompt diaphoresis is required.

CHEMISTRY.

Urea has the formula $CO(NH_2)_2$; it "crystallizes in transparent needles or four-sided prisms, without Aq; permanent in air; odorless, having a cooling, slightly bitter taste, resembling that of saltpeter. Soluble in an equal weight of cold water, very soluble in boiling water and in five parts of cold water or one part of hot alcohol, the solutions being neutral in reaction. At 248° F. it melts, and slightly above that temperature is decomposed. It is found in the blood, chyle, lymph, humors of the eye, saliva, perspiration, bile, milk, serous fluids, amniotic and allantoic fluids, and especially in the urine.

"It is the principal product of the oxidation of protein substances in the animal body, and is the form in which most of the nitrogen is excreted."

2. Lithia and the salts of lithium are used in cases of uric acid diathesis, because: (1) They diminish the acidity of the urine; (2) they have a diuretic action; (3) they hasten the excretion of the urates; (4) and so prevent the accumulation of gravel and the formation of calculi; (5) the lithium salt of uric acid is the most soluble of all the urates.

3. The *normal composition of urinary calculi* is: Uric acid, sodium urate, ammonium urate, calcium oxalate, calcium phosphate, or ammoniomagnesium phosphate. More rarely: Cystin, xanthin, urates of potassium, calcium, or magnesium.

4. *Fermentation* is the decomposition of organic matter containing carbon, hydrogen, and oxygen only: it occurs in presence of a ferment. When it also contains nitrogen and sulphur the process is called *Putrefaction.*

Decay is slow combustion without the emission of light.

5. The chemical name for white arsenic is arsenic trioxide. It is a white, odorless substance; it has a faint metallic taste, is with difficulty soluble in water; it takes up oxygen readily. It is used in the manufacture of green pigments and of glass; as a vermin poison: to preserve material for dissection.

6. The atomic theory regards matter as not being infinitely divisible, but as being composed of indivisible particles called atoms. Dalton, by ascribing to each atom a relative weight as compared with the weight of other atoms, was able to explain and produce reasons for all the observed numerical laws of chemical combination.

7. The *chemical composition of bone* is: Tricalcic phosphate, magnesium phosphate, calcium carbonate, ferric phosphate, and organic matter (chiefly gelatinous matter).

8. The *principal pigment of normal urine* is urochrome.

9. *High specific gravity* of the urine may indicate: Diabetes mellitus, fevers, and chronic parenchymatous nephritis.

Low specific gravity of the urine may indicate: Diabetes insipidus, chronic interstitial nephritis, contracted kidney, some nervous disorders, albuminuria, hysteria

Transitory low specific gravity may indicate: Hysteria, or some nervous disorders, or the ingestion of an abnormal amount of fluids.

11. *Specific gravity* is the weight of any substance as compared with the weight of an equal volume of another substance taken as a standard under like conditions of temperature and pressure.

12. The *properties of bile* are: A greenish or brownish fluid, alkaline or neutral reaction, sweetish-bitter taste Specific gravity of about 1030, and it contains about 10 or 12 per cent of solids. The chief constituents are water and sodium glycocholate, sodium taurocholate, and pigments.

13. *Reaction* has two meanings: (1) The interaction of two or more substances causing a chemical decomposition; (2) the action of substances upon certain organic pigments, such as litmus.

Reagent is a substance used to bring about a reaction (first meaning above).

14. *Marsh's test for arsenic:* This test depends on the fact that arsenic hydride is formed when nascent hydrogen acts on a compound of arsenic:

$$H_3AsO_3 + 3H_2 = AsH_3 + 3H_2O.$$

A small flask fitted with thistle funnel and a delivery tube, as for the production of hydrogen, is used; pure zinc and hydrochloric acid are introduced, and after a short time the hydrogen is ignited. It is advisable to cover the flask with a cloth before igniting the gas, as an explosion may happen unless the air has all been driven out. If the materials are pure the hydrogen flame gives no deposit upon a piece of cold porcelain brought into it, but commercial zinc usually contains arsenic. When the purity of the gas is proved, a little solution of arsenite may be poured down the thistle funnel, which will produce a more rapid evolution of gas, and the flame will become larger and perceptibly colored. A piece of cold porcelain depressed upon the flame will be covered with a deposit of metallic arsenic. The films of arsenic are metallic looking in the thicker places, brownish near the edges; they are easily volatized by heat, and dissolve in solution of bleaching powder. A portion of the glass tube from which the gas is burned should be heated to redness ;the gas decomposes and a deposit of arsenic appears on the tube, which may be identified in a similar way, or may be converted into crystals of oxide by cautious sublimation in an open tube.—(Fisher's *Elementary Chemistry.*)

15. *In vegetable life* the metabolic changes are chiefly synthetic; the plant absorbs water and carbon dioxide and builds up complex substances.

In *animal life* the metabolic changes are chiefly analytic; the animal takes as food complex substances and splits them into simpler substances.

HISTOLOGY, BACTERIOLOGY, AND PATHOLOGY.

5. *To make a pure culture:* "All that is necessary is to inoculate the liquefied gelatin with the mixture of bacteria, and after thorough agitation so as to separate each cell from its neighbor, to pour the liquid on to the surface of a sterile plate. The gelatin now solidifies and imprisons, as it were, the separated cells. Each of these now multiplies and reproduces its kind; eventually, in the course of a day or two, a small growth, perhaps of the size of a small pinhead, appears. This is called a colony, and since it is derived from a single cell it constitutes a pure culture. Such is the principle of the dilution method for obtaining pure cultures. The isolation once accomplished, all that is necessary is to transplant the colony to sterile culture media so as to keep up the growth."—(*Reference Handbook of the Medical Sciences.*)

6. Bacteria multiply by fission. A bacterium about to divide seems to be larger than normal, and if it is a coccus it becomes more ovoid; changes occur first in the nucleus, and the bacterium just falls in two. It has been calculated that a single bacterium could, by fission, produce two in one hour. Fortunately, they seldom obtain food enough to keep up this process for any length of time.

7. Koch's law in regard to the bacterial cause of disease is: (1) The microorganism must be found in the tissues, blood, or secretions of a person or animal sick or dead of the disease; (2) the microorganism must be isolated and cultivated from these same sources; it must also be grown for several generations in artificial culture media; (3) the pure cultures, when thus obtained, must, on inoculation into a healthy and susceptible animal, produce the diseases in question, and (4) the same microorganisms must again be found in the tissues, blood, or secretions of the inoculated animal.

9. *Cultural characteristics that differentiate the colon bacillus and the typhoid bacillus:* (1) On gelatin plates the colonies of typhoid develop more slowly than those of colon bacillus.

(2) the colon bacillus causes fermentation with production of gas in media which contain sugar; the typhoid bacillus does not.

(3) The colon bacillus produces a strong acid reaction and coagulates milk within twenty-four to forty-eight hours; the typhoid bacillus does not coagulate milk.

(4) In peptone solution the colon bacillus produces indol; the typhoid bacillus does not.

(5) The typhoid bacillus gives the Widal reaction with typhoid serum; the colon bacillus does not.

10. *Immunity* is the power of resistance of cells and tissues to the action of pathogenic microorganisms.

Susceptibility is the quality or condition of being liable to take a disease; it is the converse of immunity.

PRACTICE OF MEDICINE.

1. *Autointoxication* is the condition in which a person is (being) poisoned by the reabsorption of the waste products of his own metabolism, which should have been excreted. The source of the toxins producing this condition is the body of the person so suffering.

4. *Melancholia* is a form of insanity in which the patient suffers from excessive mental depression.

"*Dementia,*" when confirmed, consists in a total absence of all reasoning power and an incapacity to perceive the true relations of things: the language is incoherent and the actions are inconsistent; the patient speaks without being conscious of the meaning of what he is saying; memory is lost, and sometimes the same word or phrase is repeated for many hours together; words are no longer connected in meaning, as they are in mania and monomania."—(Taylor's *Medical Jurisprudence.*)

5. The Widal test for typhoid fever "depends upon the fact that serum from the blood of one ill with typhoid fever, mixed with a recent culture, will cause the typhoid bacilli to lose their motility and gather in groups, the whole called 'clumping.' Three drops of blood are taken from the well-washed asceptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. * * * A positive reaction is obtained when all the bacilli present gather in one or two masses or clumps, and cease their rapid movement inside of twenty minutes."—(From Thayer's *Pathology.*)

Its diagnostic value is believed by some to be great; others place little reliance on it. It may be absent in cases of typhoid fever; it may be present for several months after an attack of typhoid; the reaction may not be obtained till the third week of the disease; it may be present in other diseases or in perfectly healthy persons. The above have all been urged as objections; certainly only positive results have any value at all.

7. The early manifestations of pulmonary tuberculosis are: (1) *Physical signs:* Deficient chest expansion, the phthisical chest, slight dullness or impaired resonance over one apex, fine, moist râles at end of inspiration, expiration prolonged or high pitched, breathing interrupted. (2) *Symptoms:* General weakness, lassitude, dyspnea on exertion, pallor, anorexia, loss of weight, hemoptysis, slight fever, and night sweats.

8. In *paralysis of the third nerve:* Ptosis, outward deviation of the eye, paralysis of accommodation, diplopia, dilated pupil, and slight exophthalmos are present.

9. *Organic murmurs* are due to stenosis or incompetency of one or more of the valves of the heart.

Functional murmurs are not due to valvular disease. *Organic murmurs* may be systolic or diastolic; may be accompanied by marked dilatation or hypertrophy, and there will probably be a history of rheumatism or of some other disease capable of producing endocarditis. Whereas a murmur, usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a *hemic* or *functional* murmur, and denotes as a rule an impoverished condition of the blood.

HYGIENE AND MEDICAL JURISPRUDENCE.

1. *Disinfectants* are agents which restrain infectious diseases by destroying or removing their specific poisons.

Deodorants are substances which destroy the odorous products of putrefaction.

Germicides are agents which destroy bacteria and their germs.

Where spores are found the prolonged application of steam under pressure, or fractional sterilization, will be found efficient.

2. From the figures given the *birth rate* in Trenton would be:

$$\frac{1{,}075 \times 1{,}000}{90{,}000} = 11.9 \text{ per thousand.}$$

Similarly, the *death rate* would be:

$$\frac{1{,}324 \times 1{,}000}{90{,}000} = 14.7 \text{ per thousand.}$$

3. *Pettenkofer's method of determining the percentage of carbon dioxide in the air:* A large cylindrical container of known capacity, say, 15 litres, is filled with the air to be examined; a known volume of barium hydroxide is then added and shaken up with the air. The carbon dioxide combines with the barium hydroxide to form a barium carbonate, which is insoluble, and also incapable of acting upon an indicator. The barium hydroxide employed is of known strength, *e. g.*, it may be of such strength that 1 c.c. of the solution neutralizes 1 c.c. of carbon dioxide at normal temperature and pressure. If then we find that 10 c.c. of the barium hydroxide has been neutralized by the carbon dioxide present in the air, we know that 10 c.c. of carbon dioxide is present in 15 litres or 15,000 c.c. of the air examined.

4. A water is said to be hard when it contains in solution certain salts, such as calcium and magnesium salts, which are capable of acting upon soap and forming with it a curdy deposit.

To measure the relative hardness of water a standard soap solution is carefully added to a definite volume of the water until a thin, beady lather is produced. The amount of soap solution which must be added to produce this lather increases with the hardness of the water.

5. *Milk may be sophisticated or adulterated* by: (1) Skimming; (2) the addition of water; (3) the addition of coloring matter, such as caramel, annatto, or methyl orange; (4) the addition of preservatives, as boric acid, formaldehyde, salicylic acid, or salicylates; (5) the addition of arrowroot, flower, sugar, glycerine, chalk, or sodium carbonate.

12. *Prophylaxis of malarial fever.* Individuals should use mosquito netting round their beds and wire gauze in doors and windows, so as to keep out the mosquitos as much as possible. During residence in malarial districts quinine should be taken every morning before breakfast. All pools, stagnant water, etc., where *anopheles* may breed, should be removed. All mosquitos, larvæ, etc., should be destroyed as far as possible. By staying indoors during dusk and darknesss, opportunities for infection may be avoided. Occasional fumigation with formaldehyde or sulphur is also efficacious.

14. *Potable water* should be colorless, odorless, cool, limpid, soft; it should have an agreeable taste, neither salty nor sweet nor flat; it should dissolve soap readily without formation of a curdy precipitate; it should contain not more than about twenty-five to thirty grains of solids per gallon, and should not be polluted with sewage.

The sources and varieties of water have been classified thus:

Wholesome.	1. Spring water	very palatable.
	2. Deep-well water	
	3. Upland surface water	moderately palatable.
Suspicious.	4. Stored rain water.	
	5. Surface water from cultivated land	
Dangerous.	6. River water, to which sewage gains access	palatable.
	7. Shallow-well water	

15. The *impurities found in water* are: Sewage, leaves, surface washings, manufacturing refuse, lead, other metals, leakage from gas pipes, insects, fungi, bacteria, entozoa.

BULLETIN OF APPROACHING EXAMINATIONS †

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. —
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 4
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Oct. 12
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles.	Dec. 7
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Oct. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven.	Nov. 9
Delaware	J. H. Wilson, Dover	Dover.	Dec. 14
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	Oct. 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 10
Georgia	E. R. Anthony, Griffin	Atlanta	Oct. 12
Idaho*	W. F. Howard, Pocatello	Boise	Oct. —
Illinois	J. A. Egan, Springfield	Chicago	Oct. 20
Indiana	W. T. Gott, Crawfordsville	Indianapolis.	Jan. 11
Iowa	Louis A. Thomas, Des Moines	DesMoines	Sept. 21
Kansas	P. P. Hatfield, Olathe	Kansas City	Oct. 12
Kentucky	J. N. McCormack, Bowling Green	Louisville.	Dec.
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct 1
Maine	Wm. J. Maybury, Saco	Augusta	Nov —
Maryland	J. McP. Scott, Hagerstown	Baltimore.	Dec. 14
Massachusetts*	E. B. Harvey, State House, Boston	Boston.	Sept. 14
Michigan	D. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 12
Minnesota	W. S. Pullerton, St. Paul	St. Paul	Oct. 5
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 12
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Sept. 20
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 5
Nebraska	C. A. Carr, Lincoln	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	Nov. 1
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 4
New Jersey	E. L. B. Godfrey, Camden.	Trenton	Oct. 19
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct. 11
New York	C. P. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	Sept. 21
N. Carolina.	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota.	H. M. Wheeler, Grank Forks	Grand Porks	Oct. 5
Ohio	Geo. H. Matson, Columbus	Columbus.	Dec. 14
Oklahoma*	F. P. Davis, Enid	Guthrie	Oct. 12
Oregon*	B. E. Miller, Portland	Portland	Jan. 4
Pennsylvania.*	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	Dec. 14
Rhode Island*	G. T. Swarts, Providence	Providence	Oct. 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	Jan. 12
Tennessee.	C. A. Abernathy, Pulaski	Memphis Nashville Knoxville	May —
Texas.	M. E. Daniel, Honey Grove	Greenville	Nov. 9
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Oct. 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 11
Virginia	R. S. Martin Stuart	Lynchburg	Dec. 15
Washington*	T. C. McFadden, Seattle	Spokane	Jan. 4
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg	Nov. 9
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 11
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 20

* No reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular state.

Alaska.—It is announced that hereafter physicians and surgeons desiring to practise in Alaska will be required to procure a license from the Federal authorities. The new law amending the Alaska code, which passed Congress February 6, provides that physicians must secure a license, which will be granted to members of the medical profession who have diplomas recognized by the Association of American Medical Colleges.

New Jersey.—At the annual meeting of the State Board of Medical Examiners, held at Newark on July 6, the following officers were elected: *President*, Dr. Chas. A. Groves, East Orange; *Treasurer*, Dr. A. Uebelacker, Morristown; *Secretary*, Dr. E. L. B. Godfrey, Camden.

Washington.—Changes have recently been made in the medical law of this State, to the following effect: The examination will be conducted in the English language, in writing, and must consist of at least ten questions upon each subject, none of which shall relate to treatment. The examination will cover the following subjects:

Anatomy, Histology, Gynecology, Pathology, Physiology, Bacteriology, Chemistry and Toxicology, Obstetrics, General Diagnosis, and Hygiene.

All applicants must obtain not less than 60 per cent. in any one subject; however, 5 per cent. on the general average is allowed for each ten years of reputable practice.

It will be noted that there are now fewer subjects of examination, and the passing mark has been reduced from 75 to 60 per cent.

Colorado now requires a practical examination in Regional Anatomy, Uranalysis, Pathology, and Physical Diagnosis.

Hemiphlegia from Cerebral Arteritis in Heredosyphilitics.—Paul Savy says that the early symptoms of syphilis in hereditary cases occur within three months of birth, and the dystrophies come from the fifth to the twentieth year. The manifestations of cerebral arteritis in the form of hemiplegia occur in the interim, the earliest recorded having been seen at five months of age. They occur from the second to the fifth year in general. They may be associated with other nervous troubles in cases that show evidences of syphilis, or they may occur suddenly in children that have given no evidences of syphilis. They may be preceded by symptoms of malaise or convulsions for a few days. Such hemiplegias may disappear entirely under specific treatment in a few weeks or months, or there may be left a variable amount of impotence and atrophy, corresponding to an area of brain softening due to obstruction of some one artery. These conditions are entirely similar to the specific hemiplegias of adults, which are often of a passing nature, and are caused by cerebral arteritis with ischemia. Whenever we have a sudden hemiplegia in a child we may look for syphilis, even if there are no other signs of its presence.—*Revue de Médecine.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

ATLAS UND GRUNDRISS DER RÖNTGENDIAGNOSTIK IN DER INNEREN MEDIZIN. Von Dr. med. FRANZ M. GROEDEL. 8vo, cloth, 338 pages: illustrated. J. F. Lehmann, München, Germany.

HAUTTUBERKULOSE. Dr. S. JESSNER. Paper; 8vo; 76 pages; M. 1.30. Curt Kabitzsch, Wurzburg, Germany.

STATE HOSPITAL BULLETIN, May, 1908; 8vo; paper; 320 pages; State of New York, State Commission in Lunacy.

TRANSACTIONS OF THE FLORIDA MEDICAL ASSOCIATION. 8vo; paper; 289 pages; Pensacola, Fla.

THE OPHTHALMIC YEAR-BOOK. By EDWARD JACKSON, A.M., M.D. 8vo; cloth; 415 pages; illustrated. Herrick Book and Stationery Co., Denver, Col.

A SYSTEM OF MEDICINE. Edited by Sir CLIFFORD ALLBUTT, K.C.B. 8vo; cloth; 969 pages; illustrated; $6.00 net. Macmillan Co., New York.

CLINICAL TREATISES ON THE SYMPTOMATOLOGY AND DIAGNOSIS OF DISORDERS OF RESPIRATION AND CIRCULATION. By Prof. EDMUND VON NEUSSER, M.D. 8vo; cloth; 71 pages; $1.00. E. B. Treat & Co., New York.

CLINICAL TREATISES ON THE PATHOLOGY AND THERAPY OF DISORDERS OF METABOLISM AND NUTRITION. By Prof. Dr. H. STRAUSS. 8vo; cloth; 70 pages; $1.00. E. B. Treat & Co., New York.

MENTAL MEDICINE. By OLIVER HUCKEL, S.T.D. cloth; 12mo, 219 pages; $1.00 net. Crowell & Co., New York.

HUMAN PHYSIOLOGY. By JOHN W. RITCHIE. cloth. 12mo; 362 pages; illustrated. World Book Co., New York.

ELECTRICITY IN GYNECOLOGY. By MAY CUSHMAN RICE, M.D. 12mo, cloth; 159 pages. L. I. Laing & Co., Chicago.

OBSTETRICS, Vol. V of Year Book. Edited by Jos. B. DE LEE, A.M., M.D. 12mo, cloth; 236 pages; illustrated; $1.25 net. Year Book Publishers, Chicago, Ill.

THE THIRTEENTH GREATEST OF CENTURIES. By JAMES J. WALSH, M.D., PhD., LL.D. 8vo, cloth; 458 pages; illustrated. Catholic Summer School Press, New York.

UEBER DIE LAGE DES WURMFORTSATZES. VON RHABAN LIERTZ. 8vo, paper; 146 pages; illustrated. August Hirchwald, Berlin, Germany.

CHOIX D'UN PROCÉDÉ OPÉRATOIRE DANS LA LITHIASE VÉSICULAIRE, par Le Dr. LOUIS HAUTEFORT. 8vo; paper; 193 pages; illustrated. G. Steinheil, Paris, France.

SURGICAL DIAGNOSIS, Vols. I and II. By ALEXANDER BRYAN JOHNSON, Ph.B., M.D. 8vo, cloth; pages 810 and 777; illustrated. D. Appleton & Co., New York

MALADIES DES VEINES ET DES LYMPHATIQUES. Par PAUL LAUNEY ET HENRI BRODIER. 8vo, 266 pages; paper; illustrated; 6 francs. J. B. Baillière & Fils, Paris, France.

KLINIK FÜR PSYCHISCHE UND NERVÖSE KRANKHEITEN. Von ROBERT SOMMER, Dr med. et phil. 8vo. 84 pages; paper. Carl Marhold, Halle, Germany.

TRANSACTIONS OF THE LUZERNE COUNTY MEDICAL SOCIETY, 1908. 8vo, 148 pages; paper. E. B. Yordy Co., Wilkes-Barre, Pa.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D. 8vo, 317 pages; paper; illustrated; $6.00 per annum. Lea & Febiger, Philadelphia, Pa.

SPECIAL HOSPITALS. By RICHARD KERSHAW. 72 pages; 8vo, paper; illustrated. Geo. Pulman & Sons, Ltd., London, England.

ANNUAL REPORT OF THE BUREAU OF HEALTH FOR THE PHILIPPINE ISLANDS. By VICTOR C. HEISER, Director of Health. 8vo, 182 pages; paper; illustrated. Bureau of Printing, Manila, P. I.

HAND-BOOK OF DISEASES OF THE RECTUM. By FREDERICK LOUIS HIRSCHMAN, M.D. 8vo, 374 pages; cloth; illustrated. C. V. Mosby Co., St. Louis, Mo.

DISEASES OF THE EAR. By Prof. Dr. ADAM POLITZER. 8vo, 892 pages; illustrated; cloth; $8.00 net. Lea & Febiger, Philadelphia, Pa.

LEHRBUCH DER SPEZIFISCHEN DIAGNOSTIK UND THERAPIE DER TUBERKULOSE. Von Dr. BANDELIER und Dr. ROEPKE. 4to, 223 pages; paper; illustrated; 6 marks. Curt Kabitzsch, Würzburg, Germany.

L'HYPOPHYSE ET LA MÉDICATION HYPOPHYSAIRE. Par M. le Docteur ARTHUR DELILLE. 4to, paper; 336 pages. G. Steinheil, Paris, France.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. 8vo, 405 pages; paper; illustrated.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of September 4, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	536	142
Diphtheria	185	11
Measles	116	4
Scarlet Fever	70	6
Smallpox	—	—
Varicella	10	—
Typhoid Fever	181	11
Whooping Cough	24	11
Cerebrospinal Meningitis	6	8
Malarial Fever	—	—
Totals	1,126	193

Relapsing Tetany.—Langmead reports the case of a girl of eight years who suffered from tetany associated with a greatly dilated colon. The case was very resistant to treatment, but finally improvement occurred under daily colonic irrigations and massage. Eleven months later a second attack occurred. During the interim, while there were no convulsions and an enlarged colon could not be demonstrated, the facial irritability remained. Langmead has observed seven cases of relapsing tetany associated with enlarged colon.—*Proceedings of the Royal Society of Medicine.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended September 3, 1909:

		CASES.	DEATHS
SMALLPOX—UNITED STATES.			
Illinois, Chicago	Aug. 14–21	1	..
Minnesota, Duluth	Aug. 13–20	1	.
Montana, general	July 1–31	44	.
Ohio, Toledo	July 24–Aug. 7	2	
Oklahoma, Oklahoma City	Aug. 7–21	1	1
Tennessee, Knoxville	Aug. 14–21	1	
Texas, Houston	Mar. 20–June 19	20	
SMALLPOX—FOREIGN.			
Algeria, Algeriers	July 1–31		1
Brazil, Bahia	June 25–July 16	7	3
Pernambuco	May 15–31	.	7
Chile, Valparaiso	July 3–31		Present
Egypt, Cairo	July 1–8	1	1
France, Toulon	July 24–31		1
India, Bombay	July 13–20		3
Calcutta	July 3–10		2
Rangoon	July 3–17		4
Indo-China, Saigon	July 3–10	7	5
Italy, general	Aug. 1–8	1	
Genoa	July 8–15	2	
Naples	Aug. 1–8	34	2
Portugal, Lisbon	July 31–Aug. 7	6	..
Russia, Odessa	July 24–31	1	1
Riga	July 31–Aug. 7	4	
St. Petersburg	July 17–24	41	6
Spain, Barcelona	Aug. 3–9		4
Madrid	July 1–31		81
Valencia	July 24–31	1	
Vigo	July 31–Aug. 7		1
Straits Settlements, Singapore	July 3–10		1
YELLOW FEVER.			
Brazil, Bahia	June 25–July 2	2	.
Ecuador, Duran	July 16–31	3	
Mexico, Colima	July 30–Aug. 26	8	
Merida	Aug. 14		1
CHOLERA.			
China, Amoy	July 17–24		9
India, Bombay	July 13–20		17
Calcutta	July 3–10		28
Madras	July 10–16		2
Rangoon	July 3–17		9
Indo-China, Saigon	June 26–July 3	3	3
Netherlands, The Rotterdam	Aug. 26	2	.
Russia, St. Petersburg	July 29–Aug. 13	408	200
PLAGUE.			
Brazil, Bahia	June 26–July 16	5	2
China, Amoy	July 17–24		62
Canton	June 26–July 17	45	34
Chang-Poo	July 23	.	Epidemic
Kang-be	June 1–30	61	59
Egypt, general	July 23–29	7	2
Alexandria	July 30–Aug. 2	3	2
Formosa	July 10–17	3	3
India, general	July 10–17	800	613
Bombay	July 13–20		25
Calcutta	July 3–10		29
Rangoon	July 3–17		40
Indo-China, Saigon	June 26–July 3	8	7

By authority of the Secretary of the Treasury:

WALTER WYMAN,
Surgeon-General,
United States Public Health and Marine-Hospital Service.

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Original Articles.

SOME PRACTICAL ASPECTS OF THE SURGERY OF THE PERITONEUM.*

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WE, as American physicians, may with pardonable pride claim the peritoneum as the masterfield of the American surgeon, without any possible charge of usurpation of foreign honors. It is an interesting fact that the successful management of the various peritoneal diseases, including appendicitis, is a distinct and lasting triumph to American surgery. Deaver, Fowler, Murphy, Morris, and Mayo have been names to conjure with. Before their resistless onset and the brilliant combination of their powerful mentalities and matchless and perfect technique the seemingly almost insuperable problems of peritoneal surgery have wilted and disappeared as at the touch of a magician's wand. The impossible has been accomplished. Led by these mighty men of valor, the little army of scientific American surgeons has pressed to the front and persisted in the van of surgical progress. Consequently the peritoneal cavity is no longer regarded with the fear and veneration with which our immediate forefathers worshipped it at a distance. The admonition, "hands off," is no longer posted above it for them, but only for those who, with deficient knowledge and unclean and faulty technique, would rush in where abler and more scientific men have paused and then cautiously entered. An increased knowledge of the peritoneal cavity and its vital organs and a greater familiarity with its surgical reactions have made it today a favorite field for the exploitation of new and ingenious technics. A surgical remedy for almost every intestinal and visceral complaint is now being eagerly sought. Witness the truthfulness of this assertion in the recently proposed and practised method of appendicostomy for the relief of amebic dysentery and tuberculous enterocolitis—a procedure which has been attended with very considerable and gratifying success.

As a direct result of this closer acquaintanceship with a most vital portion of the human body, various conditions which but recently defied the utmost skill of the ablest physicians are now but comparatively trifling affairs in the estimation of the progressive and up-to-date surgeon. Appendicitis, which twenty-five years ago was an unrecognized surgical entity, is to-day a simple condition to treat, if it be taken in its earliest stages; and peritonitis of idiopathic origin has been relegated to the limbo of medical follies. An early incision will quickly demonstrate a tangible cause in every case of acute peritonitis, and thorough asepsis, together with the application of the appropriate surgical technique, will almost invariably work a cure. It has, likewise, come to pass that puerperal sepsis, the *bête noir* of the older obstetricians, has, through modern antisepsis and advanced surgical treatment, lost much of its former grisly horrors. Free drainage, the semirecumbent posture, intestinal lavage, constant intrauterine irrigation, and careful peritoneal toilet have combined to lessen remarkably the mortality and morbidity of this unfortunate and formerly very fatal condition. It required many years of careful observation and cost many thousands of lives for the abdominal surgeon to learn that the danger-zone of the peritoneal cavity lay in the region of the diaphragm, and that if morbidity and mortality would be lessened the secretions of the cavity must be drained in the opposite direction—away from this freely absorbing surface. The adoption of this precaution has, in my hands as in those of every other surgeon, resulted most satisfactorily in the management of the severer forms of puerperal septic infection as well as in the graver varieties of general surgical infection of the peritoneum.

The Fowler-Murphy Method.—It is at this point that I wish to emphasize what I believe to be the most important advance in abdominal surgery that has been made, not only in the past decade but for many years prior to that period, as I have recently shown in a paper on "Ten Years' Growth in Abdominal Surgery" (*Medical Standard*, January, 1909). I think I am safe in stating that the Fowler-Murphy treatment of diffuse suppurative peritonitis stands preeminently as the greatest achievement to date of surgical progress in this field. This desperate condition, characterized by the presence of free pus in the peritoneal cavity, which only ten years ago in the hands of the ablest surgeons gave a mortality of 85 per cent., now yields a death rate of only 7 to 10 per cent., as far as the scanty statistics which are accessible will permit us to judge; and this wonderful improvement must be attributed entirely to the genius of the two men whose names are indelibly written upon the pages of surgery in connection with this subject.

What authority have I for speaking thus positively? Listen, if you will, to a few statistics bearing upon the matter. Eisendrath, of Chicago, in the *American Journal of Surgery* for last December (1908) reported 34 cases of general peritonitis with a mortality of 41 per cent., including patients operated upon during advanced stages of the condition as well as those encountered at the very onset of the infection. In 10 of the cases operated upon during the first twenty-four hours *but one died*—a mortality of but 10 per cent. In 10 operated upon on the second day there were 2 deaths—a mortality of 20 per cent.; while in 6 operations performed on the third day there were 2 deaths—a mortality of 33 per cent. As Eisendrath has indicated, these results compare very favorably with those obtained

*An address delivered in Pittsburg before the College of Physicians on May 27, 1909.

at the large European general hospitals, which he states as follows:

Moynihan	17 cases	18%	mortality
Carson	22 "	63%	"
Herzel	48 "	68%	"
Hagen	30 "	60%	"
Hirschel	65 "	54%	"
Körte	27 " (first 48 hours)	18%	"
	30 " (third day)	36%	"
Arnsperger	33 "	51%	"
Biondi	13 "	80%	"
Bode	30 "	33%	"
Lieblein	35 "	71%	"
Heidenhein	42 "	55%	"
Hotchkiss	28 "	17%	"

Murphy, who has given a careful resumé of this method of treatment in his admirable paper (*Surgery, Gynecology and Obstetrics*, June, 1908) reports 51 cases, including 5 typhoid perforations, with 100 per cent. recovery, these cases all being of exceptional gravity, while McGuire reports 18 cases with but one death, and other operators show results equally as gratifying.

A glance at these figures demonstrates conclusively that the Fowler position—or its modifications—when joined with proctoclysis, as suggested by Murphy, has proven the fortunate combination in overcoming one of the most horrible conditions the surgeon is called upon to combat, and if every case could fall into the surgeon's hands at the very onset of the infection we may safely assert that the mortality could be reduced almost to nothing. Now the wave of improvement rolls on, for Stuart McGuire (*Journal Am. Med. Assoc.*, March 8, 1908) has recently shown that there are certain objections which may be advanced against the semi-sitting position. Thus, it renders difficult the use of the bedpan; it is unnatural and subjects the patient to a mental and physical strain; and it permits of a slipping downward from weakness or during sleep whereby its value is annulled, since the abdomen at once becomes parallel to the surface of the bed as the result of a bending of the body at the costal arch. McGuire's suggestion of the elevation of the head of the bed, whereby a uniform flat inclined surface obtains, with an inclination at any angle that may be desired, will obviously meet these objections. An important point in this connection, and one which is frequently overlooked, is the necessity of insisting upon the assumption of this position from the moment the diagnosis is made, and not only postoperatively. In the older cases—those more than twenty-four hours advanced—gastric lavage should precede the operation, and in the severely poisoned cases intravenous saline infusion becomes most valuable. Where there is streptococcic infection, as shown by feeble leucocytic reaction, the use of antistreptococcic serum is indicated. Speed of operation—the incision generally being made in the lower right quadrant of the abdomen; a minimum of visceral manipulation; strict omission of peritoneal irrigation in order that the pus may not be washed toward the dangerous diaphragmatic zone; free drainage by means of rubber tubes over the pubes, at the site of perforation of the bowel, in Douglas's pouch, or wherever pus-pockets may be found; and, after the operation, constant proctoclysis with normal saline solution at the rate of 1½ to 2 pints every two hours, the patient resting in the semi-sitting posture—these are the steps of the now famous Fowler-Murphy treatment of diffuse suppurative peritonitis.

Some Aids in Peritoneal Diagnosis; the Morris Point.—Naturally enough, this concentration of the surgical mind upon the peritoneal cavity has borne its fruit in numerous suggestions and clinical observations, some of which will doubtless prove of permanent value. In this connection mention may most appropriately be made of the very valuable suggestion in diagnosis which was announced last year by that practical surgeon of New York City, Dr. Robert T. Morris (*Jour. Amer. Med. Assoc.*, Jan. 25, 1908). The famous McBurney point has become a landmark in anatomical topography, familiar to every surgeon. You all know its position (an inch and a half from the right anterior superior iliac spine on a line extending from that spine to the umbilicus) and its value in the diagnosis of inflammation of the vermiform appendix. Morris asserts that this point is only of secondary importance, and must give place in diagnostic significance to another point situated an inch and a half from the opposite end of the spino-naval line—that is, at a corresponding distance from the navel and about six inches distant from McBurney's point. This we may term the point of the right lumbar ganglia of the sympathetic nervous system. Tenderness over this spot is, according to Morris, of considerable significance, as follows: If the point show tenderness to any degree, even if pressure over McBurney's point elicits no tenderness, there will inevitably be found a chronic or subacute inflammatory condition of the vermiform appendix, provided that the corresponding point to the left of the umbilicus (the point of the left lumbar ganglia) shows no tenderness upon pressure. If both right and left lumbar ganglia are sensitive to pressure, the trouble lies in the pelvis—in the Fallopian tubes or ovaries; while absence of tenderness over either of these ganglia in the presence of obscure abdominal symptoms will indicate trouble above the region of the appendix. As a rule, generalizations are dangerous and uncertain, and dogmatic clinical statements are apt to stumble against individual peculiarity or idiosyncrasy, much to their undoing. If this observation be true, however—and Morris speaks with considerable assurance after a careful and prolonged investigation—then we have here an excellent addition to our means of diagnosis of pelvic and abdominal pathology, and one with which we should all thoroughly acquaint ourselves. I wish to state that during the past year I have found this Morris point a valuable aid to me in my abdominal explorations.

The Peritoneal Face.—At this point let me call your attention to another aid in diagnosis which most of the textbooks and surgical writers have failed to emphasize and even in many instances to mention at all. It seems to me that it should be written in capital letters, for I believe it to be a symptom of the utmost importance, and one which, if generally recognized and followed, would be responsible for the saving of many valuable lives. I refer to that peculiar and unmistakable expression of the face which I here designate as the *peritoneal face* or *facies peritonæi*, which is as striking as is the ovarian *facies* or that characteristic of Parkinson's disease. It is also known as the *facies abdominalis*, and can best be described as a pinched, anxious, furrowed face, with the nose and upper lips drawn up. When present it indicates grave abdominal disease, and should be regarded as a positive indication for operative intervention. It is not infrequently to be noted in the

absence of every other symptom of peritoneal involvement, and is probably an indication of a profound disturbance of the delicate and sensitive system of splanchnic nerves resulting either from the pressure exerted by morbid exudates or from a certain degree of toxemia. Practically the same condition prevails in the shock following a blow or injury to the solar plexus.

It was on the strength of the peritoneal face alone that I performed my first operation in your portion of the state about four years ago. At 11 o'clock at night I was called by long-distance telephone from Uniontown, and asked to take the midnight train for Pittsburg in order to operate upon a case of appendicitis the following morning. When I saw the patient, a woman 32 years of age, at 10 o'clock that morning all her symptoms—which had been urgent the night before—had disappeared. There was not even abdominal rigidity. Her facial expression, however, was one of most intense anxiety, and this, coupled with the history of an acute suppression of the symptoms, decided me to proceed with the operation. I found not only the appendix for one and a half inches the seat of gangrenous change, but for two inches around the mesentery was hard and green. Had I been deceived by the apparent improvement in the patient's condition death would have supervened in from twenty-four to thirty-six hours.

Only recently I was deeply impressed by the general overlooking of this truly vital symptom in a case of unusual interest. On a certain Monday I was called to West Philadelphia by a physician to see with him a man, 40 years of age, who presented a remarkable condition. On the preceding Friday while riding his bicycle he suddenly found himself almost overrun by a heavy wagon, and saved himself only by grasping the tongue of the vehicle. The violent exertion caused him to collapse, although apparently uninjured, and he was sent to his home in a carriage. His one symptom, as I learned from his family physician, was an obstinate constipation, which had failed to respond to the usual remedies, including large doses of salts and rectal enemata. When I saw him, three days after the accident, his temperature was normal and pulse 72; there was no history of pain, and the abdomen was flaccid and permitted an easy exploration of its contents. There was noted a movable dullness on percussion, and a peculiar doughy sensation on palpation. Upon entering the room I had observed an expression of extreme anxiety on the patient's face, and, notwithstanding his assurance of perfect comfort, I advised his immediate removal to the hospital. Four hours later I found the resident physician engaged in taking the patient's history and on making inquiry he informed me there was nothing the matter with the man. Learning that the surgeon was in an adjoining ward I suggested he see the patient at once. This was done, and carefully going over the case he assured me he saw no indication for immediate surgical operation, but that if I said so he would do an exploratory incision. Gentlemen, when I saw the patient was dead—died on the operating table. The incision had revealed an [illegible] about the size of [illegible]

the peritoneal face, and its main signification to the surgeon—immediate surgical exploration of the abdominal cavity.

Intestinal Localization.—What abdominal surgeon has not been confronted by the perplexing question, "With what portion of the intestinal canal am I dealing?" when a traumatism or his incision has revealed the loops of underlying bowel. True it is that to a certain extent the location of his wound or incision will afford a strongly presumptive diagnosis as to the portion of gut immediately involved. It has remained, however, for the patient investigations of another of our American surgeons to elucidate this matter as no other man has done; and Monks (*Jour. Am. Med. Assoc.*, April 3, 1909) has given us the results of his indefatigable labors in this direction. Stated briefly, he informs us that if the incision lie in the upper portion of the abdomen, especially in the middle line or to the left of it, any loop of small intestine encountered will in all probability belong to the uppermost third of the gut; if the incision lie in the middle portion of the abdomen or in the left iliac region, the intestinal loops belong probably to the middle third of the gut; while if the incision is located in the right iliac fossa or to the right of the rectus muscle, or even in the median line between the umbilicus and the pubes, the intestinal loops will probably belong to the lowest third of the small bowel. This is all very interesting and of undoubted practical value, but to the average surgeon it is but the concise presentation of a hitherto recognized anatomical fact. Monks, however, supplements this primary statement by two other pronunciamentos that carry the impression of newness and confer upon the question of intestinal localization an intensely practical aspect. In the first place, he emphasizes the importance of the distinctive anatomical characteristics of the upper and lower portions of the small intestine in determining the portion of gut involved in any surgical operation. Concisely stated, these local peculiarities are as follows: The loops of the upper bowel are of large calibre, have thick walls, are extremely vascular, and have numerous valves which can readily be felt through the walls. The attached mesentery is generally thin and readily shows the blood-vessels, which are large, long and straight, and radiate to the bowel from primary arches deeply located in the mesentery. The loops of the lower bowel, on the contrary, are thin, of small calibre, of moderate vascularity, free from valves; while the attached mesentery contains more fat, as a rule, and is short, small [illegible]

ileo-cecal valve. Note, if you please, that the important point here is an absence of twisting of the mesentery. This suggestion of Monks will appeal to every surgeon as a valuable addition to our intra-abdominal diagnostic means and an excellent method of simplifying the intricate and delicate surgery of the bowel.

The Significance of Left-Sided Pelvic Pain; Redundant Sigmoid.—One other diagnostic suggestion of recent development. We frequently hear of the interrelationship existing between right-sided tubal disease and appendicitis, and discussions have been numerous and interesting in the effort to determine conclusively which pathological condition generally precedes the other. At any rate, there has never existed an element of doubt as to the cause of right-sided pain in any given gynecological case; but, from the pioneer days of gynecology as a distinct branch of surgery, pain in the left lower quadrant of a woman's abdomen has invariably been ascribed to the ovary. Now we are told (Clark, *Pennsylvania Med. Jour.*, April, 1909) that in many of these cases, especially those associated with obstinate constipation, the ovary is not the offending organ at all, but that all the trouble and suffering arise in a curious condition of the sigmoid flexure to which the term "redundant sigmoid" has been given. Kelly, Clark, and others have called attention to this bowel-defect, and have emphasized the fact that many a healthy ovary has been sacrificed uselessly in the effort to relieve pain and neurasthenic manifestations resulting from a diseased sigmoid, which closely resembles the congenital condition known as Hirschsprung's disease, but which is probably due, as Clark has shown, to an unequal growth of the large intestine after birth. If the usual order of events in the development of the individual should hold true, and the colon should rapidly increase in size while the sigmoid flexure retains its normal infantile growth, no trouble of the kind in question will result. If, however, the sigmoid flexure should participate in the growth of the rest of the colon at an equal or even a minimum rate of growth, there is then produced the curious condition of redundancy which has been noted in this class of cases. According to the position occupied by the loops of redundant sigmoid will be the clinical manifestations of the disease. In whatever position [illegible] left-sided pain in the region of the ovary [illegible] a prominent feature; if the loops rest in [illegible] bladder increase [illegible] frequency of urination [illegible] if they lie in Douglas's pouch a [illegible] location after [illegible] reaction. [illegible] of antis[illegible] [illegible] [illegible] [

quiry or observation, and the learned gentlemen probably really do not know just exactly how most comfortably to treat so harmless an affection any more than they would, as a rule, know how best to relieve an ingrowing toe-nail or remove a wart. Yet, some people seriously, and quite properly, wish to be rid of warts, and I have known one or two most successful physicians who built up large and widely useful practices upon the actual groundwork of their skillful treatment of acute coryza. I shall offer here as a subject for discussion a condition which is, *per se*, equally as harmless, as common, as simple, and, I may add, equally as important as acute coryza—if not more so.

Through a reasonably careful search in the Surgeon General's library, in Washington, the first reference I find to the noting of connective tissue adhesions across the fossæ of Rosenmuller, or of the significance of granulation hypertrophies in the fossæ, is in an article by Dr. Goodwillie, in the *New York Medical Journal*, August 24, 1889, entitled "Deafness from Nasal and Dental Diseases."

In the Manhattan Eye and Ear Hospital Reports, New York, 1894, I, 98, Dr. W. C. Phillips writes of "A Case of Extensive Adhesions Between Both Eustachian Tubes and the Vault of the Pharynx; the Result of Adenoid Growths."

Dr. R. C. Myles, in The Transactions of the American Otological Society, 1897, VI, 506, writes on "Pathological Conditions of the Ear, with Attending Phenomena, Apparently Caused by Synechiæ of the Eustachian Tube to the Tissues Over the Basilar Process and the Rhinopharyngeal Wall; A Report of Two Cases."

In 1902 Professor A. Politzer, in his work on Diseases of the Ear, speaking of Rosenmuller's fossa, says: "Chronic nasopharyngeal catarrhs often give rise to cystic hypertrophy of the adenoid tissue and the formation of large gaps and bridge-like bands."

Dr. Royet of Lyons in the *Bulletin de Laryngologie, Otologie et Rhinologie*, Paris, 1904, VII, 248, has a brief but pithy article on the "Syndrome Which is the Result of Tubopharyngeal Connecting Bands; Especially from the Otologic Point of View;" and again, in the *Revue Hebdomadaire de Laryngologie, d'Otologie et de Rhinologie*, July 7, 1906, he speaks of marked vertiginous and neurasthenic phenomena due to adhesions betwen the posterior wall of the pharynx and the Eustachian prominence.

In the *Journal of the South Carolina Medical Association*, June, 1906, I pointed out the importance of attention to adhesions and granulations in the fossæ of Rosenmuller in connection with certain common aural affections; and again, in the *Journal of the American Medical Association*, May 16, 1908, p. 1600, I emphasized these facts, and further briefly pointed out other common immediate and remote symptoms consequent upon the existence of the formations.

In the *Laryngoscope*, August, 1906, Dr. T. L. Brunk speaks of the practical importance of these pathological conditions in the fossæ; and in the same journal, for March, 1907, Dr. E. Pynchon refers to the importance of the treatment of these conditions.

This, so far as I am aware, covers the existing literature on the subject.* I have met with no other explicit references to these pathological formations in the principal modern text-books which I have consulted. In the past two years numbers of laryngologists, both in this country and abroad, have told me in conversation that while in a general way they supposed such conditions to exist occasionally, yet they never deliberately looked for such lesions in the fossæ, and seemed disposed to regard them as being of conspicuously minor importance. Indeed one laryngologist of national reputation in this country, to whom I carried a patient with a number of fibrous bands across the fossæ and masses of granulations half filling these hollows, after an apparently careful examination calmly looked at me over the top of his spectacles and informed me that he could not recognize the conditions of which I spoke. Thereupon he simply advised the carrying out of the old worn-out routine treatment for the deafness, severe tinnitus, and occasional vertigo, accompanied by neurasthenic symptoms causing more or less serious embarrassment. This patient was soon after operated upon with the result of a complete cessation of the vertiginous and neurasthenic manifestations, and great improvement in the hearing and tinnitus. In all, I have up to this time operated in about 200 cases presenting these very common lesions. In no case has some symptomatic benefit failed to accrue; while, as a whole, the results have been remarkable.

As has been pointed out before, these formations in the fossæ of Rosenmuller consist apparently (1) of mucofibrous bands, or webs (like the web of a duck's foot), generally in a plane perpendicular to the long axis of the fossa, and (2) of masses of what seem to be granulation tissue or hypertrophied glandular (lymphoid) tissue, similar to the familiar soft adenoid, lying above, below, and between these bands, sometimes quite filling the fossa, and at times extending down into the oropharynx behind the posterior faucial pillar (lateral pharyngitis).

As the bands are found almost invariably in persons who have passed the period of adolescence, and in whom a lymphatic tendency has existed, it is not unreasonable to consider them as being, to some extent, the residua of an old adenoid, which may or may not have been operated on. Indeed, it has been my experience to note that practically all adenoid hypertrophies of sufficient size to be an obstructive factor are adherent to the surfaces in the fossæ and to the posterior lip of the Eustachian cushion; and a proper removal of the adenoid cannot be accomplished without first breaking up the adhesions with the finger. Any postnasal swelling causing obstruction and mouth-breathing would necessarily favor the formation of these adhesions, because the very act of mouth-breathing, by rapid evaporation of saliva, makes the act of deglutition much more infrequent, thus leaving the swollen adjacent structures in the nasopharynx in more undisturbed contact.

The normal movement of the Eustachian tube is inward, upward, and backward, ranging from one-quarter to three-eighths, or even one-half of an inch, the two orifices sometimes almost meeting in the middle of the nasopharyngeal space, and it is quite clear that adhesions and granulations in and across the fossæ must exercise marked inhibitive influence on the tubal excursion.

The symptoms which follow upon the appearance of these lesions are due to (1) interference with the proper functionating of the Eustachian tube.

*Since writing the above there has come to my attention a valuable practical article by Dr. Francis P. Emerson of Boston, in the *Annals of Otology, Rhinology and Laryngology* for September, 1907, entitled "Rosenmuller's Fossæ and Their Importance in Relation to the Middle Ear."

upon which is so intimately dependent the integrity of the middle ear; (2) inflammation, by continuity, from infection lodging in and upon these lesions; (3) mechanical irritation caused by pressure and traction on the fibers of the stylopharyngeus, palatopharyngeus, and the constrictors of the pharynx; and (4) reflex irritation, the manifestations of which are common in pathological conditions of any highly sensitized area in the body. As many and various combinations of these causes may produce symptoms in different cases, it will be seen at once that the symptomatology of the affection is of relatively rather large scope, and it is strange for this reason, if for no other, that the importance of the condition has not, up to this time, been fully recognized.

Many cases of so-called catarrhal deafness are the common and serious consequence of unrecognized or neglected adhesions and granulations in the fossæ of Rosenmuller. The changes in the tympanic membrane, tinnitus aurium (opprobrium medicorum), the impairment of ossicular motion, the anomalies of sound conduction, the closed Eustachian tube, may all be due, directly or indirectly, to the lesions in the fossa. There may be present a deep, dull pain, perhaps better referred to as a malaise, in and about the ears, at times radiating to neighboring parts. Stuffiness and fullness in the ears and itching in the external meatus may be complained of, and there is often a tense, drawn, uneasy feeling extending from the ears down the throat and neck, behind the angles of the jaws. Sometimes the patient is quite unable to locate the discomfort with precision, but will recognize its source the moment it is touched with instrument or finger. There is often present the common sensation of popping or cracking in the ears while swallowing, or yawning, or otherwise moving the jaws. A persistent and irresistible desire for frequent yawning may be noted. Long-continued and distressing attacks of sneezing can, sometimes at least, be controlled by a thorough clearing out of the fossæ.

There is always present in some degree a form of postnasal catarrh. The so-called lateral pharyngitis, so resistant to ordinary routine treatment, is always a development of the fossal lesions, as are also many cases of follicular pharyngitis; and these cases will show prompt, satisfactory, and permanent improvement only after attention has been directed to the fossæ. The bands across the fossæ form pockets which are ideal lodging places for mucus and dust and infection of any sort that may be inspired by the patient, and, with these places as foci, irritation and inflammation easily and naturally extend to neighboring structures. The sensation of a lump or obstruction in the throat, simulating globus hystericus, may be noted.

The periodic or occasional laryngeal irritability and mild congestion, with hoarseness or an irritating cough, that is sometimes met with, and for which no cause is readily found, is most often due to the nasopharyngeal irritation accompanying these fossal lesions. Furthermore, this cough, if unrelieved, may, by mere mechanical action, bring about bronchial involvement of otherwise unaccountably intractable character. I have seen such a case, with severe and distressing cough and raucous voice, which had been diagnosed and treated as chronic bronchitis, and even as suspected tuberculosis, and in which recovery occurred after the removal of the adhesions in Rosenmuller's fossæ.

Symptoms of vertigo, doubtless largely due to the tubal and middle ear involvement, are not infrequently complained of. Distinct mental depression and the phenomena of nervous derangement may result from the constantly recurring attention of the patient to the unlocated and therefore unrelieved uneasiness and annoyance.

The diagnosis of the condition as described above is not at all difficult for the skillful user of the rhinoscopic mirror. Having once been seen and recognized, its pathological importance is deeply impressed upon the mind, and the presence of the lesions will seldom again be overlooked.

When found, these formations should be removed whether or not marked symptoms are presenting, for their removal is harmless, while their presence is certainly pathological and ultimately certain to be fraught with discomfort, if not with real danger. It may be said in passing that there is reason to believe that the unintentional breaking of these bands with the end of the nasal saw has given to ears and throats a relief which has been improperly credited, at times, to the removal of a small septal spur, and the same good though accidentally acquired effect can, I believe, fairly be attributed sometimes to the energetic use of the curved postnasal applicator.

The treatment is simple, and under thorough cocainization entirely painless. The index finger is passed through the mouth into the postnasal space and the fossæ are firmly and completely swept, to their very bottoms, of all obstructing formations; first one side and then the other being attended to without withdrawing the finger. This is followed by the application of a solution of nitrate of silver or argyrol. A few days' after-treatment with the same application usually suffices. Where catarrhal deafness has been the principal indication for this procedure routine treatment with catheterization should be persisted in until no further improvement appears.

The results of clearing out the fossæ when indicated may be said to be universally good, sometimes brilliant, and often immediate. It should be stated, however, that where the hearing has been impaired by the existence of these lesions to the point where, roughly speaking, it is possible to hear an ordinary watch only upon contact with the auricle, the outlook for an increase in the hearing is not good, though the progress of the disease be checked; the best results being gotten where the hearing for the watch is still as much as four or five inches or more away from the auricle, and in the more recent cases. It is fair to say, further, that if a long-standing symptom of these lesions, such as chronic irritative cough, or persistent neurotic manifestations, or tubal atresia, has produced a fixed habit or organic changes elsewhere, we cannot expect an immediate cure by the simple removal of the original cause. In the great majority of cases, however, where any of the above enumerated symptoms exist with obscure etiology, a careful examination of the nasopharynx will surely reveal the causative lesions in the fossæ of Rosenmuller, and attention intelligently applied to their removal will be productive of most satisfactory results.

In conclusion, I would say that the occurrence of these formations is so common, yet apparently so widely ignored; their logical significance so marked and so serious, yet their treatment so simple withal, that I have thought it justifiable to invite to them once more the earnest attention of the laryngologist, the rhinologist, and the otologist.

THE INFLUENCE OF METEOROLOGICAL AND CLIMATIC CONDITIONS ON METABOLISM.*

By JOHN BENJAMIN NICHOLS, M.D.,

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That external conditions exert a potent influence on the processes of body metabolism may not only be inferred from *a priori* considerations, but has also been clearly established by experimental investigations. Metabolism, it may be recalled, consists largely of two sets of processes, heat or energy production (thermogenesis) and heat dissipation (thermolysis). Heat is produced by the oxidation of material from either (1) the food, or (2) the body substance; under ideal dietetic conditions the energy produced should be derived entirely from the food, without any drain on body material. The heat generated in the body is eliminated in several ways. These two processes of heat production and heat dissipation are closely coordinated and controlled by nervous action, the heat-regulating mechanism. The heat regulation effects a balancing of heat production and heat elimination, and in such a way that a more or less uniform temperature of the body is maintained.

The production of energy or heat in the organism depends largely on the escape or elimination of heat from the body; and as this escape or dissipation of heat is influenced to a great extent by the external conditions surrounding the body, it will be readily seen that atmospheric conditions, which directly influence heat elimination, in like measure indirectly control oxidation in the body, and hence have practical dietetic bearings.

The main avenues by which the energy or heat produced by oxidation escapes from the body are three, namely: (1) radiation and conduction, (2) vaporization of water in perspiration and expired air, and (3) external muscular work.

The elimination of body heat by radiation and conduction is accomplished through the imparting of heat from the surface of the body to surrounding objects and the atmosphere.

The loss of heat by vaporization of water consists in the absorption of heat by water when passing from liquid into gaseous form. Each gram of water vaporized and so excreted by the skin or lungs absorbs 0.592 calory of heat from the body, and a large amount of heat is eliminated in this way.

The energy involved in accomplishing external work, which can be measured in terms of heat, will vary in proportion to the voluntary muscular activities of the subject. Like mechanical engines, however, only a fraction of the energy expended reappears as external work. For example, the mechanical efficiency of a steam engine is about fifteen per cent.; that is, only fifteen per cent. of the energy yielded by the burning of the fuel is converted into actual work. Similarly, the efficiency of the human body as an engine has been determined (Atwater and Benedict) as from thirteen to twenty per cent. It follows from this that for every calory of energy of external work that is produced, four to six additional calories of heat are generated by the body to be dissipated by radiation-conduction and vaporization.

*Read before the American Climatological Association, June 4, 1909.

An example of the relative magnitudes of the three main avenues of heat elimination is afforded by the calorimetric observations of Atwater and Benedict. The results of their observations in various tests average (per diem per person) as follows (Bulletin 175, Office Experiment Stations, U. S. Department of Agriculture, p. 152, 179):

	Five Rest Experiments (10 Days)		Six Work Experiments (14 Days)	
	Calories	Per Cent	Calories	Per Cent
Heat or energy production from oxidation of food and body material, as measured	2,258		5,179	
Heat or energy eliminated, as measured:				
Heat of urine and feces given off	17	1	21	4
Given off by radiation and conduction	1,741	77.1	3,850	74.0
Given off by vaporization of water	512	22.8	791	15.2
External muscular work measured			549	10.4
Total heat given off	2,270	100.0	5,214	100.0

In the foregoing experiments the temperature of the chamber occupied by the subjects experimented on was 20° C., and the humidity of the contained air ranged mostly from about 50 to 79, averaging 67 per cent.

The atmospheric conditions that especially affect the escape of heat from the body are temperature, humidity, and wind.

The temperature of the air influences both radiation-conduction and vaporization.

The greater the difference between the temperature of a body and the surrounding air and objects, the greater is the radiation and conduction of heat from the warmer to the cooler. Consequently the body gives off more heat in a cold than in a warm environment, and to make up for this greater loss body oxidation and metabolism are increased under the action of the heat-regulating mechanism. As the surrounding temperature rises, the heat loss by radiation-conduction and the total metabolism or oxidation correspondingly diminish. When the temperature of the air becomes equal to that of the body, no further loss of heat by radiation-conduction can take place, and all heat elimination must then be by evaporation. Experiments show that the total oxidation decreases as the surrounding temperature rises until a minimum is reached at about 33° C. If the temperature rises above this point another factor becomes operative, namely, overwarming of the body cells, which again causes increase of body oxidation.

The effect of atmospheric temperature on vaporization of water is the reverse of that on radiation-conduction. At the colder temperatures there is less evaporation, and hence less heat loss in that way; while at higher temperatures vaporization and heat-loss thereby are increased.

The effect of the surrounding temperature on metabolism has been abundantly shown by experiments. As an example may be cited the following results obtained by Rubner on the elimination of heat by a fasting dog exposed to different temperatures (Max Rubner, Die Gesetze des Energieverbrauchs bei der Ernährung, 1902, p. 106, 193). The distribution of the heat loss between radiation-conduction and evaporation and the nitrogen metabolism are also shown.

The nitrogen metabolism is not affected by changes in the surrounding temperature, the energy-yielding factors in the diet being involved rather than the tissue-forming.

Temperature	Total heat given off per kilo of body weight	Heat given off by radiation-conduction		Heat given off by vaporization of water		Nitrogen excreted in urine
C.	Calories	Calories	Per Cent.	Calories	Per Cent.	Grams
7°	86.4	78.5	90.9	7.9	9.1	1.52
15°	63.0	55.3	87.8	7.7	12.2	1.56
20°	55.9	45.3	81.0	10.6	19.0	1.80
25°	54.2	41.0	75.6	13.2	24.4	1.42
30°	56.2	33.2	59.1	23.0	40.9	1.56
35°	68.5	....	....	....	....	....

The humidity of the atmosphere influences the escape of body heat mainly through affecting the evaporation of water. In a dry atmosphere vaporization is favored; in a humid atmosphere evaporation is lessened; while in an air saturated with moisture escape of body heat by evaporation would be entirely prevented. A cold humid atmosphere also favors heat loss, supposably by the increased conductivity for body heat of damp clothing or skin covering. Total metabolism or oxidation is increased both by warm and by cold humid air; by warm humidity through overwarming of the body cells from the obstruction to heat loss effected by lessened evaporation; by cold humidity in compensation for the increased loss of heat by conduction.

Winds, and even imperceptible air currents, markedly favor heat loss, by increasing both radiation-conduction and evaporation.

It will be seen that in an atmosphere having the temperature of the body loss of heat by radiation-conduction would be completely checked, while in air saturated with moisture loss of heat by evaporation would be blocked. If both these conditions should coexist, practically all means of heat escape would be cut off, and the organism would be greatly embarrassed. With heat elimination obstructed, and oxidation and heat production undiminished (or even increased through the overwarming of the body cells), the temperature of the body must necessarily rise; and while this rise would again somewhat favor radiation-conduction, yet the conditions would be very oppressive and even dangerous. These considerations explain why the combination of great atmospheric heat and humidity brings about so great bodily discomfort, and introduces just the conditions favoring the incidence of heat-stroke or insolation. Muscular activity under these circumstances is especially trying, on account of the excess of heat generated, and the difficulty of its elimination.

There are other factors that influence heat dissipation and metabolism, and concern hygiene and diet, which do not properly pertain to atmospheric conditions. Clothing, for instance, acts as a shield against heat loss, and hence economizes oxidation. At the higher temperatures it is important that the clothing should retard heat dissipation as little as possible. Obesity also is a factor. An abundance of subcutaneous fat, by presenting a relatively less body surface for heat dissipation, and by protecting against radiation-conduction and evaporation, lowers metabolism. At higher temperatures with humid air heat loss is so much interfered with in obese persons as to cause them to suffer more distress under these circumstances than slender subjects.

These considerations, based on experimental demonstrations, indicate the need of a generous diet in cold weather or cold climates to make up for the greater heat loss. There is no necessity for an increase of nitrogenous food in the cold, as energy-yield only is needed, for which purpose fat and carbohydrate admirably serve (also alcohol?).

In hot humid weather it is especially important, for the individual's comfort and safety, that heat elimination be adequate. Heat production should be reduced to a minimum, as by avoiding muscular activity. The diet is not the greatest factor affecting the amount of body oxidation, as any excess of food not required to be burned up to provide for the body activities is stored up in the body. However, excess of food does to some degree increase body oxidation, carbohydrate least, and protein much the most. Hence is indicated rather spare diet in hot weather, especially of nitrogenous food. However, in obese persons a spare protein diet might be of advantage, through its effect in diminishing the store of body fat and so improving the conditions for heat dissipation.

ANESTHESIA IN THE CONTROL OF INFLAMMATION.

By JOHN W. WAINWRIGHT, M.D.,
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It is claimed that if irritation is prevented by anesthetics, inflammation will not develop, or if it is already in evidence that local anesthetics will control it to the extent that it is comparatively harmless. If there is irritation of the sensory nerves or filaments through injury of any character, and the nerves can be reached by application of any of the agents which relieve pain sufficiently early, and the anesthesia can be continued, inflammation will not supervene. Irritation precedes inflammation and is always accompanied by pain; hence the control of irritation allays pain, and antagonizes inflammation.

Spiess, writing in the *Münchener medizinische Wochenschrift*, No. 8, 1906, declares that whenever the appearance of pain can be prevented, inflammation is also prevented. Rosenbach makes application of general anesthesia through weak doses of morphine for effecting a depression of the irritability of inflamed tissue. Spiess reports strikingly favorable results on the use of local anesthesia; he has through experimentation proven that the Jensen mouse tumor (carcinoma) is favorably influenced by the injection of anesthetics; that under certain conditions its growth is interfered with. Fischer produced a typical epithelial proliferation by injecting scarlet oil. "If we assume," he writes, "that certain substances—attraxins—accumulate in the organism and arise continually, exerting a sufficiently strong chemotactic action on the cells of a misplaced tissue fragment, the result must necessarily be a constant, limitless growth of these cells—a malignant tumor. If we admit this, and the statement of Spiess that mouse cancers can be cured with local anesthesia, we must admit the theory of a chemotactic action in the production of malignant growths. Local anesthetics can act either directly or indirectly on attraxins or tumor-producers, throwing them, as it were, under certain circumstances out of function. They arrest the further growth, and even lead to the cure of cancer."

As is well known, local anesthetics act upon exposed nerves as soon as they come into contact with them, rendering them insensible. They act upon the sensory nerves only, with no demonstrable effect upon the width of blood-vessels. This in

contrast to the ischemic action of cocaine, and the suprarenal principle which first reduces the capacity of the vessels to be followed by a dilatation: hemostasis, congestion. Spiess applied local anesthesia therapeutically in a series of operations in the throat, on the tongue, cheeks, lips, etc. If superficial analgesia was not sufficient, submucous injections were resorted to; all depending upon securing such frequent and intimate contact of the anesthetic with the lesion that all subjective painful sensations were checked entirely or reduced to a minimum. The subjective sensibility will correspond to the appearance of the wound and the degree of irritation. When pain is wholly absent or only unilateral the tissue may be regarded as non-inflammatory. In operative procedures the site of the needle-puncture itself should be made anesthetic before insertion into the tissue in order to avoid pain.

In minor injuries of the tongue, says Fischer (*Deutsche Monatschrift f. Zahnheilkunde*, XXV., April, 1907), due to sharp angles of the teeth, etc., in small vesicles at the margin of the tongue distinguished by intense pain, the subjective disturbances vanish after a series of anesthetizations given in rapid succession.

Coryza, if treated with local anesthetic insufflations is relieved by removing the irritation in the nasopharynx, thus bringing the tissues into a normal condition.

If these agents are rubbed into small cutaneous abrasions, lacerations, etc., or into wounds produced by the stings of wasps, bees, mosquitos, or other insects, in the form of solution or thick watery paste until the pain has disappeared, the friction does not produce redness or swelling, but, on the contrary, the swelling disappears, the wound becomes pale and insensitive, while the wound edges approximate and favor instant healing.

These observations have established the fact beyond cavil that local anesthetics remove pain, and that if this action can be maintained by continuous anesthetization, wounds heal without inflammation. If inflammation is already in evidence, it is made to disappear in short order. This action cannot be attributed to an antiseptic influence, for the anesthetics have no such property. It would seem, therefore, that the abolishment of pain and irritation must be the explanation of the beneficial results.

Sleep in which sensibility is depressed is favorable for the course of disease. The vexatious secretions of catarrhal coryza, for instance, almost cease during sleep, indicating hypoesthesia. In mild inflammations, sleep-hypoesthesia renders the inflammatory irritation inactive; the vasomotor reflex present in waking hours is not produced, secretion is lessened, and, in the case of coryza, the subjective symptoms are absent.

Numerous researches have shown that redness rises and falls with the presence or absence of pain. Also that an inflammation at its acme of development may lose its redness in a short time by the use of anesthetics; a result not obtainable with antiphlogistics. The disappearance of redness can be explained as follows: (1) An excitation of sensory nerves by reflex causes hyperesthesia; the suppression of this excitation can either prevent the development of hyperemia or remove it if already present. (2) The remedy influences the sensory nerves alone, and the vessels retain the normal play of their functions. (3) Anesthesia is required only to the extent of abolishing reflex action, which starts from the sensory nerves of inflamed tissues.

These postulates apply to anesthesia of hysteria and insanity. A sufficient number of cases have been reported to establish the claim that injuries, burns, etc., in these patients heal promptly without reaction. Laparotomized insane patients have been known to tear off the dressings, and to play with the wounds with their dirty hands, and still the wounds have healed promptly and smoothly. Hysterics, as is well known, can stick pins or needles through their skin without unpleasant consequences following. Cases, in fact, have been reported where in general anesthesia the patient was not scalded by boiling water. This can be explained on the supposition that the receptory nerves could not be irritated; the influence of heat being of short duration, a direct thermic action on the tissues is absent. Animal experiments made under special anesthesia corroborate these findings.

It is seldom that the sensory zone alone is involved in hysteria. There are other pathological processes in which the sympathetic or trophic nerves participate: in gangrene, due to contact with chemical agents such as phenol, which causes local abolition of sensation, as well as direct action on the vessels which are paralyzed, and their functions abolished. Cold, in the form of ether spray will arrest sensation, and if persisted in attack the vasomotor nerves of the vessels, causing gangrene.

While anesthesia of the sensory nerves alone is able to prevent or remove inflammation, the action is more prompt and powerful if the sympathetic fibres are also paralyzed, as has been shown in animal experiments by Samuel. Furthermore, everything published on Bier's stasis forces us to the conclusion that it is an excellent anesthetic. In fact, it would seem that the only conclusions to be arrived at is that the antiphlogistic value of Bier's method must be due alone to this property of anesthesia.

Rosenbach, elsewhere referred to, declares that the favorable action of anesthetics does not depend essentially upon the removal of pain; that pain is but one incident, however significant it may be considered, in a composite process. He believes that these remedies, local and general anesthetics, act directly upon the inflammed tissues themselves, *i.e.* upon the internal metabolism, their influence being of a tonic or regulating character. Heat, redness, and swelling all indicate a disordered internal working of the tissue cells. When it is not possible to cut short a mucous inflammation which has diffused beyond a certain point, with profuse secretion, for instance bronchitis, nothing relieves the condition so promptly or so well as repeated doses of an opiate, notably morphine, which influences the internal workings of the mucosa by arresting the secretory or motor spasm of the smallest elements of the hyperemia. The effect of this treatment is often astonishing; for with a single stroke the fluid secretion is checked and eventually removed.

Rosenbach prefers morphine to which he attributes a special action in restoring the normal activity of the tissues and in regulating their internal work, and especially because its effects are more prolonged than those of the local anesthetics proper. When the effects of the latter wear off, the hyperemia returns, so he claims. Nevertheless, in all local external inflammations Spiess's local method gives the best chance for rapid recovery; while in inflammations of the internal mucosa, especially in erysipelas under certain conditions, a general de-

pression of excitability offers greater advantages.

Rosenbach continues: "However much I agree with others as to the favorable effects of anesthetics and sleep, my explanation of such results differs essentially from that of Spiess, for while it cannot be denied that sleep eliminates reflex action and with it numerous phenomena which militate against healing, yet this salutary result is not due to loss of consciousness alone, for the inaction of the cerebral cortex is only an expression of diminished work of the organism as a whole." Rosenbach further believes that during sleep the anabolic activity of the tissues is increased so that only the gross impulses of sensations are abolished, the finer ones which preside over tissue changes being uninterrupted.

In regard to general narcotics, ether and chloroform work primarily upon the nerve contents, while morphine, although its action is eventually central, acts primarily upon the peripheral nerves.

Opium in the treatment of acute peritonitis has long been regarded as not only a panacea, but as a curative agent, and this through its action upon the nerves. It facilitates rest or sleep, which is all-important; favors localization of the morbid processes by suppressing peristaltic movements which would break adhesions. The objections to opium treatment of peritonitis are that it masks the clinical picture and that meteorism follows as does also constipation. If small doses, however, are used and continued, says Pel, control of peristalsis is effected and meteorism is avoided, while the inhibitory effect upon the nerves is in evidence.

In conclusion it would seem that, if irritation can be avoided, inflammation will not occur; and it would follow that this treatment should not be confined to merely local conditions, but should be extended to inflammations of deep seated structures as well. The nerve trunks supplying a number of organs or areas can, many of them, be reached by local anesthetics or by such narcotics as will control pain, thus influencing localized irritation, and so the damage to organs or tissues can be avoided. This opens up a wide field for experimentation with a prospect that success will follow. Surely earnest trials are to be recommended in view of the results above detailed.

OUR MEDICAL EDUCATIONAL SYSTEM.

By O. L. MULOT, M.D.,

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For some time past there has been manifest a widespread interest in our general educational system, and the opinions of those, qualified by training and position, who have critically examined into these conditions, have made it clear that there is need for salutary changes and reforms. That special educational systems could not escape this general analysis is only natural and right, for in no class of schools is it more important that their product be the best. That medical graduates should be trained to the very highest possible practical and theoretical efficiency is of great importance to the general public and to our standing as a medically learned nation.

No schools in this country have undergone such changes and improvements as the medical colleges. The requisite time of study has been doubled and the number of studies in which the student is expected to qualify has been trebled; but with all this, when one follows even meager reports of the discussions and deliberations of the American Academy of Medicine it becomes evident that there has not been a general all-around improvement. A speaker, at a meeting of the American Academy of Medicine, held in Pittsburg, January 2 and 3, 1908,* quoting from a report of the Committee of "The National Confederation of State Medical Examining and Licensing Boards," showed the wide variance in time, devoted to various subjects in different schools; obstetrics ranging from 460 hours in one school to 52 hours in another, orthopedic surgery from 780 hours to 13 hours, general surgery from 2221 hours to 72 hours, physiology from 750 hours to 56 hours, chemistry from 756 hours to 78 hours. These grotesque figures demand that we pause, examine, and analyze them. They do not mean that all the low figures are in one school or all the high ones in another, and they can mean only one of two things. For instance in the case where only 52 hours are devoted to obstetrics, it probably means that there is no man in that faculty who is really fitted to properly teach that subject. Surely the subject is of such vast importance, no matter in what community a man goes to practise, that the graduate needs a better knowledge of it than could be obtained in that length of time; it would take a student longer than that to read a compend, to say nothing of manikin demonstrations, which in lieu of actual clinical experience is the next best thing and certainly superior to purely didactic teaching. Every community needs a better trained man in this branch.

On the other hand, in the school in which 780 hours or devoted to orthopedic surgery, we have in all probability, a strong, able, dominating personality, who demands, for what justly in the general makeup of a physician's knowledge must be considered a minor, time and a proficiency that the student must get at the expense of some other subject probably one of more general, all-around practical value. In the case where 2,221 hours are devoted to surgery, it means that at least one half if not more of the students' time is taken up by this one subject. It must follow that the other studies suffer, and the graduates from that school feel and are handicapped in a general practice, which is what most of them must go into.

If these deductions are correct, what, then, is the remedy? While there have been many papers and much discussion on this subject, these have lacked definite remedial plans. My only excuse for adding to this discussion is to point out lines along which salutory changes could be accomplished and urge the adoption of plans to bring about their realization. It would also seem common sense to devote effort first to the proper proportion and grouping of the subjects of the medical course, and have this definitely settled, before we indulge in talk about what studies the prospective medical student can advantageously take up during the last two years of his academic course.

The question of proper proportion and grouping of the subjects of the medical course could well be submitted to a convention to which all of the medical schools should be invited to send delegates. Here could be worked out a maximum and minimum schedule of hours for each subject, or group of subjects for each year, which would give the best all-around results and standards, not alone final but for each year of the course. That such taking of

*Medical Record, February 1, 1908.

council together of teachers could bring only gain to each school and each subject is certain, and inestimable advantages to the student body would grow from it. The possible good which can spring from this plan is far too great to warrant an off-hand rejection. It may be argued that some schools, and among these there might be large and small ones, would not participate. But were such a convention and its findings, which, of course, should be binding, to receive the endorsement of the medical examining and licensing boards, and these grant to the graduates of the schools signatory to the convention, a license to practise without further examination, it would force every school to become signatory and comply with its findings. Some may advance the objection that the examining and licensing boards would never do this, as it would practically be terminating their own existence. This does not necessarily follow, for in these boards could very well be placed the whole examining duties, not simply the finals but the year's end examinations. This I believe is practised in England; it would do away with touchstone subjects that have often driven worthy students from one school to another. These touchstone subjects have been the source of much of the contempt that the graduates of small schools have complained of and experienced at the hands of those from the larger and more pretentious ones. There has been much wrong in this: a subject should be made a touchstone only when it is very well taught, and this has not always been the case.

The harmonizing in all schools of the groups of studies for each year and the equalizing of standards would make it possible for the student to go from one school to another, taking a year here and a year there, without each time having to undergo the ordeal of extra examinations. It would do away with the superciliousness which the graduates from small schools have so often undeservedly experienced. This going from school to school is very common in Europe, particularly in Germany, and has much to recommend it. The student becomes familiar with the ideas of several teachers of the same subject, which in itself is of advantage in more ways than one. Should he desire, and opportunity offer, a teaching career, he is in a position to have inherited virtues from all of his teachers, enabling him better to recognize their defects and reject the latter, and hence is pedagogically more valuable to the school and his pupils. Furthermore, to many students this plan would offer economic advantages; he could take his first three years in the college or colleges nearest his home, perhaps in small cities where clinical material is not abundant and still in such schools be properly prepared to take his final year in one of the schools in a large city where there is a superabundance of clinical material. While the small college may object to such an arrangement, still it would be a perfectly dignified rôle to fill. The main object should not be the number of graduates, but well-taught students, and that will redound more to the credit of an institution than large classes. The railroad fare for a long trip to great centers of population and the much higher cost of living are economic factors that the student would, and the college should, consider; and other things being equal these should assure the school proper patronage from its legitimate territory.

This question of clinical material is an all important one to medical schools and their students. Just how large a number of inhabitants is necessary to give adequate material it is not intended here to go into; the schools are established, to move them to more advantageous centers, which would be the only remedy, is impracticable for several reasons. Often a school has been started in a city that affords ample material for one school, and then for reasons that we ignore, a second school is established, but the material that was adequate for one does not suffice for two, with the result that we have two schools that are suffering from this defect. This is a very common condition of affairs, and there are quite a few cities, that, according to post-office classification are second and third rate cities, in which are located three and four medical schools. The obvious remedy, consolidation, would bring prosperity to the school and fame as a medical educational center to the city. Furthermore, the adoption of this plan of harmonized and interscholastically standardized teaching and curricula would bring some changes in the number of graduates who make pilgrimages to European shrines of learning. Large numbers of men, from our different schools have gone abroad each year, from schools of such diverse standards, not so much diverse as a whole, but in individual subjects, men coming from schools in small centers where there is an admitted lack of clinical material. These men medically and often also linguistically unprepared have gone to study with men who are teaching advanced and complex work. This was a bad advertisement and has much to do with the poor opinion and esteem in which the product of our medical schools is held in Europe. The welcome which is accorded American dollars must not be misconstrued. This country of ours presents grand opportunities for clinical studies and of these more students should avail themselves, before going abroad.

But to return to the question where a school lacks a man or men to teach a certain subject, what is to be done? In the large schools there are to be found, in every department, promising men filling minor positions; among these may be found men who besides being thoroughly competent in their branch of medical science also possess in a high degree pedagogic talent, and the latter is a personal asset that does not or has not received sufficient consideration at the hands of medical school authorities. To such men a call to a professorship would mean a distinct step toward their goal. Yet many could not accept such a call even if made, unless there went with it an adequate compensation. A salary at least sufficient for immediate living expenses; few can afford to give up the private practice which they have built up, go to other fields, and begin again the tedious work of starting anew, even for the prestige of the title of professor. This is common practice abroad, particularly in Germany. There a man starts in as an instructor, I believe they there call it a "Privat dozent" and if he, to borrow a slang term, "makes good" he can at any time expect a call to a professorship in some other school. In that country progress in the career of a medical educator is not a question of sticking in one school and waiting until those above drop out either by death or resignation. There it is rare that a man has climbed the ladder to a professorship in the same school in which he started his career as a teacher. This plan of calling from one school to another has much to recommend it. The rubbing up against a different set of coworkers infuses new ideas and new methods into both sides and minimizes the retention of old grooves of thought and mannerism; this retention of mannerism is very

noticeable in our schools where it is the practice to develop from their own graduates their successions of teachers. Is this due to an intellectual heredity or is it just natural imitativeness?

Men who give their time to teaching medical students should be compensated, no matter what their position, from instructor up. If their services are good enough to accept, the services should be paid for, and if not good enough to be paid for, then their work is not good enough for the students. In divinity, law, and academic schools do men teach gratuitously? No, they are paid and paid well. There certainly is no reason why medical schools and medical teaching should be an exception. This is a deplorable and demoralizing state of affairs and leaves little attraction in a career as a medical educator, no matter how congenial such work might be to a man, or he by nature endowed with talent for the same. Then, too, when the college does compensate a man, the sum is so ridiculously small, that when mentioned to those in other walks of life, you are regarded as a man whose veracity is to be questioned; and when the hearers are assured that it is the truth, they ask, "Why do you do it?" Still it must be done and under existing circumstances some must make the sacrifice. But this does not make it right. "Well, why do you do it?" I wonder how many teachers of medicine have asked themselves that question over and over again. How many things do we doctors do, for which we get no compensation, though for similar work in other walks of life there is monetary reward.

It requires but little calculation to convince anyone that such a teacher's salary list could not be met from the sum of the fees received from the students; but do the fees received from the students in the divinity, law, and academic schools, suffice to meet the salary lists of those institutions? Evidently not; it must come from an endowed fund. You say, "Ah, there's the rub!" Medical schools are not being endowed as are other schools. Let us ask ourselves, in all candor, upon whom the responsibility for this condition should fall. Are not doctors, particularly those who stand high in the profession and practice among the rich, in just as good a position to obtain gifts and endowments for medical schools, as are ministers, lawyers, and the alumni of academic institutions? That they surely are, I think no one will dispute. What then will explain this indifference? Does the medical alumnus owe less fealty to his alma mater than is given to her of other schools? This can and should be remedied, but the big ones in the profession must make the beginning and then the lesser ones will not be found wanting. Is the proper education of medical men, the very best possible medical schools of less importance to the community, than are other branches? If this question is properly presented to those who can best answer, it will be satisfactorily met, as the Carnegie, Rockefeller, and Phipps donations prove.

On this question of fealty to our alma mater, I think I can do no better than to quote, in his own words, the sentiments of a recent graduate, on this point. "A student finds a big difference between academic and medical schools. In the former, the professors and instructors are ever ready and willing to explain and help him, and he goes to them with his perplexities without fear or trepidation. Not so in the latter; there a question is frowned at, illy explained, or ignored. If, in a medical school, a student fails in a study and he makes inquiry, he can get no satisfaction. Many of the minor instructors seem to consider their teaching duties a side issue. The student pays his fees and has a right to demand that the teaching be paramount not perfunctory. This cold, indifferent, often disdainful treatment that the student experiences from his medical teachers generates in his breast only a feeling of indifference for his alma mater."

This question of the attitude of teachers to students is a serious one, and should receive earnest attention from those in authority. It constitutes a most powerful argument for the plea of compensation of teachers. If their services were paid for, it would be an incentive to make their work interesting and valuable to the students. They would not consider their teaching duties as a side issue and the faculty would be in a better position to demand good work, also find it easier to satisfactorily fill vacancies. As things now stand there is too little incentive and the prospects of promotion are too poor to warrant a man to make such sacrifices of his private interests as a teaching career exacts. The raising of endowment funds for the compensation of teachers and the calling of men from one college to another would promptly work beneficent changes in this attitude of teachers toward students. There can be no elective studies in medicine during the pregraduating years, but where two men are teaching practically the same subject, I can see no objection and believe only good would come from allowing the student the choice with which of these he wishes to pursue the subject. On another occasion I have expressed the belief that the student body can safely be trusted to form a correct value of a teacher, and this matter of student choice, besides stimulating the natural pride of the instructor, would demonstrate, both to the faculty and the individual teacher, his pedagogic usefulness or uselessness, and thus materially aid in the elimination of dead wood from the teaching staff.

Medical science is undergoing constant changes, and as a result of this certain branches ascend or descend in the scale of relative importance, necessitating revisement and readjustment of schedules. The medical course should be well balanced, the relative and positive values of each subject well weighed, and the time allotment for each so adjusted as to produce a well-rounded whole. No subject, particularly not one of relatively minor importance, should be allowed time at the expense of another of more positive practical value. By a revisement of schedules and the introduction of better pedagogic methods it would be possible to effect economies of time and for the medical student that "time is money" is as true as for any other. I do not mean by that to shorten the course—far from it—but to gain time for other studies. Nor should one year's schedule be so crowded as to leave the student little or no time for text-book study or recreation, and another year's work so chopped up by hours of required attendance at the school that the intervening time is practically wasted. This can and should be avoided. The study week of 40 hours and the course of 40 weeks, permits of such arrangement as to avoid this. There should be no hesitancy in the adoption of better and more expeditious teaching methods. For example, in the teaching of anatomy, the student hears lectures on osteology, syndesmology, and so on; then he begins to dissect. In the lecture room he is taught anatomy from within out, and in the dissecting room he is taught it from without in, and the latter is the form in which he has the most need to know his anatomy. Then why

not entirely abolish the first method, do away with the lectures, take half of the time thus gained, add it to the second method, and the other half of the time thus saved devote to other studies? This certainly would be a time economy. For this plan, divide the class into three or four sections, according to the division of the cadaver, place an anatomist at the head of each section. Section "A" to dissect the head and neck; let the teacher explain the first dissection of these parts; how to dissect, for what to look, and where to find it. The next section proceeds in the same manner and each section continues this work until nothing but the separate bony component parts remain. Then the sections change their parts but not their teachers. Anatomy could thus be taught in three-fourths of the time and a better and more lasting knowledge of the subject instilled than is now done.

That certain subjects receive more time and attention than their ultimate usefulness to the graduate would warrant, I believe is true. I have especially in mind the work that the student is required to do with the microscope; histology, physiology, embryology, bacteriology, pathology, and clinical pathology. Far from deprecating the value of exact knowledge of tissues and disease processes, still this knowledge is of value only when it supplements other knowledge. Every one who has thoughtfully followed the progress of bacteriology must realize how this is lessening daily the value of microscopical pathology. We are fast coming to the understanding that all these cellular changes are, after all, only the immediate or remote results of bacterial action. For the men who intend to specialize along such lines, the present quantity of microscope work is a help, but these form after all only a very small percentage of each year's college output. Let the men who have been responsible for this forcing of microscopical study pause and think how small a percentage of the graduates start out equipped with a microscope. Such an equipment is so costly that few can afford it at the outset. There are so many more pressing demands upon the young student's purse—office furniture, instruments, larger works of reference for his library than sufficed for his college studies—that an outlay approximating $200 for a microscope and the necessary accessories, is not to be thought of until his earnings warrant it. In the meantime he has his necessary microscopical work done and done better than he himself could do it, by those who have specialized on this work, and done at a cost less than the interest would amount to on the sum involved, were he so to equip himself. During this time he is losing his microscopic technique. Not alone this, but from where is the general practitioner to get pathological material to continue his work? The law prohibits the physician from possessing parts of bodies, but even were this not so and he regard this law as a dead letter, he is prohibited from experimenting on living animals, and this certainly shuts him out from individual bacteriological work. Thus it happens that five years after graduation nine-tenths of the men look through a microscope with much less understanding than when they were students. They have fast lost something to the acquiring of which they were forced to devote much time, and the individual has learned that he can practise medicine without a microscope. His patients pay others for the necessary examinations, and had he made these himself he would have been refused compensation for this work by them, they considering such work when performed by the doctor whom they consult as something included in the fee.

As the course stands now every student feels that he must get a hospital appointment before entering private practice, and while this is of unquestionable desirability, still there are not enough hospitals to go around, and impecuniosity prevents some from taking a hospital service. Why should these be forced to go through their professional life feeling handicapped by a lack of hospital experience if the college really did the very best possible by them for the fees they paid?

Then, too, there are many hospitals in which an interne service can be of only questionable value. In many of these small hospitals the work is almost entirely surgical, and this not always of a very high order. The shameless bartering and wire pulling that has attended the naming of the visiting staff of some of our sectarian hospitals, where for a certain sum a man is made an attending, and for half such a sum he is made only an assisting attending, makes it easy to understand that the graduate may find himself in a hospital, with superiors who can teach him little, because these hold their positions for reasons other than merit. In just such hospitals it occurs that the interne positions are promised to this or that man, one or two years before his graduation, and the advertised competitive examination, to which the student body is invited, is a mere matter of form, a foregone conclusion, and a farce.

So many of our men have been abroad, but how little original work have we seen emanate from them since their return? We have permitted a detrimental Germano-mania to possess us in this matter of foreign study. What was earlier said about being linguistically illy prepared applies particularly here. German is a very difficult language for the English tongue, as there is almost no similarity between the two; but there is a great similarity between French and particularly medical French and medical English. How gross is the ignorance in our country of even the names of Frenchmen who have given to the world recent valuable discoveries, is shown by the fact that recently a lecturer, speaking of the agglutination test, said that it was discovered by a German by the name of Widal. His surprise was great when, after the lecture, I informed him that F. Widal is a professor of the Faculty of Medicine at Paris. Are we not as competent as our Teutonic colleagues to judge the claims of discoveries, or must these all first get the hallmark of Germany and come to us via that route? There is always some danger that in transit the name of the maker may be come illegally blurred. Is England in medical science to-day a negligible quantity? Their books would not warrant an affirmative reply to this question. Knowledge is not the exclusive property of any nation, race, or creed, and there can be no doubt that many of our leading men, and by that I mean especially those who are teaching, have been handicapped by a lack of knowledge of foreign languages; it is bad to be dependent upon translators who in turn are dependent upon publishers. The latter say the French authors are not in fashion now, and for this reason, and it is a perfectly good one from a business standpoint, translations of French works are not available. Personally familiar with both languages, I feel justified in saying that this is a great loss. The pendulum of popular favor is bound to swing back, and then we will have to guard against the other extreme.

We must not forget to make due allowance for the difference of conditions under which our teachers have to work in this country from those in Europe. Nevertheless too few of our leading men are original and independent investigators. The conditions which prevent them from being this are to be deplored, but those conditions which are mostly of a mercantile character should not be allowed to entirely choke scientific work, which always will yield more lasting honors. To illustrate: a student came to me and asked that I suggest a line for original research; he had asked the director of the pathological laboratory and several others, teachers in the school that he was attending, and none could or seemed willing to indicate a line for him to work on. This is a strange and sad state of affairs. With so many questions waiting to be solved and for the solution of which the profession is anxiously waiting, should the help of any worker be discouraged? It is difficult under such circumstances not to form too hasty and harsh judgment. These men may have lacked faith in the ability of that student to undertake such work, and have suspected that the scholarship and its advantages, rather than an earnest desire for, and a love of, research were the mainsprings of his ambition.

If our medical schools were brought up to a higher efficiency and more systematized courses given, there is no reason why the schools should not enjoy the lucrative patronage of those seeking postgraduate instruction. The very existence of postgraduate schools is the best evidence that the regular schools are not what they should or could be. I do not mean by that that if our schools were raised even to ideal heights and standards that men would not feel the need and desire for postgraduate work: far from it; but these men should find such work in its best and highest form in the regular schools and under the teachers there. Besides, it has been a business shortsightedness to allow the fees that have been paid into postgraduate schools to flow elsewhere than into the treasury of the regular schools. Such fees would have gone a long way towards the compensation of teachers. Whether the suggestions for a conference or convention, for uniformity of curricula and standards, and the creation of funds to salary teachers are adopted or not, should in no way interfere or even delay the institution of such improvements as it lies in the power of the teaching body of each school to make, for which, from a study of a large number of announcements, there seems need in every school. The teaching bodies should not wait until the now only isolated grumblings from students* swell to an angry, turbulent protest that will drag the family skeleton of medical educational institutions from its dark closet and parade it through the sensational lay papers, to the delectation of Christian scientists, faith curists, and others.

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Nervous Exhaustion and Lecithin.—F. W. Alexander recommends the use of lecithin in neurasthenia. He says that "the nerve centers depend on lecithin for the highest performance of their functions, and must obtain it from the lecithin extracted from the food eaten. Brain and nerve exhaustion are caused through the undue expenditure of lecithin in the brain." This loss "is eliminated by the administration of lecithin or organic phosphorus. Lecithin should be considered as a food rather than a drug." —*The Medical Times*, London.

*Medical Record, Jan. 4. 1908.

A CLINICAL AND BACTERIOLOGICAL STUDY OF FORTY-ONE CONSECUTIVE CASES OF DIPHTHERIA.

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Diphtheria is a disease which most commonly affects the posterior portions of the buccal cavity, producing, as the name implies, in its so-called typical form, a pseudomembrane which covers a part or whole of the tonsils and adjacent structures. On the other hand, in some instances as my cases lead me particularly to emphasize, there may be only a simple redness and swelling of the tonsils and pharyngeal wall without membrane. This absence of membrane in true diphtheria has been noted by many observers, beginning with Trousseau[1] in 1828, reiterated with more accurate data by Gerhardt[2] in 1883, and by many others since, but has not received sufficient attention from writers of books and practising physicians.

The clinical manifestations of diphtheria are so divergent that no one can diagnose correctly on clinical grounds alone any but the typical cases. The assistance of bacteriological analysis is necessary before the identity of the less typical examples, and particularly those without membrane, can be proved, therefore, bacteriological methods should always be employed in cases of nose and throat lesions during the occurrence of epidemics, whether a membrane is present or not. The time, skill, and apparatus required are insignificant compared to the value of the accurate data thus acquired.

The prominent clinical phenomena noted in my cases were as follows: The majority of patients, as is characteristic of the disease, were dull, listless, lethargic, that is, asthenia was marked. In some of the milder cases and others seen near the onset this feature was not present. In the cases due to the Klebs-Loeffler bacillus alone, severe pain was not present. Only in those cases complicated by a secondary infection by the ordinary pus cocci was severe pain a prominent feature.

An erythematous eruption resembling that of measles was noted in one case without membrane and in one case with a typical membrane. In two cases without membrane the eruption simulated that of scarlet fever very closely. In the three cases without membrane this eruption was misleading and could not have been diagnosed without bacteriological examination.

In those cases due to the bacillus of diphtheria alone the temperature noted ran from 97 to 102, 99 and 99½ was noted in very many cases for several days. In those cases associated with the staphylococcus and streptococcus and adenitis the temperature was irregular, running from 98 to 104, up one day and down again, then up again.

The pulse rates noted ran from 100 to 160; 120 to 140 being the most frequent. In one case due to the Klebs-Loeffler bacillus alone the pulse was maintained at 160 for three successive days.

Cervical lymphadenitis presenting on inspection a mass as large as half of a hen's egg and larger was present in ten of the cases without membrane. In two of these it was bilateral, extremely painful, tender, and the skin a bright red in color. In one case suppuration necessitated surgical treatment. The abscess contained staphylococci and streptococci but no bacilli. Nine cases of typical diphtheria with membrane also showed a pronounced adenitis.

In one of these the swelling involved the region from the parotid gland above to the clavicle below, and from the median line in front to the median line behind. Staphylococci were found in the throat cultures of all cases in which adenitis occurred.

A history of frequent colds and preexisting chronic tonsillitis was noted in a majority of all cases. To establish the importance of these conditions as predisposing factors the following experiments were made: A culture was made from a normal adult throat as a control. This culture was incubated at body temperature for 24 hours, when it showed a scanty growth consisting of streptococci and staphylococci. A fresh subculture of *B. diphtheriæ* from case 22 was rubbed thoroughly over the tonsils. A culture was then taken every 24 hours for a period of two weeks. These cultures all showed a few typical Klebs-Loeffler bacilli, increasing in number for the first three days then slowly decreasing and disappearing in two weeks. A very marked increase in number of the staphylococci and streptococci as compared with the control was noted in all these cultures. Redness of the pharynx was present for a week. No other local or general symptoms were ever noted.

The same experiment was made using a pure culture purchased from a manufacturing chemist, resulting in fewer bacilli in the cultures and less reaction. In the next experiment a half dozen superficial incisions were made on the tonsils with a scapel and a 24-hour culture from case 40 was rubbed into these incisions by means of a platinum wire. The results were identical with those described above. No general symptoms of any kind arose in any of these experiments. An incision through the skin covering the deltoid was made with a scalpel and a swab direct from the throat of case 40 was rubbed into the wound. This procedure was repeated twice using a twenty-four-hour culture from the same throat (case 40). Case 40 had a mild attack of scarlet fever seven weeks before and was examined bacteriologically at that time. Strictly local lesions of an intense character were produced. Forty-eight hours after inoculation for a radius of 1 cm. there was an areola with a sharply defined border, intensely red, slightly elevated. In its center there was a small necrotic focus containing a yellowish-white exudate consisting of diphtheria bacilli, fibrin, leucocytes, and fixed cells, which are cells in an advanced state of degeneration. Cultures on blood serum developed only Klebs-Loeffler bacilli identical with those in the original culture. The same experiment was repeated with bacilli from case 41 with the same results. The results of these experiments indicate: 1, that the Klebs-Loeffler bacilli stimulate the growth of the normal bacterial inhabitants of the throat probably by preparing a favorable soil. 2. That the normal human throat offers considerable resistance to *B. diphtheriæ*, successfully withstanding large numbers of them, even when the mucous membrane is broken.

Pathological anatomy and pathogenesis of pseudomembrane. The essentials of the local lesions are degenerative changes in the epithelial cells with an abundant fibrinous exudate. There is a multiplication of the nuclei by direct division into two to ten. Vacuolation of the cytoplasm, necrosis of the cell, fragmentation of the nuclei, or hyaline transformation.

The inflammatory exudate collects in the cytoplasm of degenerating epithelial cells causing vacuolation, or it may accumulate below the cornified layer of squamous epithelium. The cellular elements are polynuclear endothelial cells and to a less extent those of a lymphoid type: to this we must add a supply of fibrin deposited in the epithelial cells and between the individual cells.

The membrane depends on the distribution of this fibrin, degenerative and exudative processes separately or combined (due to toxic action). In the beginning the blood-vessels are engorged and the lymph vessels dilated. General edema of the tissues with a diffuse formation of fibrin in the field.

Diphtheria without Membrane.—In my 28 cases of diphtheria without membrane the local lesions consisted of more or less but never extreme swelling. Edema or submucous effusion rendering the tissues translucent was never present. There was a bright uniform redness of the tonsils, pillars, soft palate, and post pharyngeal wall. No dilated blood-vessels were visible as in acute pharyngitis.

Councilman, Mallory, and Pearce[3] studied 251 fatal cases of diphtheria autopsies in the Boston City Hospital from Jan. 1, 1891 to June 30, 1905. They found a definite membrane in 148 or not quite 60 per cent (58.9%) of fatal cases. On the other hand, there are frequently non-diphtheritic lesions associated with a pseudomembraneous condition of the mouth and larynx.

Koplik,[4] working in the Carnegie Laboratory, made a very exhaustive study of a series of cases in which he noted some true diphtherias which never manifested any pseudomembranes, only redness and swelling. The most of these were mild but others were fatal. At the same time he found many cases with a typical pseudomembrane which showed only streptococci or the pseudodiphtheria bacillus of Hofmann.

Parke & Beebe[5] (1895), relate the following case: "A child with chronic coryza and anemia was admitted to a hospital ward. Five days later four of his neighbors developed diphtheria, two of them were fatal. Diphtheria bacilli were found in his nasal discharge."

Newsholme[6] (1904), reported the case of a boy who complained of headache followed by a nasal discharge. In a few days three of his classmates died of diphtheria. His nose was then examined and diphtheria bacilli were found. He also relates concerning another child who was ill for one day with sore throat and a headache. Five days later his sister developed diphtheria. A swab from his throat demonstrated diphtheria bacilli.

Bissel (1902), relates a case of a child who had a mild sore throat some time previously. Diphtheria occurred in the household he visited. Berry (1900), gives a number of similar cases.

Many observers have confirmed the fact that forms of diphtheria exist which clinically run their course without the manifestation of any visible membrane, from which at any time in the course of the disease the Klebs-Loeffler bacilli can be isolated.

From the literature and from my own cases it is safe to conclude that these so-called atypical cases are not rare and are frequently overlooked, and are the foci for the spread of the disease. The fact should be emphasized that the pseudomembrane is not a reliable diagnostic feature. We should amend our clinical conception of diphtheria to include all cases which when examined bacteriologically are shown to be due to the Klebs-Loeffler bacillus.

Membranes Not Diphtheritic.—Prudden[7] found twenty-two fatal cases of membraneous inflammation of the mouth and throat due only to the strepto-

coccus. Woodhead[7] (1901), found streptococci to be the only organism present in 565 out of 1,960 of 28 per cent of cases diagnosed on clinical grounds as diphtheria. Staphylococci alone sometimes cause a membrane and inflammation, but the mixed infection with the streptococci and staphylococci is the most common cause of non-diphtheritic membrane; 985, or 50 per cent of Woodhead's 1,960, were such.

Pneumococci may form a membrane in the throat as in a case reported by Cary and Lyon[8] in which a lobar pneumonia was complicated by a pesudomembrane, on nearly every mucous surface of the body, including conjunctiva, anus, and glans penis. Pneumococci only were found in all lesions. Also Netter (1891), when urgent symptoms required tracheotomy. The membrane expelled contained only pneumococci.

In Woodhead's series, 50 per cent of the pseudomembranes were due to the streptococci and staphylococci mixed and 28 per cent were due to the streptococci alone. While in Councilman, Mallory, and Pearce's series a definite membrane was present only in 60 per cent of fatal diphtheria.

The bacteriological identification of my cases was made by cultural characteristics and morphology. A few animal inoculations were made use of. Neisser's stain, Loeffler's alkaline methylene blue, and Cobbett's method of mounting in staining fluid and decolorizing with acetic acid while under observation were used in all cases. All measurements given were made on mounts in Canada balsam. Loeffler's blood serum, hydrocele fluid, and glucose agar were used as culture media. The culture tubes were inoculated at the bedside by means of a sterile platinum wire or a sterile cotton swab, and immediately attached to my undershirt by means of a string or adhesive plaster. When incubated in this way the growth of the diphtheria bacillus is astonishingly rapid and luxuriant. Colonies can be seen with the naked eye after four and a half hours and we never failed to obtain an abundant growth in less than twelve hours. The advantages of incubating this way are: 1. Much time is saved as incubation begins when the patient is first seen. 2. The culture positively cannot become too hot or too cold. 3. It is unnecessary to make a special trip to the laboratory to place the tube in an incubator. 4. The growth can be watched while attending to the usual duties.

Diphtheria with Membrane.—Oct. 16, 1908. Case I. Male, age 8, gave a history of an indefinite illness for a number of days. T. 101°. P. 128. Moderate cervical adenitis, throat red and swollen, small patches of whitish membrane not unlike that in follicular tonsillitis on the right tonsil. A spread made from a swab showed many bacilli of an average length of three microns. They were irregular in contour and stained irregularly. A culture made on blood serum showed an abundant growth in fifteen hours, consisting of small colonies, grayish white in color with a slightly yellowish tinge and a moist, greasy surface. A stained spread from this fifteen-hour culture consisted mainly of bacilli of an average length of 3 microns and about 0.5 micron wide. Grouping was characteristic. There were numerous granules or polar bodies by Neisser's stain.

Oct. 17, gave 4,000 units of antitoxin. Oct. 18, membrane all gone, feels better. Oct. 22, T. normal, P. 80 to 100, irregular and weak. Slight paralysis of the soft palate. Slowly regained perfect health.

Diphtheria without Membrane.—Case 22, Nov. 14, 1908. R. S., male, age 2, sick for five days. Bilateral swelling below angles of lower jaw, most pronounced on left. Pharynx red and swollen, left tonsil swollen more than the right. T. 100°., P. 140. Twenty-hour blood serum culture was composed of a few staphylococci and many bacilli ½ micron wide and 1½ microns long on an average, many were only 1 micron long and the longest measured 3 microns. Grouping, staining, and polar bodies were absolutely characteristic. Nov. 21, T. 103° in groin. P. 140; entire throat red and swollen; no exudate or membrane. Nov. 22, T. 96.8° in groin. P. 140. Dec. 5, large fluctuating tumor left side of the neck; two free incisions were made. Twenty-hour blood serum culture consisted mostly of staphylococci and a few streptococci. No bacilli of any kind were found in the abscess. December 10, healing nicely by granulation.

Diphtheria with membrane following scarlet fever. Case 40. March 3, 1909. E. McF., male, age 7. Had a mild attack of scarlet fever Feb. 1, 1909. Examined bacteriologically, found only streptococci and staphylococci. Complete recovery without complications. March 3, 1909, feeling badly two days. T. 103°. P. 148. General redness of pharynx, yellowish-white patch on the upper border of the right tonsil. Four thousand units of antitoxin were given and a culture was made. March 4, feeling as well as usual, running around eating apples T. 98.8°. P. 128. Throat red, only a small shred of membrane left. March 6, a membrane on the other tonsil. No treatment given. March 7, all membrane gone. Twelve-hour blood serum culture was pure Klebs-Loeffler bacilli from 1 to 3 microns long on an average, the most of them being 1.5 micron.

Summary of the forty-one cases may be made as follows:

Thirteen cases had a typical pseudomembrane. The bacilli were longer than in the non-membraneous, averaging 3 microns on the twenty-four hour cultures, they ran a more severe course and were frequently followed by paralyses.

Twenty-eight cases never exhibited membrane at any time. The bacilli in these non-membraneous cases were smaller than those in the cases with membrane, running from 1 to 3 microns, most of them being about 1.5 microns long. These cases ran a milder course throughout, responded readily and in a characteristic manner to treatment by antitoxin, none developed paralysis. It would seem that in these cases the bacilli belonging to the short variety were not so virulent as the longer forms in the cases with membrane. One case followed a peritonsillar abscess after its spontaneous rupture. Two cases followed scarlet fever, with an interval of perfect health of four and seven weeks, respectively. One case was followed by an abscess due to staphylococci and streptococci which was treated surgically. Paralytic sequelæ were noted in five cases. In three of these there was a myocarditis.

Antitoxin in doses of 4,000 units was administered to all cases as early as possible. In two advanced cases this dose was repeated twice. Recovery was complete and prompt in all cases. No local treatment was used in any case. Prophylactic doses of 1,000 units each were given to fifty-four individuals who had been exposed. None of these developed the disease. The only undesirable effect of the serum noted was an urticarial eruption in about 20 per cent of all cases, but most frequently in

those cases where only 1,000 units had been administered.

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COMPILATION OF SOME FACTS CONCERNING HIGH-FREQUENCY CURRENTS.

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High-frequency currents are currents of very high potential, having oscillations running up into the millions per second. This frequency of oscillation is obtained by passing a current of electricity through a series of step-up transformers and condensers and spark gaps and Tesla coils, in such a manner as to raise the potential, causing Hersian waves to emanate from the circuit, which are of as high tension as the high-frequency apparatus itself and creating differences of potential in the windings of the coil. The action of the current upon the primary or core is to magnetize and demagnetize the core, creating lines of force which circulate around the secondary winding, causing induced currents in the latter, which are of very high tension; those passing to the condensers hasten the elimination of the current from the primary at a tremendous speed; for the efficiency of the coil is dependent upon the rapidity with which the elimination takes place. A coil that is wound both in its primary and secondary to a very large size gives the greatest length and thickness of spark; the coil giving the thickest fuzzy spark stream is the best for most efficient results. The interrupted induction coil gives the best results for therapeutic work.

Vibratory electrization produces internal respiration of the tissues of the body, and by its dilating properties upon the arterioles hastens the flow of nutritive blood into the capillaries and thence to the tissues, forming the metabolic processes and placing the patient in a better condition for a longer and more active life. One should insulate the patient to get the normal value of high frequency. Currents of high frequency registering from 300 to 800 milliampères can be passed through the body without causing the least sensation or bodily inconvenience, which characteristic distinguishes high frequency from all other forms of electrical energy. High-frequency currents have a great influence upon respiration. They deepen the inspiration at once, and cause the patient to breathe freer, although this evidence is not always manifest to the same extent in all cases submitted for treatment, increasing the oxygen consumed from 6 to 19 per cent and hastening the activity of the reduction of oxyhemoglobin in cases of poor nutrition.

I know of no remedial agent that will eradicate pain so quickly, effectively, and permanently as the high-frequency current in the form of the transresonator effleuve in cases of muscular rheumatism in any part of the body, neuritis, articular rheumatism, and chronic rheumatism. It is the treatment par excellence, the pain being cured and muscular activity restored in a few treatments.

In neuritis sciatica, lumbago, and especially gout, the pain disappears as if by magic. One should begin with a mild current and increase its strength a little each treatment. In arthritis deformans, with pain, stiffness, tendernesss, and swelling not only in the joints but in the shaft of the bones between the joints, the pain, soreness, and stiffness disappear rapidly, no matter how long they may have existed, and even the deformities of the joints take on a more natural condition and straighten to a great extent.

In cases of submetabolism, where the urine shows a low specific gravity and the excretion of urea about half normal, where the resistance is subnormal, from whatever cause, which cases if let alone would develop Bright's disease or diabetes, nothing will raise the metabolism so quickly as the D'Arsonval current of from 300 to 400 milliampères for five minutes, followed by the effleuve for five minutes daily, or every other day as the case may be. This raises the specific gravity of the urine from a dangerous low to a higher one, and the patient from a condition of submetabolism to one of activity and life. In one of my cases, the specific gravity of the urine was raised from 1005, with albumin, to 1028, no albumin, in fourteen treatments. But it has been my experience that in beginning general D'Arsonvalization, it is well always to give one or two treatments of transresonator effleuve at first, because the general D'Arsonvalization is apt to affect the patient badly and excite reactive effects, one of which, in the writer's experience, is a shaking and trembling for two or three days.

While undergoing treatment, the patient should always sleep in a well-ventilated room with windows open top and bottom, winter or summer, so that the full benefit of the fresh air can be obtained; for the deepening of the respiration produced at once by the current causes the patient to inhale more oxygen, which makes a great difference in the final result. One should exercise strenuously in the open air, increasing the walking distance with precision up to ten miles daily if possible. He should bathe every morning in a quick short bath of one and a half minutes' duration (not a cleansing bath) immediately on rising from bed, standing or sitting in about twelve inches of water at 100°, and washing down the body, chest, arms to elbows and back quickly with a coarse linen towel wet with water at 70° or lower (low enough to produce a gasp according to the patient's reactive capacity), and rubbing and slapping the body hard with the thoroughly wet towel four or five times all over (the towel must be linen), and then dress, go out, and exercise.

For the eradication and total destruction of warts, moles, naevi, excrescences, and small tumors, there is nothing so quickly and certainly effective, in my experience as the high-frequency metallic

discharge. For these purposes, I use a specially constructed electrode, made of glass 8 inches long, with a fine copper wire extending the whole length and ending flush with the glass in a small hole, the other end connected with the secondary of the Tesla coil, this being completely insulated so as to treat only the special spot desired and not any of the adjacent surface. With two and a half ampères of current, I have removed tumors as large as a small hickory nut without a particle of pain or a moment's detention of the patient from his usual avocation.

Many skin diseases yield very readily to the transresonator effleuve with two and a half ampères of current. One case of ringworm extending almost around the body was cured in ten treatments by the writer. A second case of ringworm with thick crusts of chronic eczema an eighth of an inch high, on the left gluteal region, the ringworm extending down between the buttocks upon the scrotum, was cured in twenty-eight treatments, leaving only the reddened spots, which are gradually disappearing, to tell the tale where the disease had existed.

High-frequency currents are to be used as a rule where the condition has existed for some time, say at least two months. Although in several cases of acute muscular rheumatism I have obtained most excellent quick results, generally speaking, the best results are obtained "not in the presence of acute disease" (Piffard). Old ulcers which have become indolent, some of twenty years' standing, can be healed up by the effleuve.

Several cases of rheumatoid arthritis combined with gout were relieved in from twelve to fifteen treatments each, not continuous but at sometimes long intervals, and my case-book contains many reports of cases in which free stimulation by drugs had been made to no purpose, but which yielded readily and promptly to high-frequency curents.

Finally, it is necessary that a careful diagnosis of the patient's physical condition be made in each individual case, for, in badly selected cases, the application of a high-frequency current produces not only an injurious effect upon the sensibility and condition of the patient, but also injures its reputation as a therapeutic agent.

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REPORT OF A CASE OF HEMORRHAGIC RENAL INFARCT.

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NEW YORK.

In the *Archives of Internal Medicine* for April, 1908, there is an article on the clinical manifestations of hemorrhagic renal infarct in which the author, Geo. Halperin, M.D., states that he has been able to find in literature reports of only ten cases in addition to his own. I am able to report another case.

E. M., aet 30, born in Ireland, single, a parlor maid, had been in my care for two years suffering from aortic incompetency. On repeated examinations the urine usually contained a trace of albumin and an occasional hyalin cast. Specific gravity, 1020 to 1032; urates and uric acid; otherwise normal. During the winter of 1905-6 she suffered from digestive disturbances suggestive at times of a peptic ulcer.

On April 23, 1906, after lavage, which relieved her gastric symptoms, patient was suddenly attacked by severe right-sided abnormal pain. I found the right kidney displaced forward and downward, movable, very tender, and possibly enlarged. Pulse, 60; urine acid, 1030; considerable albumin urates, a few epithelial casts, numerous renal and pelvic epithelia, no blood.

On April 26 her temperature rose to 102.6°. On the following day the amount of urine passed was 40 ounces. A few red cells were found.

April 29, urine, neutral 1014; trace of albumin; a few hyalin, and one epithelial cast, a very few red cells and epithelia as before; amount, 40 ounces. Temperature, normal.

May 8, urine acid, 1014; albumin trace, indican trace, microscopic, normal.

May 18, acid, 1028; albumin trace, blood, a few casts.

June 12, acid, 1022; albumin faint trace, a very few hyalin casts; uric acid crystals; no blood; no indican.

June 23, the patient went home to Ireland, where she died a few months later.

I considered this case at the time one of embolism of a main branch of the right renal artery. I considered but ruled out calculus and Dietl's crises. I have no recollection of previous knowledge that the patient had a moveable right kidney, probably because I had never had occasion to examine her for one, my attention being usually centered on her heart. I did not report the case before, for the reason that, until seeing Dr. Halperin's article, I did not know that it was one of especial interest to others than myself.

123 East Fortieth Street.

Insufficiency of the Suprarenals in Scarlatina.—V. Hutinel describes symptoms arising in the course of scarlatina which are very suggestive of insufficiency of the suprarenals, and gives a most interesting illustrative case. The symptoms are asthenia, depression, failure of the heart power, hypotension of the arteries, tendency to syncope, abdominal pains, and a brown coloration of the skin. The use of small doses of adrenalin had a remarkable effect in the cases cited, the patient recovering after being in an apparently desperate condition. From the literature of past times the author drawn descriptions of similar cases accurately described and observed, but with etiology unknown. These seemed to indicate some kind of poisoning of the entire system. These symptoms are referable to the perversion of the function of the suprarenal capsules. In some cases autopsy shows changes in these organs, while in others that do not come to autopsy the syndrome is observed.—*Le Bulletin Médical.*

Contribution to the Therapeutics of Rupture of the Uterus or Vaginal Fornices.—Romolo Costa gives nine cases of rupture of the uterus and fornices treated by himself, and discusses the treatment of this condition. It occurs especially after version or forceps, when the physician does not realize the stretching of the lower uterine segment by the shoulders. Termination of labor by craniotomy, embryotomy, or evisceration, under anesthesia, are prophylactic operations. The serious factors in uterine rupture are hemorrhage, shock, and sepsis. Death rarely occurs from hemorrhage or shock—more often from sepsis due to blood and other fluids and solids which escape into the abdomen. Hemorrhage is serious when arterial, which is the case when with a contracted uterus we have continuous and violent hemorrhage. Here the uterine artery is lacerated in the parametrium, and an immediate laparotomy by the abdomen is indicated. The vaginal route is slower and gives poorer access to the wound. Venous hemorrhage may be controlled by an aseptic tampon. In slight lacerations it may be possible to suture the wound, especially when the peritoreal cavity has not been entered. In severe cases a tampon may be introduced temporarily at the home of the patient, and she may be removed to a hospital. The tampon is then removed, an accurate diagnosis made, and operation performed. To prevent sepsis, drainage must be established by means of gauze; antiseptic injections must be confined to the vagina, and all possible clots and other débris removed from the uterus. If operation becomes necessary the abdominal route is best; the wound may be sutured, the uterus amputated, or total hysterectomy performed, according to the demands of the case.—*Annali di Ostetricia e Ginecologia.*

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THE BACTERIOLOGY AND PATHOLOGICAL ANATOMY OF LEPROSY.

THE researches of the past twelve years, since the first Lepra Congress, have firmly established the lepra bacillus of Hansen as the specific cause of leprosy. Special staining methods have been introduced by which it is possible to demonstrate the young homogeneous bacilli, the old, granular, and dead bacilli, the resistant fat in the bacilli, and the fat in the glœa which holds them together. By these methods it has been shown that a large number of the bacilli in the tissues are dead. The differentiation by means of staining methods of the lepra bacillus from the tubercle bacillus is, however, still uncertain, and the classification of the lepra bacillus is also under discussion. J. M. H. MacLeod, writing on this subject in *The Lancet* of August 21, says that this bacillus was formerly believed to belong to the class of *Schizomycetes,* but the finding of a cladothrix arrangement and of branching forms like actinomyces has rendered it probable that it belongs to the class of the *Streptotrichœ.* Numerous attempts have been made to cultivate the bacillus, but no medium has been discovered on which it will invariably grow, and it has not been proved that the bacillus is present and can lead a saprophytic existence on decayed organic matter. Until this is proved the theory that the disease may result from the eating of decayed fish, pork, etc., cannot be accepted. Numerous inoculation experiments have been made, but up to the present time no lower animal has been found which is susceptible to leprosy, neither has the microbe been found in insects suspected of disseminating the disease. All attempts to extract from lepromata a substance which would produce in leprous patients a reaction analogous to that produced by tuberculin in tuberculous patients have been unsuccessful. It seems probable that the most common mode of invasion is *via* the nasal mucosa and upper respiratory passages, although it is possible that invasion may take place through the skin and the genital organs. Congenital leprosy has not been proved to occur.

The lepra bacilli may occur in the skin, eyes, mucous membranes, lymphatic glands, viscera, and peripheral nerves. They do not occur in physiological secretions unless pathologically contaminated. According as the bacilli show a special predilection for the peripheral nerves in contradistinction to a more general invasion of the tissues, with the formation of nodules or lepromata in the skin and viscera, so two types of disease are produced, the maculo-anesthetic and the nodular type. Various hypotheses have been advanced as to the precise conditions which determine whether a case should pertain to one or the other type, but thus far, MacLeod says, nothing definite can be stated. After gaining entrance into a tissue the bacilli appear to lie at first in the lymph spaces, and produce by their presence a mild inflammatory reaction. At first the infiltration is non-distinctive and consists of round spindle-shaped connective-tissue cells, lymphocytes, mast cells, and occasional polynuclear leucocytes should pyogenic organisms be present. So far the situation of the bacilli is mainly extracellular. As the bacilli multiply they form colonies united by homogeneous zooglœa, and the infiltration begins to show the presence of plasma cells around the capillaries. A certain number of bacilli become intracellular and large characteristic cells, containing vacuoles, one or more badly stained nuclei and bacilli singly or in clumps may be noted. These are the so-called lepra cells, on the origin of which there has been much diversity of opinion. The bacilli enter and spread slowly through the lymphatics, forming new leprous deposits wherever they go, or they are more quickly distributed to neighboring and distant parts by the blood stream. In the skin lepromata, bacilli have been confined as a rule to the corium, and there is generally a thin layer which is free from bacilli immediately beneath the epidermis. The fact, however, which appears to have been quite certainly determined, that bacilli have been found on the surface of the epidermis and in the scales is important as affecting the spread of the disease.

With regard to the leprous changes in the viscera, little has been added to our knowledge in recent years. The changes in the blood-vessels are now well known; the blood changes, however, have not been sufficiently worked out. Considerable advance has been made in regard to our knowledge of leprosy of the eyes. This is one of the late manifestations of nodular leprosy, and occurs usually after the face, eyebrows, and eyelids have been affected, being rarely a primary manifestation. Observers differ in opinion with regard to the histopathology of the patches of maculo-anesthetic leprosy, the chief point at issue being in regard to the manner in which these changes are brought about. As to nerve leprosy, all leprologists are agreed that the lepra bacilli may affect the nerves in their whole course, but there is no unanimity with regard to the mode of invasion, and opinions are divided as to whether the nerve infections occur first in the finer endings in the skin and ascend or whether there is a descending process, the result of general infection. There is great diversity of opinion also in regard to the presence of lepra bacilli in the cord and spinal ganglia. Until most or all of these problems are solved, it is not probable that any great advance will be made in the direction of a specific therapy of the disease, or of a certain means of prophylaxis, though, in northern latitudes, at least, the disease, possibly because of hygienic betterments, seems to be in a process of gradual extinction.

THE THERAPEUTIC VALUE OF ANTI-DIPHTHERITIC SERUM AS EXPRESSED IN UNITS OF ANTITOXINS.

Practice in the manufacture and therapeutic use of diphtheria antitoxin is to-day almost universally based on the theory that the curative value of any particular serum is accurately measured by its potency as expressed in units of antitoxin. Following the classical work of Ehrlich in the course of which the present system of standardizing the serum was developed, his pupils did careful work in which this was shown to be true so far as the experimental intoxication of guinea-pigs and rabbits with diphtheria toxin was concerned.

It is obviously impossible to obtain reliable data on this important question by direct comparison of various sera in the treatment of the human disease. Moreover, the disease cannot be reproduced in animals by infecting with the diphtheria bacillus apart from its toxin. The only reliable evidence obtainable, therefore, is to be derived from work with the toxin as a disease-producing agent. The French scientists, following Roux, have never fully accepted the view that the antitoxin unit was a true measure of the curative value of the serum, but they did not at first back this opinion with satisfactory experimental work, and the question was generally regarded as settled. In 1905, however, Cruveilhier reported experiments which seemed to show some discrepancy between the strength of the serum as expressed in units and its curative value against the intoxication. The report reopened the question and led to a thorough reexamination of the whole matter. Steinhardt and Banzhof in the Research Laboratory of the New York City Board of Health made experiments which resulted in accordance with those of the Ehrlich school. Belfanti came to the same conclusion. Kraus and Schwoner, on the other hand, seemed to obtain evidence of a striking sort in favor of the view of Roux and Cruveilhier. The established reputation of Kraus as an active investigator in the field of immunity, the detail with which the work was presented, and the striking discrepancy between the neutralizing and curative values of the antitoxin combined to make this a most serious attack on the view of Ehrlich.

A more recent, and, on the whole, the most convincing contribution to this subject is now presented by Berghaus of Ehrlich's Laboratory in Frankfort, in a series of articles in the *Centralblatt für Bakteriologie*, vols. 48, 49, and 50. He reports the examination from this point of view of a number of sera collected from the serum laboratories in various parts of the world. Among these were the particular preparations used by Kraus and Schwoner as a basis for their work. Berghaus' results are entirely in favor of the original opinion of Ehrlich. Kraus' results are shown to be viciated by serious and fundamental errors. Three samples of serum, used by him and asserted to have a potency in antitoxin units of 180 to 200 units per cubic centimeter, were found by Berghaus to have an actual potency of 300, 400, and 600 units respectively. These sera might obviously give a curative value out of all proportion to the neutralizing value as represented by the figures of Kraus. The experimental methods of Kraus and Schwoner are also shown to be not those best designed for an accurate estimation of the curative value of the serum. Correcting the error of titration and adopting somewhat different methods for the estimation of the curative value of the serum, Berghaus found that for these sera of Kraus, as well as for all others he examined, the potency of the serum expressed in standard units of antitoxin represented accurately its therapeutic value when injected as a curative agent some time after the injection of the toxin.

The reply of Kraus to this report (*Zeitschrift für Immunitätsfrage*, Bd. 2, S. 723) is a defensive argument in favor of his methods and interpretation, but bringing out few new facts. The discussion will no doubt be continued with vigor. In the meantime there is no good reason to fear that present practice is based on a faulty foundation.

Prevention of Epidemic Cerebrospinal Meningitis.

With more accurate knowledge of the cause and mode of infection of cerebrospinal meningitis we are able to undertake more effective methods of prophylaxis. Under the old theory of conveyance of the germs by means of the clothing of those who attend the sick from contagious diseases and by the furniture used in the sick-room, the disinfection of the room and of the bedding used by the patient has been relied upon to prevent the spread of the disease. The researches of the last quarter of a century into the causes of contagious disease, however, bid fair to revolutionize the methods of prophylaxis. It is now believed that the secretions from the nasopharynx of the patient and of those who surround him convey the germs. As in the case of typhoid fever, so in that of cerebrospinal meningitis, there are persons who, though entirely well themselves, are carrying about with them the germs of the disease. In an article in *l'Echo Médical du Nord*, for July 25, 1909, G. Petit says that the nasopharyngeal catarrh is the primary affection, the meningeal involvement being only a secondary manifestation. The isolation of the patient is as important as ever, as is also the immediate destruction of all materials that have been contaminated with the discharges from mouth and nose. Aside from such measures the disinfection of the room and bedding is of secondary importance. Petit describes an epidemic of cerebrospinal meningitis which occurred in the Pas-de-Calais, including in all twenty-six cases. He gives conclusive evidence of the carrying of germs in the throats of well persons who had been in contact with the sick, and the spread of the epidemic to distant towns by this means. At the outset of the epidemic the government offered to furnish antimeningococcic serum for free use in stopping the epidemic, and the serum was used in twenty-one of the cases affected. The mortality was much less among patients who received injections than among those not treated in this way. It is not necessary in most cases to give more than two injections, but it is of the greatest importance that the injections should be made very early in the disease, as soon as a troubled cerebrospinal fluid is detected by lumbar puncture, without waiting for a bacteriological diagnosis. The serum should be used in all sporadic cases, and thus we may prevent

the disease from reaching the epidemic stage. Every person who can possibly carry the germs about as a result of being in contact with the patient should be kept under observation for at least three weeks, and the secretions examined daily. Those caring for the sick should frequently disinfect the nose, mouth, and throat, and should take the greatest care to avoid the possibility of drop infection. These measures carefully carried out have proved of the greatest possible value in limiting meningitis in the French army, and the successful results which have been seen to follow their observance have gone very far to lessen the terrors of this still most formidable disease.

Intravenous Injections of Chloroform.

The recent advances in our knowledge of the practical use of anesthetics have been great, especially those steps leading toward the elimination as far as possible of the element of asphyxiation from general narcosis. New masks have been invented and various means of administering oxygen with the anesthetic have been devised, some of them of such complexity that it is almost requisite for an anesthetist to be an expert engineer. Now, however, Burkhardt of Würzburg, in an article in the *Münchener medizinische Wochenschrift* for August 17, 1909, suggests that we should do away with all these apparatuses and cease giving anesthetics by inhalation at all, resorting to what he seems to regard as the simple alternative of administering chloroform intravenously. He has experimented on a series of animals and on four human beings with results which he claims indicate that the intravenous injection of chloroform is an agreeable and a safe method of narcosis. His method consists in the slow injection into the veins of a solution of 0.63 c.c. of chloroform in 100 c.c. of physiological saline solution. When stronger solutions than these were used the chloroform did not dissolve, and the droplets getting into the circulation were liable to cause dangerous symptoms. In animals it was found that a quantity of chloroform equivalent to 0.041 per cent. of the blood was required to produce complete anesthesia. Much more than this had to be given, however, as much of the drug was lost through the lungs before reaching the general circulation. In the case of the four human beings on whom the method was used the amount of the chloroform-saline solution injected varied between 950 c.c. and and 1,950 c.c., according to the duration of the operation. The onset of the anesthesia was somewhat slower than when chloroform was given by inhalation, but the recovery was much more rapid and there was a remarkable freedom from untoward symptoms. Headache and vomiting but rarely occurred during recovery. The author emphasizes the two facts that this method is especially convenient during operations on the head or mouth, and that by it the anesthetist is able to tell the exact amount of the drug which reaches the circulation, which is certainly an advantage in the use of any drug. The occurrence, however, in two of his four cases of hemoglobinuria, the great danger to the heart of an overdose of chloroform, and the general tendency to abandon this substance as far as possible for safer anesthetics would suggest that this method of producing general anesthesia, simple and comfortable as it may seem to its author to be, will probably not be received with widespread enthusiasm.

Animal Membrane in Joint Surgery.

During the past few years various orthopedic surgeons have been working on the problem of plastic surgery of ankylosed joints, especially in an effort to obtain a method of interposing some material between the surfaces of the bone which will prevent reuniting after the joints have been separated by operative procedures. For this purpose many different materials have been used. Sections of skin have been turned in and inserted between the roughened ends of the bone. Flaps of muscle have been used by Quenn, Nélaton, Murphy, Hoffa, and others. Chumsky, disappointed with these organic materials, essayed to insert nonabsorbable substances, as zinc, rubber, celluloid, silver, and celloidin, but with no permanent results. Decalcified bone, ivory, and magnesium were better but far from satisfactory. Again, fascia and peritoneum of animals have been tried with but indifferent outcome. In the *Johns Hopkins Hospital Bulletin* for September, Baer proposes a new substance for joint covering. He says that the material to procure success must be of small bulk, and must be absorbable. It must, however, be but very slowly absorbed, for it is the rapid disappearance of Cargile membrane that constitutes its main drawback. After studying various animal membranes, Baer has decided that that which best fits his purpose is pig's bladder. This, when properly chromicized, will remain intact for forty days. In his report he cites three cases of ankylosis in which Cargile membrane was used without results and five in which the chromicized pig's bladder was inserted. In these latter cases permanent motion remained in each case. One case of tuberculous ankylosis of the hip showed, after eight months, thirty-five degrees of motion, and another, after five months, fifty degrees; one synostosis of the elbow, in which primary insertion of Cargile membrane had failed, gave a final rotation of 110° after the use of the pig's bladder; while two knee joints, one gonorrheal and one tuberculous, gave 35° and 75°, respectively. The report is given as preliminary and merely to suggest the method. The results, however, are distinctly good so far, and the method would appear to be deserving of further trial in more extended material.

News of the Week.

Typhoid Fever in New York City.—In connection with the recent reports of the prevalence of typhoid fever in New York, the statement is made to the effect that the city as a whole has less typhoid than usual at this time of the year. At the end of last week there were in all, according to the Board of Health reports, 230 cases of the disease in the city, whereas the records for this season during the past four years show that in 1908 there were 309 cases, in 1907 371 cases, in 1906 307 cases, and in 1905 243 cases. The epidemic reported last week is localized to a few blocks near the river in the upper East Side, and it seems not improbable that the condition of the bathing places along the East River piers may be responsible for this local prevalence. A city sewer empties into the East River at the end of every street hereabouts. The autumn increase in typhoid fever throughout the city is largely due to imported cases coming home from vacations. A filtration plant is, however, needed in New York, and it is probable the disease will never be stamped out until this has been obtained.

Investigating the Origin of Typhoid Fever.—The Health Board of Chicago has been investigating the cause of typhoid fever reported to the Department. Of 43 patients whose dietary habits were inquired into last week, it was found that 13 had been using pasteurized milk; 14 raw milk, and two both pasteurized and raw milk. In the remaining cases no definite information could be obtained. Eight of the patients had been eating at restaurants and five had been out of the city within two weeks previous to being taken ill.

Cholera in Antwerp.—It was officially reported last week that there were three cases of Asiatic cholera in Antwerp last week with one fatality.

Wholesale Ptomain Poisoning.—Fifty men who attended a banquet at Barberton, O., on September 9, were made seriously ill, probably by the oysters or lobsters served at the dinner. Among the sufferers were six physicians.

The Legal Status of Osteopathic Practitioners.—A decision was handed down recently by Supreme Court Justice Crane of Brooklyn denying to the Society of Osteopathists the injunction for which they applied to prevent the Board of Health from enforcing the new section of the Sanitary Code which prevents the issuing of transit permits for the removal or burial of dead bodies except on the certificate of a physician holding the degree of doctor of medicine. The new section was promulgated after the courts had decided against the Board of Health on the question of receiving death certificates from osteopathists. The judge in his decision said that whereas under the old code which provided that any attending physician might sign death certificates, osteopathists, being considered as physicians under the law, might do so. However, as the new sanitary code specified that the certificates must be signed by a physician holding the degree of doctor of medicine, osteopathists did not come within the law. He further decided that the Board of Health was acting within its rights in restricting the issuing of burial permits only on the certificates of holders of the degree of doctor of medicine, and that the new section of the sanitary code must be considered to be legal. According to this osteopathists may sign death certificates, but no body may be removed or buried unless a physician also certifies to the death or the coroner is consulted.

Kentucky State University Medical School.—A committee of physicians of Lexington, Ky., held a meeting recently at which a plan was formulated for the establishment of a medical college as an adjunct to Kentucky State University. The college will be established and will be opened for matriculates early this fall. The plan agreed on provides that the board of trustees is to have full control of the new medical school. The first two years of the course will be taught at Lexington and the last two years at Louisville.

Tent Colony in Peoria.—A tent colony is being planned for Peoria, Ill., to be put in operation in Old Prospect Park by October 1. After the first six months it is expected that the institution will be self-supporting.

The Protestant Hospital of Columbus, O., has purchased the building of the Parkview Sanitarium on North Park street, Columbus. The building will be converted into a new nurses' home for the hospital.

New Hospital at Lachine, P. Q.—The first General Hospital to be established in the Province of Quebec under the management of the Victorian Order of Nurses was opened at Lachine a few days ago.

Hospital Benefactions.—In honor of his recent marriage, Mr. James N. Jarvie of Montclair, N. J., made several donations to charitable institutions. Among these the Mountainside Hospital of Montclair and the Job Harris Home for the Aged each receive $26,000. One hundred and fifty thousand dollars has been bequeather to the Dixon Public Hospital Illinois, by the will of the late Judge Solomon H. Bethea, on condition that the name of the hospital be changed to the Katherine Shaw Bethea Hospital.

The Western Association for the Preservation of Medical Records was organized in May, 1909, for the purpose of collecting the historical and biographical records of the profession of the West and South. The members desire to preserve anything and everything pertaining to Western medicine and medical men, and are anxious to enlist the active help and support of every member of the profession who is in sympathy with their aims. There are no membership fees or obligations of any kind. Arrangements have been made with the Lloyd Library, Cincinnati, O., for the proper housing of the material collected. The latter will be systematically arranged, catalogued, and properly preserved so that it can be made available for research work. The association is particularly anxious to obtain (1) medical journals published in the West prior to 1880; (2) medical books and pamphlets written or published in the West; (3) manuscripts and autographs of early Western physicians; (4) old diplomas and other documents of a medical character; (5) proceedings of medical societies; (6) reports of hospitals and other medical institutions; (7) catalogues and announcements of Western medical colleges of all "schools"; (8) biographies and portraits of Western physicians; (9) information and material of any kind pertaining to medicine and medical men and affairs in the West; (10) curios of a medico-historical character. All contributions should be sent in care of the librarian, and in view of the fact that the Association is performing a labor of love and has no funds, all contributions sent by express or freight should be prepaid so that no expense may accrue to the Association. The necessary expenses of the Association are at present being met by voluntary contributions of its organizers. The officers of the association are Drs. C. A. L. Reed, *chairman;* Otto Juettner, *secretary;* A. G. Drury, 710 W. Eighth street, Cincinnati, O., *librarian.*

The American Association of Obstetricians and Gynecologists will hold its twenty-second annual meeting at Fort Wayne, Ind., on September 21, 22, and 23, 1909. The president of the association is Dr. William Henry Humiston of Cleveland and the secretary Dr. William Warren Potter of Buffalo. The annual dinner will be held on Wednesday evening, September 22, and members intending to attend this are requested to notify the chairman of the committee on arrangements, Dr. Miles F. Porter, 207 West Wayne street, Fort Wayne, Ind.

The Pecas Valley Medical Society was organized recently at Roswell, N. M., to cover the counties of Chaves, Eddy, and Roosevelt. The follow-

ing officers were elected: *President,* Dr. J. E. Caldwell of Hagerman; *Vice-president,* Dr. O. H. Haymaker of Roswell; *Secretary* and *Treasurer,* Dr. Frederick J. Walter of Roswell; *Councillors,* Dr. D. N. Galloway of Roswell, Dr. Frederick F. Doepp of Carlsbad, and Dr. W. W. Phillips of Roswell.

Women's Medical Association of Wisconsin.—At a meeting held recently in Oshkosh, Wis., a new society was organized among the women physicians of Wisconsin for the purpose of mutual improvement, harmony, and social intercourse among the women doctors of Wisconsin. The following officers were elected: *President,* Dr. Adeline Riddle of Oshkosh; *Vice-president,* Dr. Anna B. Coor of Juneau; *Secretary,* Dr. Minnie M. Hopkins of Oconto; *Treasurer,* Dr. Hanna M. Droppers of Milwaukee; *Board of Preventive Medicine,* Dr. Julia Riddle of Oshkosh, *chairman; Board of Censors,* Dr. Luella Axtell of Marinette, Dr. Belle Painter Nair of Port Washington, and Dr. Ella Chaffee-Fay of Whitewater. The next annual meeting will be held in Milwaukee in September, 1910.

Medical Men at the Pole.—Dr. Frederick A. Cook, who claims to have reached the North Pole a year in advance of Peary, is of German descent but was born in Sullivan County, N. Y. He was graduated from the New York University Medical School in 1890 and has since practised in Brooklyn in the intervals of serving on or leading exploring expeditions. His first trip to the cold regions was as surgeon to a Peary expedition in 1891, and subsequently he went as surgeon with the Belgian Antarctic expedition. Dr. John W. Goodsell, the surgeon of the Peary expedition, is a native of Pennsylvania and a graduate of the Pulte (Homeopathic) Medical College of Cincinnati in 1898.

Dr. W. S. Howell of Winnebago has been appointed local surgeon for the Northwestern Railroad System.

Obituary Notes.—Dr. Henry Cadwalader Chapman of Philadelphia died at his summer home at Bar Harbor on September 8, at the age of 65 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1867, subsequently serving as resident physician in the Pennsylvania Hospital. After spending several years abroad he became demonstrator of anatomy and physiology in the University of Pennsylvania. In 1877 he became lecturer on comparative anatomy and general physiology in the Jefferson Medical College and two years later he was elected professor of the institutes of medicine and of medical jurisprudence. The University of Pennsylvania conferred on him the degree of Doctor of Science at its last commencement. He was one of the founders of the Zoological Society of Philadelphia, chairman of the Board of Curators of the Academy of the Natural Sciences from 1891 to 1904, member of the American Physiological Society, College of Physicians of Philadelphia. He was a voluminous writer and was the author of a text-book on physiology and another on medical jurisprudence.

Dr. James Greer Stanton of Milford, Del., died on September 4 as the result of taking a wrong dose of medicine, aged 49 years. He was a graduate of the Jefferson Medical College in 1884. He was a member of the Kent County Medical Society and the Delaware State Medical Society. He was a colonel on the staff of Gov. Lea from 1905 until last January. He was twice Mayor of Milford and was president of the Board of Health for several years.

Dr. Hugh T. Adams of Jersey City died September 8, 1909, at his home as the result of a railroad accident, at the age of 63 years. Dr. Adams was a native of Ireland and a graduate of Queen's College, Dublin, in 1869.

Dr. George M. Angell of Atlanta, Ill., died at his home September 5, 1909, in the ninetieth year of his age. Dr. Angell was a graduate of the Harvard Medical School in 1847 and is said to have been present at the first operation performed under ether anesthesia in Boston. For over fifty years Dr. Angell has practised in Atlanta.

Dr. Charles A. Ball of Washington, D. C., died at his home on September 3, 1909, aged 58 years. Dr. Ball was a graduate of the Medical Department of Columbian College in 1877 and had practised medicine in Washington for thirty years. He was a member of the Medical Association of the District of Columbia and the American Medical Association.

Dr. James Brown Burnet of Newark, N. J., died at his home September 7, 1909, aged 67 years. He was a graduate of New York University Medical College in 1866, and a former house physician of Bellevue Hospital.

Dr. William T. Griffith of Washington, Ill., died at his home on September 2, 1909, at the age of 76 years. He had practised medicine in Washington for forty-six years and was at one time coroner of Tazewell County.

Dr. Albert B. Henderson, late of the United States Army, died at Denver, Col., August 28, 1909, of tuberculosis, aged 32 years. Dr. Henderson was a graduate of the Detroit Medical College in 1899. On graduation he enlisted as hospital steward in the Thirty-first Michigan Volunteers. In 1900 he joined the regular army as assistant surgeon and lieutenant and served in the Philippines. It was while serving in the Philippines that Dr. Henderson contracted the disease which caused his death.

Dr. Thomas V. Parker of Los Angeles, Cal., died in that city on August 31, 1909, aged 41 years. He had served for the past twelve years as surgeon at the Soldiers' Home.

Dr. Carl M. Sederblom of Milwaukee died on August 18, 1909, at a hotel in Helsingfors, Finland. For many years Dr. Sederblom had practised in Milwaukee, but had left a few months ago for Finland in the hopes of regaining his failing health.

Dr. Edwin M. Shaw of Cameron, Texas, died at the Milam Hospital, August 31, 1909, at the age of 49 years. He was a graduate of the Atlanta Medical College in 1884, and a member of the Milam County Medical Society and the State Medical Society of Texas. He served as regimental surgeon in the Spanish-American War and in the Texas State Militia.

Radium in Carcinoma of the Breast. Louis Wickham of the Radium Institute in Paris concluded a lecture in London by saying "that radium therapy is of service in the treatment of certain neoplasms of the breast in different ways: (1) Radium may cause a carcinoma of the breast to regress so as to give the appearance of a cure. (2) It may render operable a cancer otherwise inoperable. (3) It may act favorably on cases in which recurrence has taken place after the operation. (4) It may act on the surrounding infected glands. (5) In desperate cases it may relieve pain and diminish for a time the hemorrhage and the secretion from the ulcerated portion, and so prolong life. (6) It may be utilized after operation as a preventive means against return of the disease."—*Proceedings of the Royal Society of Medicine.*

Correspondence.

THE NEW LAW REGARDING THE LOCATION OF TUBERCULOSIS SANATORIA.

To the Editor of the Medical Record:

Sir:—In 1903 there was a law placed upon the statute books in this State which required the consent of the Town Board and of the County Supervisors before an institution for the care of the tuberculous could be located in any part of the State. The effect of this law was to delay for years the erection of a sanatorium by this city and to prevent the carrying out of any charitable sanatorium enterprise in the State. Of my knowledge, having originated an undertaking to care for the sufferers from pulmonary tuberculosis, of moderate means, in Brooklyn and Long Island, I can state that, although application was made to every township in Suffolk County, comprising almost the entire island, every one refused. In the township of Brookhaven, in which the Brooklyn Central Labor Union raised funds and purchased a tract of sixty-five acres for the purpose of the enterprise in question, known as the Long Island Open-Air Sanatorium, the Town Board's consent was first obtained, but the County Supervisors had yet to be dealt with, and before they could be induced to act favorably the Town Board, on a technicality, and as a result of popular agitation, rescinded their resolution, and thus absolutely stopped the enterprise. This occurred in 1906, and, as it was recognized that nothing further could be done unless the law was either repealed or modified, every effort was directed to effect this purpose. I understand, through the combined efforts of the many interested, Governor Hughes was induced to recommend in his last annual message the repeal or modification of this statute. As a consequence a bill was introduced in both houses and became a law on April 10 last. This bill provided that the State Commissioner of Health and the Health Officer of any township in which it was proposed to locate such an institution should constitute a board to consider the question. Should they be unable to agree, an appeal might be taken to another board, consisting of the Commissioner of Health, the Lieutenant Governor, and the Speaker of the Assembly, whose determination should be final.

The first application under this law was made by the Central Labor Union for permission to establish an institution, and public hearing was held in Patchogue on June 11 last. Although there was considerable local opposition, none of the virulence of three years ago was manifested, perhaps, as some of the town folks said, because many of the opponents recognized its futility, the final result of which was the granting of the application by the State Health Commissioner and local Health Officer. The locality selected is ideal, being about the geographical center of Long Island, and is sufficiently elevated to be reached by all cooling breezes in summer. The land is rolling in character and is well wooded, something unusual upon the island. While chiefly engineered by the Brooklyn Central Labor Union, all the labor organizations of the Greater City are expected to participate in the enterprise and to contribute funds for the buildings and equipment, although assistance from philanthropic individuals will also be sought. The amount desired is about $50,000, but failure to raise this sum will only necessitate a smaller beginning and will not defeat the undertaking. Plans at present intend a two-story central administration building with wings extending east and west for men and women, respectively. The wings are to be faced by verandas and backed by corridors, and will provide altogether 100 single rooms of 1,500 cubic feet air space each. The building is to be of wood, covered with cement, and of hardwood and plaster interiorly, with cement floorings.

Admission to the institution will be given to all persons of small means in need of such care from the Greater City and Long Island, at a charge varying with whatever the cost of maintenance may prove to be, as it is only desired to make it self-supporting. Owing to the slowness with which the required money can be raised, it will probably be a year or so yet before patients can be received.

As the opening wedge has thus been driven, it is earnestly hoped that other labor organizations, charitable societies, and philanthropically inclined individuals will provide throughout the State wherever needed such local sanatoria, which are in line with the most practical antituberculosis work, as sanatorium treatment is undoubtedly the most efficacious method of treating the disease. As it is known that no climate is either specific or even necessary for its treatment, and as the disease is practically so universal, almost every county might with advantage have such an institution. Furthermore, when a sufferer recovers his health in his own climate, with no assistance except from rest, food, and air, he is convinced that his future prospects are good, provided the new habits inculcated are not forgotten. Horace Greeley, M.D.

Pacific and Clinton Streets, Brooklyn, N. Y.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

AFRICAN ENTOMOLOGICAL RESEARCH—BIRTH RATES AND CIVILIZATION—SANITATION *VS.* SANATORIA—A PLAGUE EPIDEMIC—DENTAL CONGRESS—OBITUARY.

London, August 27, 1909.

The medical event this week is the appointment by the Colonial Office of an African entomological research committee, which, so far as can be ascertained, is received with gratification by those able to estimate its importance Both our schools of tropical medicine are represented on this committee. So are the universities, the British Museum, the Royal Society, and other bodies. It is intended to dispatch a trained entomologist to the east side of tropical Africa and another to the west to stimulate officials and other residents to collect and observe noxious insects and give instruction in scientific methods. It is hoped the committee will gain from them specimens and observations to be classified and distributed to institutions for instruction, and the committee will keep in touch with such work in Egypt, the Soudan, and South Africa. A bulletin is also suggested. By what seems a happy coincidence Sir Alfred Jones announces that the Liverpool Tropical School is going to establish a branch in the Canary Islands under the direction of Ronald Ross and Rubert Boyce. Sir Alfred means to equip the branch in a thoroughly efficient manner so that patients may be treated there and research carried on. The Grand Canary is a delightful climate for invalids to rest on their way home. Dr. Parsons, who has had experience in the East and in the Persian Gulf, will go out to take charge, and if the work grows will be reinforced.

The quarterly return of the Registrar-General, issued last week, shows that the birth rate in the second quarter of this year is the lowest recorded since the establishment of registration. This fact has again started a discussion on the danger of the continued fall and whether it is possible to arrest it. One school of sociologists have reckoned that at the present rate the population will become stationary in another twelve years, the annual increase having fallen already to only a little over 400,000. They predict the decay of the nation and profess to discern the commencement of the process in spread of artificial restraints to reproduction. The predominance of small families is put forth as a proof that the decline of the Empire has begun in the same way as in France, and that the Germans, already more numerous, will by their still continuing increase take the dominion of the world. In opposition, other sociologists maintain that the masses of the people do not attempt to limit their families, and that the evil of doing so is restricted to the wealthy, not a few of whom are more unfit for marriage than not as a consequence of luxury and debilitating causes in their previous generations.

Another view of the matter is that the retrograde movement of populations has always followed their advances, and that in obedience to a natural law. This view was held by Prof. Ludwig Gumphowicz, whose death on the 22d inst. is reported from Vienna. Probably the last article he wrote was on this subject for a French paper, in which he regrets wounding the susceptibilities of the readers, but says the first duty of science is the recognition of truth. He says, though a State is not a plant or animal, it is none the less a social formation subject to the same laws according to which it grows, produces a culture, wanes, and disappears. Europeans imagine their States must last; but that only shows their naïveté, for they must pass away like those of old. The symptoms of decadence are a high civilization and lowering birth rate. The higher the culture the greater the decline of birth rate and the nearer the end: the lower the civilization the higher

the birth rate and the greater the future, *i.e.* the life expectation of the State. This, he says, is a law to be stated by sociologists, but they do not pretend to explain it or modify the laws of nature. But, he adds, the realist sociologists have a potent salve for the fear of the French, and I suppose of the English, too. They may be reassured about the Germans, for the Slavs of Eastern Europe have a still higher natality. It was a natural instinct which allied the country with the lowest birth rate to that which has the highest. France may last for centuries, in spite of her low birth rate, while the high rate of Russia is an anxiety for Germany. Perhaps the professor would have added, had he survived, that our sociologists might take comfort in the *entente* with Russia and a hope of prolonged European equilibrium.

The open air treatment of consumption has occupied so large a field that in the opinion of some there is a danger of other measures being quite thrust out. And yet some of these are of supreme importance, and even if subsidiary must be regarded as the necessary basis. The present state of the City of Liverpool, contrasted with its condition fifty years ago, as recorded by a royal commission, presents a striking illustration of the effect upon tuberculosis of measures of general sanitation. The comparison was used by Dr. Hope, the City Medical Officer of Health, at the Tuberculosis Conference at Stockholm last month. He showed that the sanitary reforms introduced from time to time had been followed step by step by a decline in the mortality. The sanitation of the homes, the schools, the business premises, the provision of open spaces to widen streets, the baths, the improved water supply, all these, he said, had played their part. Millions had been expended on such works, but no one familiar with the sanitation of cities could suggest that equal results could have been obtained by the expenditure of the money on hospitals and sanitoria if the breeding places of tubercle had been left untouched. Voluntary notification of pauper consumptives had been replaced with advantage to a compulsory plan, but isolation accommodation for advanced cases was needed in the interest of the patients, their friends, and the public. The prospects of recovery, as well as the prevention of infection, were facilitated by removal to more suitable surroundings. The limitation of sanatorium treatment to carefully selected cases which were most likely to end in recovery ought not to be regarded as any limitation of the usefulness of isolation. On the contrary, good as it was for the patient, it was of less immediate value from the point of view of prevention than was the isolation of the advanced case, much as would be the restriction of hospital treatment to mild cases of scarlet fever to the rejection of the severe ones. In any case where the home surroundings, the habits, or other circumstances rendered a patient a danger to the public, Dr. Hope held that the interests of all would best be served by isolation.

The report of the Colonial Office on last year's epidemic of plague in West Africa shows the happy results of grappling with the disease by skilled sanitarians. Prof. J. W. Simpson undertook the work, and soon succeeded in controlling the outbreak, although the condition of the colony as regards sanitation was exceedingly unsatisfactory. In and around Accra there were 344 cases in the half year from January to July, and of these 300 were fatal. Professor Simpson made a tour through the colony after the epidemic, and is unable to find any redeeming feature as to the neglect of the public health, which seems to be universal. A strong sanitary policy is urgently needed, for no effort to cope with malarial disease or the conditions producing it has been made, although the natives have always suffered from what ought to be largely prevented, and these natives seem to have no prejudice against scientific efforts at prevention, for we are told that 35,000 of them willingly underwent preventive inoculation. The success reported will probably have a most beneficial effect on the native mind as to other sanitary measures. Only four of those who were inoculated took the disease, and one of these four recovered. A departmental committee to inquire into the sanitary state of the colony has reported further on the requirements, and it is hoped that action will not be delayed.

More than fifty delegates went from the United Kingdom to the International Dentists' Congress, which was opened at Berlin on Monday in the Reichstag Building. An extensive exhibition is connected with the congress, and the large collection, I hear, attracted much attention. The German Emperor sent copies of ancient dental instruments dating back to the early Christian era. The English association show a collection of charts for use in schools under the charge of the London County Council. The first day was occupied with formal business and receiving the delegates. On Tuesday morning the twelve sections set to work reading and discussing the papers, three of which were presented by British members. Later the visitors attended the celebration of the fiftieth anniversary of the German association, and in the evening a banquet was held. The British and Colonial delegates on Wednesday hoped for an early meeting in London.

By the death of Dr. Henry Radcliffe Crocker, a distinguished exponent of dermatology has passed away. He died suddenly in Switzerland on the 22d inst. while taking his holiday. He qualified in 1873, became M.D., London, in 1875, and was elected F.R.C.P. in 1887. As physician to the skin department at University College he had great opportunities of observation, and as lecturer of teaching. These he utilized fully and contributed much to the literature of the specialty. You will know his "Atlas," which appeared in 1893-'96, as well as his "Treatise." He wrote various articles in the Twentieth Century Practice, Heath's Dictionary, Allbutt's System, the Medico-Chirurgical Transactions, etc.

Dr. Theodore Davis, M.D., London F.R.C.S., who died on the 11th inst., aged seventy-five, passed his professional life at Clevedon, where his father practised before him, the two having together practised in the same place for eighty years. The late gentleman was a student of Birmingham, and afterward at St. Bartholomew's Hospital. He took the M.B. and F.R.C.S. in 1859 and proceeded to the M.D. in 1861. He was for many years surgeon to the local hospital and connected with various philanthropic societies.

Mr. Robert Gorton Coombe, F.R.C.S., has died in his ninety-second year. He took the M.R.C.S. in 1841, and was elected to the Fellowship in 1884.

The death is also reported of Dr. Deeping, J.P., who, after active practice in Essex for about thirty years, retired to Hastings, where he took a prominent part in public affairs and became president of the local conservative association. He qualified at the two London colleges in 1871-'72.

An inquest was held on the body of Fred. Taylor, a retired practitioner, aged seventy-eight, who was found on the 20th inst. dead at the roadside near his bicycle, and wearing his "cycloplane," an invention he had made for lessening the rider's weight on the machine, and with which he had often experimented. A verdict of natural death was returned.

Another doctor's sudden death necessitated an inquest. Dr. Mennie, aged thirty-one, after a hard day's work in the recent hot weather and a dose of chloral, which he had been taking for a few nights. Dr. Trevon found extensive disease of the heart at the post mortem, which, he said, would render the ordinary dose and the fatigue dangerous.

OUR VIENNA LETTER.

(From Our Regular Correspondent.)

SALICYLATES IN SPUTUM DIAGNOSIS—METABOLISM WITH EXTIRPATION OF THE LIVER—TREATMENT OF MORPHINISM BY SCOPOLAMINE-DIONINE—CAPACITY OF THE STOMACH AND GASTRIC TONE.

VIENNA, August 29, 1909.

FRITZ FALK and Fritz Tedesko have recently brought out the results of a new investigation in diagnosis from sputum examination. The method consists of giving the patient sodium salicylate in wafers by mouth, and examining the sputum twelve to fifteen hours later for salicylic acid. They have shown by a large series of cases that in acute or chronic, purulent, or congestive bronchitides and in bronchiectasis the sputum contains no salicylic acid, whereas in pneumonia the salicylic acid reaction is strongly positive. It was further shown that the intensity of the reaction runs parallel to the course of the disease. On recovery from the pneumonia the reaction disappears. This salicylic acid test is also regularly positive in the sputum of tuberculous patients, but many times weaker than in cases of pneumonia. The reaction is in general definitely stronger in acute cases of tuberculosis than in chronic ones.

Professor von Noorden has been able to show in a study of the migration of various substances into the

exudates that salicylic acid taken *per os* is excreted in large amounts into the joints.

Oskar Porges has carried out some interesting researches which give information as to the oxidation processes after extirpation of the liver. Animals were used in which ligation had been made of the abdominal aorta, the inferior vena cava, above the entrance of the hepatic vein, and the portal vein, so that the abdominal organs were removed *en masse* from the circulation. In such animals the expired air was examined according to the method of Zuntz. The expired air in each case was collected for over an hour, so as to equalize irregularities of respiration. In hungry animals a respiratory quotient of from 0.9 to 1.0 was found, pointing to a burning of carbohydrates in the muscles. Several control animals, which were treated in exactly similar manner, except for the ligatures of the vessels, gave respiratory quotients of 0.7. If one concludes from the experimental results that sugar is the exclusive source of muscular power, one must acknowledge that albumen and fat are changed into sugar before they can be utilized in the muscle. The organ which carries on this work may be the liver. According to the studies of Embden, the liver is also the place where fatty acids are transformed into the acetone bodies. In connection with these investigations we must consider the acetone bodies as intermediate products of the formation of sugar from fats, or at least from fatty acids. Porges was able to determine a new fact, namely, that in solutions of diacetic acid salts there occurred a substance which reduced Fehling's solution but gave no other carbohydrate reaction. Furthermore, Porges, in connection with Privatdozent Salomon, has carried out a liver extirpation experiment on a dog with pancreatic diabetes, and has found a respiratory quotient of 1.0. This finding would suggest that in diabetes the catabolism of sugar is not disturbed.

Professor Schlesinger has made some successful cures of the morphine habit by means of scopolamine dionine. He has noted for some time that in patients who receive morphine for pain the morphine doses can be made much smaller if scopolamine and dionine are added, and still a greater quieting effect is produced. He has now made use of this fact for the treatment of the morphine habit with excellent results. The time required for the withdrawal of the morphine is much shorter, and abstinence symptoms are lacking. In a case of morphine and cocaine habit, with a daily dose of 0.5 gm. morphine and 0.1 gm. cocaine the withdrawal was accomplished in fifteen days, and a few days later the scopolamine and dionine were discontinued. At first relatively large amounts of scopolamine and dionine were given. On the first day two to four injections were given of a solution consisting of 0.2 morphine, 0.00025 scopolamine, 0.3 dionine, and 10 c.c. water, and on the following days the number of injections, and especially the amount of morphine, were very rapidly reduced. In general the morphine can be withdrawn completely in from eight to fourteen days, and the scopolamine and dionine shortly afterward. The patients are not told immediately, but only after two weeks, that the morphine has been discontinued and that they are receiving inert injections. The dangers of this cure are minimal; occasionally only does one observe transient symptoms of intoxication. It is important that the scopolamine and dionine are freshly prepared; a solution more than three days old should not be used.

Albert Müller and P. Saxl have carried on some investigations concerning the tone of smooth muscles and the capacity of the stomach when the stomach is stretched to, say, ten times its normal capacity. The single muscle fibers of the walls do not stretch in proportion, but to only about double their normal length; the number of layers of muscle, however, decreases. This relation applies also to other hollow organs. The empty stomach is not lax, but a fairly compact hollow organ, which can be opened only by a definite amount of pressure. The normal filling with the ingested food occurs with a very slight pressure; this can occur only if the muscles stretch or the resistance to the thinning of the layers is reduced. If in an anesthetized animal a canula is fastened in the pylorus and it is sought to allow water to flow into the stomach, by inciting the act of swallowing by stimulation of the superior laryngeal nerve, the slightest increase of pressure suffices to stretch the stomach to the maximum extent and to thin the walls. In animals not under an anesthetic the stomach resists even a high pressure; if, however, we incite the act of swallowing, the organ may be filled with but slight pressure. There exists then in the vagus nerve a mechanism which governs the tone of the gastric muscles. Gastric atony may be explained as a discontinuing of the resistance of the stomach to a thinning of the layers of its musculature. It has been proved by the *x*-ray that, after the act of swallowing, food remains at the cardiac end of the normal stomach and slowly forces its way through the stomach. On the other hand, in an atonic stomach the food lies as in an empty sack. The gastric mechanism is influenced in various ways by medicines. These experiments were carried on on animals not under anesthetics, in which a gastric fistula had been made and a canula inserted. When the normal capacity of the stomach varied from 200 to 224 c.c., under the influence of physostigmin and strychnine it decreased to 80 to 90 c.c., but with atropine was 350 c.c. With narcotics the gastric capacity was greatly increased, up to 600 c.c. Adrenalin and cocaine were without effect; anesthetics produced pronounced dilatation. Alcohol at first caused an increase, then a decrease in the muscle tone. Cold fluids were without effect; very hot fluids caused a weakening, mineral waters a great increase of the tone of the stomach muscles.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 2, 1909.

Surgery of the Stomach.—The present situation in gastric surgery is summed up by John B. Deaver as follows: (1) The treatment of ulcer surgically is highly satisfactory, but not perfect in its results. (2) With less danger in operating because of our present improved technique, excision or resection of gastric ulcer will probably become more frequent. (3) Chronic dilatation of the stomach is curable by gastroenterostomy, whether the pylorus be patulous or not. (4) Gastroptosis does not respond to surgical treatment. (5) Neuroses of the stomach are fit for surgical treatment only when their cause, being without the stomach, can be removed. Operations on the stomach for functional gastric conditions are always failures. (6) Carcinoma of the stomach in many instances would be curable if diagnosis could be made early. Until our diagnosis is improved our results will continue to be poor. Unless we explore earlier and more often, and do not consider the responsibility of such procedure a grave one, we cannot hope to progress in the surgery of malignant growths of the stomach.

The Presence of Tubercle Bacilli in the Blood in Tuberculosis.—M. A. Dailey reports that blood from seventeen cases of tuberculosis (two of miliary and fifteen of advanced tuberculosis), inoculated into guinea pigs failed in every instance to produce the slightest evidence of the disease. Stained smears of the blood from the seventeen cases showed occasionally bodies resembling tubercle bacilli. He concludes that the only reliable test for demonstrating tubercle bacilli is animal inoculation and the production of the characteristic tuberculous lesions with the bacilli in them. This test applied to the blood of seventeen cases of miliary and advanced tuberculosis failed in every instance to demonstrate tubercle bacilli. It is reasonable to conclude, therefore, that virulent tubercle bacilli are not ordinarily demonstrable in the circulating blood of tuberculous patients. Staining tests (on which Rosenberger bases his arguments and conclusions) are not reliable. The results he obtains may be explained in at least three ways: (a) As attenuated tubercle bacilli; (b) as artefacts; or, (c) as acid-fast bacilli of some sort introduced as a contamination in some of the steps employed in staining, or deposited on the slide by the fingers in the process of cleaning or manipulation. This further conclusion seems warranted: That the demonstration of tubercle bacilli in the blood by means of staining methods is wholly unreliable and hence of no clinical value.

The Desirability of Further Extension of Undergraduate Nursing Service.—Frank W. Patch says that undergraduate extension service will settle the controversy between the advocates of two years and those of three years as a proper period for the nurse to spend in training; it will give the pupil a wonderful opportunity for further object study in her profession along social and humanitarian lines; it will relieve, in some measure, the financial drain in the conduct of the training school; it will produce a body of nurses with a more fully rounded edu-

cation, better grounded in the humanities, better fitted to handle the countless practical problems arising during sickness in the middle-class homes, and more suited to become centers of personal influence in later life; it will, in a large measure, meet a real and crying demand for an efficient nursing service on the part of a great self-respecting body of people who are able and willing to pay moderately for what they are evidently unable to have at "regular rates."

New York Medical Journal, September 4, 1909.

The Value of the Test Meal in Gastric Diagnosis.—Christopher Graham and Donald Guthrie regard the test meal as having a place in gastric diagnosis, but they caution against its too liberal interpretation independent of the clinical history. They analyzed carefully the gastric findings in 250 cases of ulcer of the stomach and duodenum and 150 cases of carcinoma, which had all come to operation and the correctness of the diagnosis established. They also included 100 cases of pyloric spasm due to appendicitis or gall-bladder disease. There was also 100 cases of gastric neurosis. For comparison the stomach findings of twenty-five cases of pernicious anemia are also added. They call attention to the fact that of three-fourths of the cases of ulcer that came to the operating table the patients do not show the high acids as commonly thought to be the case. The average age of these patients was forty-five years and the average duration of symptoms more than twelve years, both factors, age, and chronicity tending to reduce the acidity. Young subjects with developing ulcers have high acid tests. They regard decided food remnants in the test meal as a surgical indication. A large number of cases of gastric carcinoma must be diagnosed independently of the test meal findings; yet, on the other hand, there are a few cases in which the subjective symptoms are indefinite, and where the test meal throws the first light upon the real pathological condition present. They have been impressed with the frequency with which cancer develops upon an old ulcer. The tests in cases of pyloric spasm, taken independently of the clinical symptoms, vary little from those in ulcer and did not help them much in drawing definite conclusions. The cases of functional neurosis gave the greatest hydrochloric acid showing, but lacks the force of surgical argument, especially in food remnants, blood, and lactic acid. Apart from food remnants the cases of pernicious anemia show a test very analogous to cancer.

Tuberculosis and Congestion.—S. Adolphus Knopf says it is a sad comment on our present state of civilization that our prisons are the most congested centers of population now in existence, and as a result the mortality from tuberculosis among prisoners is three times as high as that of the general population. Efforts are now being made in many of the prisons to segregate the tuberculous prisoners and pay more attention to ventilation of cells and workshops. The next highest mortality is among the working classes who live in the crowded tenement districts. There must be a radical change in the housing and modes of living of the masses; otherwise they will never become masters of the situation, never be able to combat tuberculosis. Teach the people to keep the air fresh and pure in their living as well as in their working quarters, to keep their bedroom windows open at night, to report to a physician if they feel the well-known early symptoms of tuberculosis. Improve the living condition of the masses. Insist upon lower buildings and wider streets; replace the old tenement houses by model tenement houses, with roof gardens on each of them; multiply the parks and playgrounds; do away with this fearful congestion; utilize the suburbs of the large cities for individual homes of the masses; give the people an opportunity to live in a home somewhat closer to nature than the dark, dreary tenement houses of our overcongested cities.

True Versus False Opotherapy.—Charles E. de M. Sajous uses the word "true" to mean agents which can be used intelligently, that is, with a knowledge of the physiological effects produced, because their active principles are known. Thyroid extract belongs to this class as well as adrenal preparations. By "pseudo" agents he means those animal extracts that are used blindly. Thymus and mammary extracts can be cited as examples of these agents. He treats of four organic preparations (besides the thyroid, parathyroid, and adrenal products), which have stood out most prominently in the history of opotherapy, the testicular, ovarian, renal, and pituitary extracts. Granting that the only really demonstrated internal secretions are those of the thyroid, adrenals, and pancreas, and that their therapeutic products are the only legitimate ones, because their active principles are known, he proceeds to show that others can be raised to the same standard by a study of their properties. Spermin is the purest of testicular preparations. It not only raises the blood pressure, slows the heart, and produces all other physiological effects peculiar to the adrenal principles, but its solubilities are the same; it gives the same tests; it resists boiling. It has been found equally useful in disorders in which adrenal preparations had given good results. The inference that spermin consists mainly of the adrenal product suggests that it should not be regarded as specific to the testes, but instead a constituent of the blood at large; not only did this prove to be the case, but it was found in the blood of females as in that of males. Ovarian preparations are dependent upon the adrenal principle for their activity. Just as castration causes a decline of the temperature, so does removal of the ovaries; while both thermin and ovarin restore the temperature to normal. This corresponds with the influence on general oxidation he ascribes to the adrenal secretion. As is the case with the latter, ovarian preparations enhance metabolism, and the excretion of phosphoric acid. The resemblance of the physiological effects of ovarian extract to those of adrenal preparations is striking. No recorded experimental work justifies the conclusion that the kidneys have an internal secretion. There is, on the other hand, indirect testimony to the effect that, as in the organs just referred to, the adrenal principal is the main active agent. Pituitary extracts are active according to which of the two lobes of the gland is used to prepare them. Extracts of the anterior lobe are practically inert. Extracts of the posterior lobe causes a marked rise of blood pressure and slowing of the heart beat, these effects resembling in general those obtained from adrenal extracts, but differ in some details (Howell). Facts presented seem to justify the inclusion of testicular, ovarian, renal, and pituitary extracts in the adrenal group of organic extracts.

The So-Called Thymus Death.—An account of seven cases of sudden death in one family is recorded by J. P. Crozer Griffith. There were eight children, omitting the stillbirth and premature birth, all but the ninth breast-fed, and only one of them alive at the time of writing. The other seven died between the ages of one month and eight months, all well nourished, with uncertain diagnoses, and all with clinical histories nearly identical, namely, slight bronchitis, followed in one instance by extremely sudden death, in the remainder by the rapid development of cyanosis and dyspnea lasting some hours or a day, but without any symptoms suggesting stenosis; the condition in the ninth child being proved by autopsy not to depend upon pulmonary involvment. In the last case a very large thymus was found. It is a supposition only that with the clinical symptoms the same, and in view of the family relationship, the lesions also in the other children were the same as in the ninth one.

Primary Tuberculosis of the Mammary Gland.—William Fuller concludes that tuberculosis of the mammary gland is, perhaps, a more frequent affection than a study of the literature would lead us to believe. This affection occurs later in life than many reports would indicate, and its manifestations may not differ materially from a large number of other conditions both benign and malignant. The closeness with which mammary gland tuberculosis may imitate malignant disease, and the great difference in the operative procedure necessary for the cure of each condition calls for accurate differential diagnosis in all cases, not after, but before the application of any therapeutic measure.

A Simple Method for the Treatment of Suppurating Bubo.—J. A. Murtagh reports a method of treatment devised by Captain William L. Keller, Medical Corps, U. S. A. The points upon which the success of the treatment depend are briefly as follows: (1) Thorough application of the actual cautery to the infected ulcer. (2) Incision into healthy skin, usually in an area one to one and a half inches covering the bubo. (3) Thorough removal of the diseased glandular tissue and complete irrigation of the cavity. (4) Thorough drying of the cavity as nearly as possible by pressure, before introducing an emulsion of 10 per cent. iodoform, and rest in bed for a few days after operation. The advantages of this method of treatment may be summed up as follows: Immediate relief from pain and discomfort; rapid healing of the skin incision and of the diseased glandular cavity; absence of a painful and disfiguring scar; avoidance of a long, tedious period of recovery, usually experienced by other methods.

Journal of the American Medical Association, September 4, 1909.

Regeneration of the Cornea.—Meyer Wiener reviews the facts in regard to corneal regeneration and describes

the methods and results of a series of experiments on rabbits undertaken by himself in the anatomical laboratory of the Washington University, St. Louis. He operates by dissecting away a flap of cornea varying from one-half to two-thirds of its thickness and including one-half, two-thirds, or even the entire area of the cornea, the extent of surface bared seeming to have little or no influence on the general healing process or regeneration. Aside from the general aseptic precautions at the time of the operation, no special means were taken for the after-care, the rabbits being put in their cages without dressing or bandages. An antiseptic powder was dusted once daily over the cornea sometimes, when there appeared to be a virulent infection; when there happened to be an unusual amount of secretion, purulent or otherwise, which might tend to agglutinate the lids, they were washed with warm water and the secretion removed. The rabbits seemed to suffer no special inconvenience. There was no photophobia. The healing process is described in detail, and, in the rabbits which survived several months the regeneration was almost complete, being generally perfectly clear by oblique illumination as well as by transillumination, excepting an occasional small slightly hazy area. Microscopic sections were made which showed a gradual thickening of the cornea the longer the period from the operation.

Cyclodialysis in Glaucoma.—Arnold Knapp reports a number of cases of the operation of cyclodialysis for glaucoma which were specially selected to test its merits. This operation, suggested by Heine in 1905, consists in making an artificial communication between the anterior chamber and the suprachorioidal space, allowing a new channel for the escape of the aqueous humor and thus reducing the intraocular tension. The operation is performed under local anesthesia by making an incision in the sclera from 6 to 8 mm. posterior to the sclerocorneal juncture after reflecting a conjunctival flap and with bent spatula separating the ciliary body from the overlying sclera and breaking through the pectinate ligament. A quadrant of the iris periphery is then detached. Fifteen of these cases were of chronic glaucoma, one of congenital glaucoma, one of capillary adhesion to cornea, and one of glaucoma secondary to neuroretinitis with vascular changes and retinal hemorrhages. In the last three it was unsuccessful. In the first fifteen it was partially successful. In eleven of the chronic glaucoma cases the tension was reduced for observation periods varying from two years and nine months to two months. All the eighteen cases were such as not to promise much result from iridectomy. The operation is technically easy, much easier than a correct iridectomy. It did not aggravate the condition except for a macular hemorrhage in one and attacks of acute glaucoma in two. No vitreous disturbance or detachment of the chorioid was observed. It was repeated with benefit in three cases. Why it succeeded in some and failed in other similar cases cannot be explained. He says in conclusion: "It can be conservatively stated that cyclodialysis is of value in certain limited conditions; it is indicated in the advanced cases of chronic glaucoma, especially those in which iridectomy has not succeeded in reducing the tension. It cannot in any way replace the classical operation of iridectomy and its recent modifications in incipient cases of chronic glaucoma."

Anesthesia and its Dangers.—D. C. Moriarta says the danger of anesthesia is largely due to the anesthetist. He does not mean by this that some anesthetics are not in themselves more dangerous than others, but rather that the average patient can more safely take one of the dangerous anesthetics given by a skillful man than one of the safest given by an indifferent practitioner. The profession does not sufficiently realize its responsibility in this matter and he maintains that there is no justification for serious complications following anesthesia. We should raise the standard of the whole profession in this regard. The anesthetist should know the action and peculiarities of the drug he uses and give his whole attention to his own duties during the whole time he is employed. He should be in no hurry, should determine for himself the condition of the lungs and heart, and if not previously informed should ascertain the urinary condition. He should learn also whether there are loose teeth in the mouth and see if the patient is properly clothed. He should employ the method and the anesthetic with which he is thoroughly familiar and with which he can safely produce the lightest anesthesia under which the operation can be performed. Talking to the patient while getting him under the anesthetic is an advantage. He should never order the patient to take a deep breath, should have the necessary emergency remedies at hand, and remain with the patient until he is safely in bed and in good hands.

X-Rays in Dentistry.—G. E. Pfahler advises more extensive use of the *x*-rays by dentists. Every chronic obscure case should be tested this way, which is clean, aseptic, painless, and absolutely safe in the hands of an expert. The rays should be confined to the area examined and directed to the point of greatest interest. When the symptoms of disease are confined to a few teeth or roots the best results are obtained by the use of a small film directly in the mouth, but the use of the plate is necessary when the bone, accessory sinuses, or large dental areas are to be studied, and it is also convenient when searching for missing or unerupted teeth. The interpretation and study of the plate is more difficult than the making of it. The degrees of density as measured by the rays are as follows: The greatest density is shown by metallic fillings, then by root fillings; next in density is the enamel, then the dentine, and finally the cancellous tissue of the maxilla and alveolar process. A uniform white light is needed in reading the negative to bring out the details properly. He describes the pathologic conditions as they appear on the film or plate. Points of decay or abscess are indicated by a light area in the otherwise uniform density of the dentine. Incomplete filling of the root canal may be shown. A pericementitis is shown by a light space between the root surface and the mottled cancellous alveolus, and the root surface is rough instead of smooth. Abscesses about the tip of the root or in the alveolus also show light areas in which no cancellous structure can be seen. The use of the ray relieves the dentist from probing and the consequent risk of spreading infection. They also show exostoses and whorls or dense areas of bone, and pulp stones which may be the cause of neuralgias. One of the most important uses is to detect unerupted, impacted, and supernumerary teeth, and the absence of teeth where they should exist. Impacted teeth are rather common, especially the third molar, though other teeth may be affected. They often cause cases of severe neuralgia. Neglected affections of the maxilla and accessory sinuses are the cause of great suffering, and Pfahler points out the characteristics of the plate or film that indicate fracture, necrosis, tumors, and cystic degenerations. In the upper jaw the conditions are rather more difficult, but morbid conditions there can be nicely demonstrated. Lastly he mentions the therapeutic application of the rays, of which there have been enough reports to justify their use in obstinate cases and where other methods have failed. He has seen marvelous results in the treatment of sarcoma of the bones and sinuses. He has seen pyorrhea of the antrum, resistent to all other treatment, recover under the rays, and good results also in old and obstinate cases of pyorrhea alveolaris. Obstinate cases of idiopathic neuralgia will sometimes yield quickly.

Cataract Extraction by the Smith Method.—The Smith method of expression of cataract within the capsule, and the remarkable results, which have been reported and extensively discussed, are reviewed by D. W. Greene, who has utilized it in a number of cases and who describes the various steps of the operation. The remarkable results reported by Smith and practically confirmed by Arnold Knapp's observations of Smith's clinic at Jullundur, are explained by the marvelous skill of the operator and the comparatively early age at which cataracts develop in India. Greene has learned by experience that the percentage of success depends more on the attainment of a high degree of skill, technical knowledge, and the imitative faculty, than on any skill acquired in making the regular operation. He has had special instruction from Smith and further experience has confirmed his belief that the method is superior to any other method of extracting immature cataracts or to any method of artificial ripening. His own experience is, on the whole, favorable to the Smith operation. He sums up its advantages and disadvantages as follows: (1) Cataract can be removed at any stage; (2) no discission is ever necessary; (3) there is comparative freedom from postoperative inflammations; (4) there are no capsule entanglements, prompt healing is the rule; (5) the method is especially adapted to institutional work, one operation does all; (6) no ripening methods need be tried; (7) the result is better average vision, which does not change with time if the fundus conditions are favorable. The disadvantages of the method are the following: (1) The only important one is greater liability to loss of vitreous for the average operator; (2) from a cosmetic point of view the wide updrawn pupil (if it results) mars the appearance of the eye, while it may not be a disadvantage to vision; (3) and lastly, a skilled assistant is always necessary in performing the operation. He gives the statistics of his own operations by this method and says he does not wish to be considered a

champion of the Smith method until he has observed the ultimate results on white people in their own living conditions. He thinks, however, that it is a long step toward the ideal operation which we seek.

The Lancet, August 21, 1909.

The Early Signs of Rheumatism of the Heart.—A. M. Gossage gives detailed consideration to the recent observations of Dr. Carey F. Coombs in regard to rheumatic myocarditis, and in conclusion emphasizes the statement that while pericarditis gives the usual well-recognized signs of its presence, recent endocarditis causes no physical signs whatever. Affections of the myocardium in rheumatism may be divided into the inflammatory and the toxic. Inflammatory lesions cause a loss of tone in the muscles which surrounds the mitral valve allowing of mitral regurgitation. Thus an apical systolic murmur is the sign of rheumatic myocarditis, and is, indeed, the only sign of inflammation of the heart apart from pericarditis. In the majority of cases the presence of such a systolic bruit is diagnostic of myocarditis, but in a small minority a regurgitant murmur may result from general dilatation without any inflammation Poisoning of the heart muscle in rheumatism causes a general dilatation of the heart and sometimes a mitral diastolic murmur. Dilatation may or may not be associated with inflammation of the myocardium, but the diastolic murmur may be taken to imply an absence of myocarditis at the time it is heard. As far as the immediate welfare of the patient is concerned the toxic action of the rheumatism is more important than the inflammatory, since it is to the consequent failure of tonicity and contractility that death during an attack is due. For the future welfare of the patient the inflammatory lesions become of chief account. Myocarditis is probably always associated with endocarditis, so that there is danger of permanent damage to a valve and the inflammation in the muscle itself may lead to such damage that tone is never regained, leaving a permanent widening of the orifice. Such occasional permanent damage to the muscle by the toxin would explain the different behavior of different hearts after rheumatism. It would seem that there is a tendency to exaggerate the importance of myocarditis in rheumatism. The more pressing danger comes from the action of the toxins on the cardiac muscle.

Antityphoid Vaccination with Attenuated Live Cultures.—Aldo Castellani describes the method of preparation of the live typhoid vaccine and his experiments upon both men and animals which lead him to the following conclusions: (1) The use in man of the live typhoid vaccine prepared according to the method described (heating the non-virulent broth cultures at 50 C.) is not dangerous. It probably induces a higher degree of immunization than the ordinary vaccines consisting of dead cultures. (2) Though both inoculations may consist of live vaccine without danger, the routine method of antityphoid vaccination which he recommends and uses is the inoculation of one-half cubic centimeter usual dead vaccine (Wright) followed in a week's time by the inoculation of one cubic centimeter of live vaccine. (3) Mixed vaccines may be prepared by using dead or live attenuated cultures of typhoid and dysentery, or typhoid, paratyphoid, and dysentery. The inoculation of mixed vaccines may be of advantage in some cases, but the subject requires further investigation as regards its efficacy in man.

An Unusual Type of Stomatitis in an Infant.—A. H. Brehaut recalls the fact that the severer types of stomatitis occur especially between the age of two and 12 years, while the case which he reports was that of an infant four months of age, in whom the acute onset and great local reaction showed the infection to have been local and not constitutional in origin. On examination, the left cheek was found to be very much swollen and shiny, the swelling not localized. The cheek was extremely hard, tense, and tender. The inside was dusky, and, about half way back on a level with the alveolar border of the lower jaw, there was a small patch about the size of a No. 4 shot which had the appearance of threatening gangrene. The temperature was 104° and the pulse uncountable. Surgical interference was refused. A lotion was prescribed for application to the interior of the cheek and potassium bromide was given internally. On the following day the cheek was somewhat improved and continued to improve so that a week from the onset of the attack it was normal and the child subsequently remained in good health. Recovery occurring without any loss of tissue negatives the view that it was a case of gangrenous stomatitis. There was no evidence of its being ulcerative stomatitis. When first seen it seemed very unlikely that such a young child would make such a recovery from so acute an infection in such a short time

A Case of Transient Ataxia Following Diphtheria.—H. O. Butler reports the case of a man, 26 years of age, who had taken in all 26,000 units of antitoxin. From the fourth to the eighteenth days of his illness, vomiting occurred shortly after taking food and marked constipation was present. A large variety of pills and enemata had next to no effect and it was thought that there was paralysis of a portion of the lower bowel. Five weeks after the onset of his illness he complained of difficulty in swallowing which passed off in about a fortnight when he began to complain of numbness and tingling sensations and his gait became typically ataxic. Knee jerk was present. His condition grew worse until he became absolutely and completely helpless. This state lasted for a month and then gradually cleared up with the exception of the right arm, where there was stiffness which lasted about five months. At no time were there eye changes or wasting of any muscles. Treatment consisted solely in giving a mixture containing strychnine. The pathology of the case is simple; peripheral neuritis of the afferent nerves accounts for all the symptoms.

British Medical Journal, August 28, 1909.

Peripheral Circulation and Its Treatment.—Sir James Barr tells of the importance of the arterioles and capillaries and the pressure within. All agents, such as dry heat, warm baths, massage, and passive exercises, which relax the arterioles, increase the freedom of flow into the capillaries and raise the lateral pressure in them and lower the arterial pressure. If the arteries are at all rigid, as in the aged, the injudicious use of baths and vasomotor relaxants very readily gives rise to weariness, languor, faintness, and sickness. If there is a great difference between the systolic pressure in the aorta and the resistance, such as occurs in free aortic regurgitation or very advanced arteriosclerosis, the arterial wave may be carried to the capillaries and give rise to pulsation in these vessels. This implies great waste of cardiac energy, and under such circumstances vasomotor relaxants must work mischief. Vasomotor tonics and such agents as diminish the lime salts and improve the muscular tone constitute the best treatment. Any obstruction to the outflow from the capillaries diminishes the velocity in them. Hence the congestive treatment of joints and other local lesions. In alcoholics the arterial pressure falls, the diastolic pressure in the heart rises, the right ventricle gets dilated and tricuspid valve incompetent, and the blood is thus dammed back in the liver. From the fall in the arterial pressure the pressure in the portal vein also diminishes, and consequently there is a fall both in the velocity and filtration pressure in the portal capillaries; this gives rise to a concentrated transudate both in albumen and leucocytes which soon leads to a multilobular cirrhosis. This obstructs the portal circulation, which raises the pressure in the intestinal capillaries and gives rise to increased filtration from them. The indications for treatment in these cases are: Stop the alcohol, lessen the input of fluid, and raise the arterial pressure. An intestinal antiseptic and a colon bacillus vaccine are often useful. A dose of Epsom or Glauber salts in a small quantity of water is better than any imported saline. Nicotine causes a vasomotor paralysis in young males. There is occasionally a deficiency of lime salts and slight albuminuria. Such patients should take plenty of exercise and wear a tight abdominal belt. They should be given glycerophosphate or lactate of lime, and when a purgative is required, sulphate of magnesium. They should be on a liberal dry diet. Tobacco and alcohol should be forbidden. Keep the bowels open and as aseptic as possible. Buttermilk is a good antiseptic for the intestinal tract. In patients with granular kidneys the lime salts are usually excessive, and hence milk is not a suitable diet. The nitrogenous elements must be cut down and salt almost eliminated from the diet. The patient can have plenty of hydrocarbon, carbohydrates, fruits, and vegetables, except such as contain oxalic acid. He should have the benzoates, the citrates, and any decalcifying agents. In large congested, chocolate-colored kidneys, when the capsule is stretched to its utmost capacity, the only salvation for such kidneys is to freely incise the capsules and kidneys. In acute tubular nephritis the lime salts are not, as a rule, excessive; hence milk is admissible. Medicinally the following drugs are useful: Antimony, the benzoates, the citrates, the acid tartrate of potassium, saline purgatives, hot-air baths.

The Crescendo Murmur of Mitral Stenosis.—F. M. Brockbank reviews the main theories concerning the rhythm of the crescendo murmur of mitral stenosis, for convenience he speaks of mitral stenosis only as being

the *a-s* lesion most commonly met with. The two chief theories of the rhythm of the crescendo, or presystolic murmur, are: (1) That this murmur is a direct current murmur, and occurs while blood is passing from the auricle into the ventricle, and is caused in part or wholly by systole of the auricle. (2) That it is a regurgitant murmur, and due entirely to systole of the ventricle. In conclusion he submits that he has shown that the *a-s* rhythm of the crescendo murmur is not only highly disputable, but even entirely fallacious, and that the murmur is early *s-s* in rhythm.

Observations Concerning the Blood in Chorea and Rheumatism.—Experiments and observations made by Charles J. Macalister tend to confirm the suspicion that there is less real association between chorea and rheumatism than is generally thought to be the case, and that chorea may be due to an infective toxemia of distinctive character.

The Preventive Treatment of Puerperal Eclampsia.—Alex. Milne Bankier believes that the toxemia of this disease to be of an acid character. He examines the urine in all cases of pregnancy at the seventh month. If albumen is found, he orders the patient to bed and keeps her there until confinement. The diet is principally milk; all other nitrogenous food is forbidden. The preventive treatment is the use of potassium acetate (a neutral salt which becomes alkaline when taken) in sufficient doses to keep the urine alkaline. The urine is examined every three days until labor sets in. From his experience of twelve consecutive cases, no convulsions will occur during labor or after delivery. This agent will not cure the patient of her albuminuria, but it does prevent eclampsia.

Münchener medizinische Wochenschrift, August 10, 1909.

Anemia of Infancy.—J. Katzenstein discusses the cases of anemia in infancy which occur unassociated with any acute illness. This occurs especially in children of the better classes who have been nursed or fed for a long time on milk alone. Milk, according to Bunge, contains less iron than almost any other food. The iron of milk ash is only one-sixth that of the ash of an infant. This form of anemia rarely occurs in children of the lower classes who early obtain varied food such as the parents eat. On the strength of this Katzenstein has been giving a diet rich in iron early in infancy. His routine feeding consists in adding at three months of age once a day, meat broth containing at first one-half of the yolk of an egg, later an entire yolk. At four to five months he gives a porridge made of zweibach, butter, milk, salt, sugar, and the yolk of an egg. From six to nine months he gives spinach. At ten months meat, sausage, veal, and poultry. At the end of the first year the milk is reduced to one-half to three-quarter liters and a mixed diet given. Since giving this diet he has had no cases of anemia except where associated with syphilis or some other illness. In cases of anemia which have come to him prompt recovery has followed the use of this diet. The hemoglobin of an infant of four to six months on a milk diet is usually from 80 to 90 per cent. On the iron containing diet the hemoglobin remained at 100 per cent. during the entire first year. Dried egg yolk contains ten times, and dried spinach fifteen times, the iron of dried milk. Katzenstein has also noted that he has had no cases of rickets develop in his infants on this diet, and that rickety children very rapidly recover on it.

Carbonic Acid Snow in Skin Diseases.—Zweig states that the action of solid carbon dioxide is due entirely to the intense cold (—90° C.). The action of the snow can be regulated by the length of time it is kept in contact and the pressure exerted. The carbonic acid cylinder is put flat on the floor and the snow caught by placing a small chamois bag resembling a tobacco pouch over the outlet. The gas is allowed to escape intermittently from three to five seconds at a spurt. The snow so formed is packed into glass tubes, 10 to 15 cm. long, and of a diameter dependent upon the size of the lesions to be treated. He reports twenty-five cases treated by this method with excellent results. The list includes nevus, angioma cavernosum lupus erythematosa, lupus vulgaris, and epithelioma.

Deutsche medizinische Wochenschrift, August 5, 1909.

The Opsonic Index in Typhoid Carriers.—Gaehtgens has studied the opsonic power of the blood serum of a series of typhoid convalescents and of sixteen chronic typhoid carriers, and concludes from his investigations that in persons who have had typhoid fever, but are not carriers of the typhoid bacillus, there is usually an increase in the opsonic index for a period of three to four months after recovery from the disease, but that after that the index again returns to normal; while in chronic typhoid carriers there is as a rule a considerable increase in the opsonic index over a long period of time. The indices in the carriers varied from 1.4 to 3.9. In thirteen of the sixteen cases it was 2.0 or above, and in five of them over 3.0. Two cases that were definite carriers gave positive Widal reactions and high opsonic indices, though no previous history of typhoid fever could be obtained. The rest gave histories of the disease, the date varying from one-half to twenty-nine years before. He further states that agglutinins and opsonins were often present together in the carriers, but that the presence of one of these antibodies did not enable one to say definitely that the other was also present.

A Rare Symptom of Atrophic Cirrhosis of the Liver.—Moehring reports a case in which there was marked ascites, muddy icteroid complexion, and other symptoms of cirrhotic liver. The point of interest in the case was the sudden onset of copious hemorrhage from the navel. The blood was venous in character. Examination showed in the navel a vein the size of a lead pencil with a rupture about as large around as a match. The hemorrhage was controlled by ligation. It was thought probable that the cause of the bleeding was the presence of a patent umbilical vein, engorged by the cirrhosis and possibly ruptured by scratching. At autopsy, however, it was found that there was no such vein, but that there was a small navel hernia in which was incarcerated a tab of omentum, and that the hemorrhage came from a greatly engorged and swollen omental vein.

A Contribution to Hirschprung's Disease.—Sommer reports the case of a boy of thirteen years of age, previously healthy, who was taken ill suddenly with the symptoms of intestinal obstruction which was relieved by a cecal fistula. Later median laparatory showed an enormously dilated sigmoid. This was brought out through a third incision over the left Poupart's ligament and sewed to the skin. After two days the loop was resected. The wounds healed and the boy made a good recovery. The point of especial interest is the sudden onset of abdominal symptoms in a case of giant colon in a boy who had been to all appearances perfectly healthy.

The Summer Death Rate for Infants.—Finkelstein discusses the cause of the high mortality among infants in the summer time, and says that in a small degree it is caused by cases of heat stroke with acute choleraic symptoms. In the greater part it is due to the increase in fatal subacute digestive disturbances, which begin during the hot days, and, as a rule, does not reach its climax until the hot period is ended. The rôle of contaminated milk as the sole cause of the disease in artificially nourished infants is not proved. The direct effect of the heat on the child must be considered at least. It is quite possible that the heat so effects the bottle baby that it loses its tolerance for a food in itself innocuous, so that the bottle baby more easily contracts disease than the breast baby. It must also be noted that the commonly weak and ill bottle-fed infant is much more prone to suffer from hyperpyrexia than is the breast-fed baby at the same temperature.

Physical Therapy of Pulmonary Edema.—Kulenkamp reports the case of a man of sixty-three with chronic cardiac lesions and dyspnea in whom pulmonary edema occurred. Noticing the difficulty of expiration, the author thought to help the patient in his expiratory efforts by forced compression of the thorax. This was done synchronously with the patient's own expirations. The procedure gave the patient a very great degree of comfort and the edema of the lungs also rapidly cleared up, the patient meanwhile expectorating large amounts of fluid.

The Value of an Examination of the Eye Grounds in the Diagnosis of Anemias.—Hesse has made routine examinations of the eye grounds in all cases of anemia. In fifty cases of definite pernicious anemia examined retinal hemorrhages were found in forty-seven. In fifty-one cases of severe secondary anemia and sixty-four cases of malignant tumors, no retinal hemorrhages were discovered. He concludes: (1) Retinal hemorrhages belong to the picture of pernicious anemia. (2) All other anemias, especially the cachetic, the carcinoma anemias, show no retinal hemorrhages. The occurrence of retinal hemorrhages in a severe anemia suggests pernicious anemia, while their absence would point toward carcinoma.

Book Reviews.

The Greatest Good of Mankind—Physical or Spiritual Life. By William Wenzlick, LL.B., M.D. Chicago: Published by the Author, 1909.

The aim of this book, as told in the introduction, is to arouse and encourage people of ability and power to unite in an effort for the amelioration of suffering humanity. The book is in the form of a dialogue between Dr. Fact and the Reverend Faith. Dr. Fact deplores existing conditions, and charges the Church with failure to practise the teachings of Jesus, in that "it has not prevented, but has actually produced avoidable evils." The validity of Dr. Fact's claim, however, is not proven. Dr. Faith credits Christianity with "the greatest progress in the moral and spiritual nature of man." In so far as the author sought to start the reader thinking on this all-important theme he has succeeded; but as to the question he propounds in the title of his book, it is left unanswered.

Studies from the Rockefeller Institute for Medical Research. Volume IX., 1909.

This volume comprises forty-three articles reporting pieces of research work carried on at the Rockefeller Institute in New York and in other scientific laboratories, by men who have been enabled to carry on their work by grants from the institute. The papers have appeared previously in the journals, but their collection in one volume serves to bring to the attention the work which is being done in America through the generosity of Mr. Rockefeller. The articles which strike the attention with especial force are those by Flexner and Jobling on the anti-meningococcus serum, by Carrel on transplantation of blood-vessels, and by Hideyo Noguchi on his simpler bedside modification of the Wassermann test. It is difficult, however, to select from such a mass of valuable material when each of the forty-three articles throws some light on some subject of interest in bacteriology, physiology, chemistry, or the kindred sciences. It is unfortunate that the volume is published as it is as a collection of reprints from various journals, a fact which leaves the pages numbered as they were in the original and makes it a difficult matter to find any especial article.

Conservative Gynecology and Electrotherapeutics. A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. Betton Massey, M.D., Attending Surgeon to the American Oncologic Hospital, Philadelphia; Fellow and ex-President of the American Electro-Therapeutic Association; Member of the American Medical Association, etc. Sixth Edition, Thoroughly Revised. Illustrated with twelve original full-page chromo-lithographic plates and fifteen full-page half-tone plates of photographs taken from nature, and numerous engravings in the text. Philadelphia: F. A. Davis Company, 1909.

Since Apostoli introduced the use of electricity into the treatment of diseases of women, studying the chemical changes which take place at the positive or the negative pole of the galvanic current and applying these principles to the local treatment of inflammation and neoplasms of the female genitalia, the idea of electrogynecology, though probably scoffed at by the greater part of the medical profession, has nevertheless received a certain number of enthusiastic advocates who claim most excellent therapeutic results from the local application of electricity in gynecology. The author of this book is possibly the most enthusiastic and one of the best known electrotherapeutists in America. The fact that the book has run through five editions in the last twenty years speaks for its general acceptance by those interested in this form of treatment. The book is in two parts. The first opens with directions for gynecological examination, and goes on with the principles involved in the use of electricity in treatment, with directions for the application and descriptions of the instruments used for the treatment of the general system, vagina, uterus, skin, and tumors. Metritis, salpingitis, and ovaritis are discussed at some length, as is the subject of fibroid tumors. Cancer of the mammæ, uterus, and rectum and their treatment by cataphoric needling come in for separate chapters. Visceral displacements, relaxed abdominal walls, sterility, impotence, and ectopic gestation are all brought up and discussed in relation to the treatment by electricity, and finally the diseases of the urethra and bladder and the removal of hair and nevi are considered. Many cases are reported and directions for treatment are given. The second part of the book gives the physics of medical electricity, describes the common kinds of electrical apparatus, and devotes a chapter each to the x-rays and high frequency currents. The book is well bound and printed on good paper. The illustrations are numerous and clear; some, in fact, especially the photographs of the professional artists' model, are of a clarity in very bad taste in a scientific work. The book is, all in all, a clear exposition of the author's enthusiasm for electrogynecology, but fails at times to pay the attention to details of method, strengths of current to be used, and other minor points of absolute necessity in describing a method of treatment of which the vast majority of the medical profession are in a state of dense ignorance.

Clinical Lectures on Neurasthenia. By Thomas Dixon Savill, M.D., Lond.; Physician to the West End Hospital for Diseases of the Nervous System, Welbeck Street, London; formerly Medical Superintendent of the Paddington Infirmary; Examiner in Medicine in the University of Glasgow; Assistant Physician and Pathologist to the West London Hospital. Fourth Edition. New York: William Wood & Co., 1909.

The "great American disease" has been a fruitful topic for discussion and publication, and most authorities give us an unfavorable outlook both for recovery in individual cases and for the abolition of its development and spread as a universal disease. Our English contemporary, however, Dr. Savill, has maintained for some years that the determining causal factor underlying neurasthenia, in the majority of cases, is an autointoxication, the basis for which is discoverable and frequently removable, and he thus materially fortifies a better prognosis. The appearance of a fourth edition of Dr. Savill's "Lectures on Neurasthenia" attests the popularity of his views. He states in his preface that he is now testing the efficacy of vaccines made from the prevailing intestinal microbes found in the stools of patients with neurasthenia due to autotoxemia of gastrointestinal origin. The writer does not deny that mental symptoms may predominate in some cases of neurasthenia, but thinks that the clinical picture points, nevertheless, as a rule, to a derangement of the entire nervous system. Readers will find in the book a fuller discussion of the physical than of the mental characteristics of the disease.

Hand-Book of Diseases of the Rectum. By Louis J. Hirschman, M.D., Detroit, Mich., U. S. A.; Fellow American Protologic Society; Lecturer on Rectal Surgery and Clinical Professor of Proctology Detroit College of Medicine; Attending Proctologist Harper Hospital; Consulting Gynecologist Detroit German Polyclinic; Collaborator on Proctology "Physician and Surgeon"; Editor "Harper Hospital Bulletin"; Chairman Section on Surgery Michigan State Medical Society; ex-President Alumni Association Detroit College of Medicine, etc., etc. With 147 illustrations, mostly original, including two colored plates. St. Louis: C. V. Mosby Medical Book & Publishing Co., 1909.

Dr. Hirschman believes that many of the patients afflicted with sigmoidal, rectal, or anal diseases, who are referred to the specialist for treatment, or to the general surgeon for operation under general anesthesia, could be treated satisfactorily in the office of the practitioner. With this idea in view, the author has confined himself to the consideration of those conditions which are amenable to office treatment. The first three chapters deal with the anatomy, symptoms of rectal diseases in general, and the examination of the patient. Then follow chapters on constipation and obstipation, fecal impaction, pruritus ani, anal fissure and ulcer, abscess of the anorectal region, fistula in ano, hemorrhoids, rectal polypi, hypertrophied anal papillæ and cryptitis, proctitis and sigmoiditis, and prolapse of the rectum in children. A chapter on "Dysentery" by Dr. John L. Jelks of Memphis, Tenn., and one on the "Feces and Their Examination" by Dr. George W. Wagner of Detroit have been included in the book. The technique of the use of local anesthesia in the treatment of anorectal disease has been thoroughly described. Space has also been given to the consideration of the limitations of office treatment and the indications for other measures. In the treatment of chronic constipation the author claims that the best results are obtained by "direct stimulation of the atonic rectum and sigmoid." In speaking of the relief of pain in children after the cauterization of the rectum for mild degrees of prolapse, Dr. Hirschman advises the use of codeine in $\frac{1}{8}$ to $\frac{1}{4}$ grain doses, in a child $1\frac{1}{2}$ to 3 years old. This seems to the reviewer as a pretty large dose for a child of that age. Dr. Holt in his book on "Diseases of Infancy and Childhood" puts the dose of codeine for a child of one at 1/60 grain, and of five years 1 to 1/8 grain. Except for a couple of typographical errors the book is well written. It should be of use to those who wish to become proficient in the diagnosis and treatment of anorectal diseases.

Society Reports.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Twenty-eighth Annual Meeting, Held at Fortress Monroe, Va., June 4 and 5, 1909.

THE PRESIDENT, DR. CHARLES E. QUIMBY OF NEW YORK, IN THE CHAIR.

First Day, Friday, June 4.

President's Address.—Dr. CHARLES E. QUIMBY of New York delivered this address, and chose as his subject "The Element of Rationality in Medical Science." He said it was impossible not to recognize, and folly to deny, that medicine, using the term in its broadest meaning, was to-day in such condition as to cause the deepest humiliation and to justify the gravest anxiety for the future. This condition was manifest subjectively in every branch of work, and objectively in a rapidly increasing loss of public confidence which could not be checked by hiding one's head in the sands of conceit. It might be possible to attribute the tumultuous eagerness with which the ignorant and moderately educated turned for help to the newest "pathy" that bedecked and disguised some fragment of truth with the gaudy robes of sophistry and magniloquent falsification to an inherent tendency of human nature to follow after new gods, rather than to waning faith in scientific medicine, were the stake at issue something less than health and life. President Hadley of Yale, speaking for the scientific public, had cried "Give us physicians, not pathologists" and it implied a high degree of mental amaurosis not to "see ourselves as others see us." Thoughtful men no longer presumed to deny that medical education was producing men who were expert technologists, but devoid of the most fundamental principles of practical medicine, while the synthetic chemist was transforming the mass of the profession into empirical automata. Abundant proof of the justice of President Hadley's statement was always at hand. The irrationality of the conduct of medical men was all the greater when the remedy was so simple. That was a frank and honest confession of the impossibility of teaching men everything in even four years, and an equally honest recognition of the relative value of castor oil and graphic chemical formulæ in the conflict with disease. Proven truth and theory, probability and possibility, pure chance and blind empiricism, each and all had their legitimate place in medicine, and upon each, at one time or another, one was compelled to base momentous action. And by reason of this compulsion came the basic lapse from rationality that permeated and weakened the entire body of medical science. It was the failure to hold each of the enumerated terms strictly to its proper place and value which, under the seductive influence of the ambition to have all work truly scientific, ended in the assumption that everything could and must be explained. As a result medical men accepted the most plausible, or the first suggested explanation of condition or process, simply because it was possible, adopted and proclaimed it as truth, and speedily forgot that they were joining that great majority who "knew so many things that aren't so." Intelligent and conscientious men presented some of the most serious obstructions to scientific development ,and they were of two types and opposite extremes of thought. The one was represented by the German mind, of which the individual elements had become so profoundly erudite, and so edematous with the consciousness of that erudition that all "made in Germany" intellectual products were assumed *a priori* to be absolute truth. The other type was the man who met every fresh presentation of a discovery with the *ex cathedra* proclamation *non credo.* Every branch of science had long since recognized the law that newly discovered truth must pass through three stages before it became potential. In the first, those to whom it should appeal say: "It isn't true"; in the second they say "it doesn't amount to anything, anyway"; and in the third they all declare "That's just what we have always said." With regard to the realm of therapeutics, was it possible not to blush and smile when one read the list of new drugs approved by the "authorities" of the American Medical Association, which grew like the green bay tree? And approved solely on the basis of their chemical composition. Yet those untested weapons were what were being given to the inexperience of youth. Despite their ever-increasing number, there went with them no word of warning or direction as to how they acted; nothing save the name of the target at which they might be hurled. Physiological action was preserved only in the museum of pathological curiosities. Was it any wonder, then, under such circumstances young men lost faith in medicine? The attainment of harmony, and, therefore, the development of a permanent, unassailable system of scientific medicine, was possible in but one way. The first and fundamental requisite was submissive recognition of the true nature of disease, as the physiological manifestation of the organism's struggle for existence under special conditions. The second essential was an equally definite recognition of those manifestations as of two distinct forms, dynamic process and mechanical or chemical result. And the third, a clear appreciation of the fact that intelligent and harmonious adaptation of the forces brought to the support of the systemic activities, was possible under the guidance of logical theory. Dr. Quimby said he was not ignorant of or blind to the value of what had been done, but progress was measured by the net results of gain and loss, and nothing could be counted as gain which was not permanent.

A Movable Camp for Invalids, Neurasthenics and Others.—Dr. J. MADISON TAYLOR of Philadelphia read this paper. A novel and attractive suggestion had been made to him by Mr. Frank Pinkly of Casa Grande, Ariz., which embodied so many meritorious points that he asked the privilege of presenting it to the Climatological Association. He had formulated plans which were appended. Whether they could be made available or not needed a full discussion, not only here, but by men of practical experience. In brief, the proposition was for a good manager and physician to organize a force of skilled packers, teamsters, cooks, and helpers; secure the necessary outfit—tents, wagons, teams, saddle-horses, etc.; establish bases of supplies, map out routes, and run a movable camp. The design was to offer to invalids all the essential comforts and advantages of a sanatorium, yet add change of scene and circumstance. The camp could remain in one place just so long as season, circumstance, or taste might determine; then be shifted elsewhere. The course, or trail, might, for instance, start in the low countries (*e.g.*, at 1,400 feet in the Salt Valley) in the spring and gradually ascend into the high lands (6,000 to 7,000 feet) as the hot weather advanced, and finally descend toward the low lands again as winter approached. "Roughing it" was no part of the scheme. Persons weakened by disease, or over-susceptible to fatigue, should never be permitted to exhaust themselves by effort or anxiety, but should be provided with all reasonable comforts. Cows and hens could readily be moved from one site to another, furnishing plenty of fresh milk and eggs. The only limit to luxuries, in-

deed, would be the cost. Nor need this be prohibitive under judicious management and intelligent cooperation. To stationary sanatoria there were many cogent objections, among which were tedium, isolation, restricted amusements, and the like effects of long periods of enforced waiting for the tide to turn and set strongly favorable. On the other hand, a movable camp provided many salutary stimulations. Once in so often, every week or two, a change of scene and local conditions was provided. The patient might be conveyed in a comfortable vehicle, or, if strong enough, might ride a horse. He might fish and hunt a little; photograph, sketch, or watch others so disport themselves. Nothing was more delightful than the common incidents of open air camping; the open fire, the agreeable efforts to make oneself comfortable in the new surroundings, always with abundant help and attention, wholly freed from anxieties. About the time that monotony began to pall the camp was transferred to a new site, fifteen or twenty miles up the trail, to new surroundings, varied scenes and backgrounds. All this provided material for conversation, and, above all, for letters to family and friends. Whatever objections might arise, they may readily be met. For instance, one or two of the party might be too weak to travel; then a camp could be amplified and they could remain till able to hit the trail again. Those who had had much experience with protracted invalidism knew well that even pretty wretched persons often, indeed usually, exhibited astonishing capacity to move on, fortitude and resourcefulness during transportation. They often improved steadily and unexpectedly. The outline of the plan Mr. Pinkly had developed was presented in his own words.

The Incidence and Causes of Tuberculous Hemoptysis.—Dr. James M. Anders of Philadelphia read this paper. He said that the pathological etiology of hemoptysis fell naturally under two heads: (a) Hemoptysis caused by congestion of the bronchial mucosa and lung texture, and (b) that due to ulceration or erosion of blood-vessels or rupture of miliary aneurysms. The usual source of early hemorrhages in the course of pulmonary tuberculosis was the pulmonary vessels rather than congestion or erosion of the bronchial mucous membrane. Profuse or fatal hemorrhages tended to develop in cases in which the processes of softening and liquefaction progressed acutely and did not present endarteritis. In the majority of cases, however, pathological changes in the walls of the pulmonary vessels with aneurysmal dilatations preceded hemorrhages of advanced tuberculosis. His collective investigations embraced a totality of 5,891 cases of tuberculosis. Hemoptysis was manifested earlier in life in the female sex than in the male; the increased incidence in favor of the former sex, however, was confined principally to the first two decades of life. After the 30th year the numerical results showed a preponderance of cases in favor of the male sex. Profuse and fatal hemorrhages were less common in the female than in the male. As to seasonal influence, it might be said that hemoptysis in the course of tuberculosis was most prevalent during the months of December, January, and February. The latter statement was directly opposed to the preconceived notions of most writers, who contended that the spring and summer months gave the highest incidence. Multiple hemorrhages occurred in the majority of cases in which hemoptysis was among the clinical features. Of a totality of 3,142 cases of tuberculosis, recurring outbursts took place in 1,028, or 51.5 per cent. The great importance of hemoptysis as a diagnostic feature of tuberculosis rendered further observations along the line pursued in this paper extremely desirable.

The Prognosis of Febrile Cases of Pulmonary Tuberculosis.—Dr. Harry Lee Barnes of Wallum Lake, R. I., read this paper, and offered the following conclusions: (1) Patients who left the sanitarium against the physician's advice from lack of intelligence or unwillingness to sacrifice pleasure and comfort, lost over one-half of their chances of recovery. (2) The subsequent histories of patients at the Rhode Island State Sanitarium showed that the results of treatment of pay patients were less favorable than those of all patients. (3) Of 153 febrile cases an extension of the lung disease was indicated by an increase of physical signs in 50 cases, or 32.6 per cent., and by the appearance of signs in lobes previously clear in 33, or 21.5 per cent. (4) The average number of fever patients under observation from one to four months was 106, and of this number 11, or 10 per cent., developed cavity signs. (5) Of 18 patients under observation while cavity signs developed, 17, or 94.4 per cent., had fever. Thirteen, or 76.4 per cent., developed cavity signs within six weeks from the onset of the fever. (6) Of 16 patients in whom development of cavity signs was observed, 13 died in periods varying from 2 to 14 months, the average duration of life being 8.9 months. (7) Of 24 fever cases having cavity signs on admission, 21, or 87.5 per cent., died within two and a half years, the average duration of life being 13.9 months. (8) Only 8.5 per cent of febrile cases whose pulse averaged over 100 were well 27 months after discharge. (9) It was of comparatively little importance whether the average daily maximum temperature was 100°, 101°, or 102°, the duration rather than the height of the fever was the deciding factor in the prognosis. (10) The subsequent histories of febrile patients taken 27 months after the onset of fever showed, that of 62 cases who had fever 1 to 4 weeks, 59.6 per cent. were dead; of 39 cases who had fever 1 to 2 months, 69.2 per cent. were dead; of 11 cases who had fever 2 to 3 months, 72.7 per cent. were dead; of 12 cases who had fever 3 to 4 months, 75 per cent. were dead; of 13 cases who had fever over 4 months, 77.7 per cent. were dead. (11) Of 93 cases in which the fever was reduced after periods of treatment averaging 5.9 weeks, there were 24, or 25.7 per cent., well; 18, or 19.4 per cent., living, and 51, or 54.8 per cent., dead. (12) Of 44 cases in which the temperature could not be reduced after treatment from one to six months, 40, or 90.9 per cent., were dead, the duration of life varying from 1 to 18 months, and the average duration of life after the onset of the fever being 6.7 months.

The Lautier Reaction and Some Studies in Controls.—Dr. David R. Lyman of Wallingford, Conn., read this paper. He said that in the *Province Médicale*, February 8, 1908, Lautier reported cutaneous tuberculin reactions for which he claimed a greater degree of accuracy than was obtainable in any other skin test, and which had the recommendation of being the simplest of all. With regard to the method of application, Lautier, without any preparation of the skin, applied to the outer surface of the arm two or three drops of a 1 per cent. solution of old tuberculin on a pledget of absorbent cotton. This was covered with a guttapercha shield and held in place by a dressing for 48 hours. The reaction consisted of the appearance of vesicles containing a colorless liquid and set on raised reddened papules, usually discrete, sometimes agminated. These usually dried and disappeared in from 3 to 10 days. Dr. Lyman said that he had used this test simultaneously with those of v. Pirquet and Ligniere in 58 patients in the Gaylord Farm. Excluding two cases which did not

react to the subcutaneous method, 56 cases were reported in which the diagnosis was confirmed by the presence of bacilli or by positive subcutaneous reactions; 52 were positive to Lautier test, 41 to the v. Pirquet, and 31 to the Ligniere. The Lautier was positive five times when both the others were negative, but never negative when both the others were positive. The v. Pirquet was positive twice in contradiction to the other two, and negative five times. The Ligniere was never positive when the other two were negative but was negative 10 times when both the others were positive. In regard to the Lautier reaction, the varying results between 93 per cent. of reactions in his first series of 54 cases and 50 per cent. in his second series of 24 cases led him to doubt the value of this reaction.

Further Observations on Muscle Rigidity as a Physical Sign in Diseases of the Lungs and Pleura. A New Physical Sign in Diseases of the Chest.—Dr. F. M. Pottenger of Monrovia, Cal., said that in March, 1909, this phenomenon was described by him, and in this paper (to be published later) he wished to make further observations on it.

Progress and Changes in the Treatment of Tuberculosis During the Past Twenty Years.—Dr. Edward R. Baldwin of Saranac Lake, N. Y., said that many changes and some progress had been made in the past two decades. He called attention to the prevalence of the germicidal idea in therapy in the '80's, when creosote, sulphuretted hydrogen per rectum, oxygen, antiseptic oils, etc., were in vogue. The fatuous belief in germicides had never died out. He then spoke of the tuberculin furore and its collapse; later only a few daring ones continued its use. The disappointment was great among the mass of physicians. Cautious men became skeptical, but quacks throve. Then followed a reaction to less medication or therapeutic nihilism. It seemed a barren year that did not produce at least two sure cures for tuberculosis. The tuberculin treatment was replaced by the antitoxic theory, and again there was disappointment, for there had been great expectations. Research in this was even now going on, and prospects of a specific were not hopeless. He called attention to the former prevalence of belief in specific climatic virtues, to its modification, the growth of hygienic and sanatorium ideas, to better rationale, to the improvement in symptomatic treatment and management, of fever, cough, and hemoptysis, etc. Fresh air, feeding, and rest were important measures in the treatment of tuberculosis, but some had gone to extremes, and the home treatment was vaunted beyond reason. A reaction would again occur, in which climatic changes would receive its true valuation for the patients who most require it. The style of treatment of tuberculosis was like the style of hats—it changed with the seasons—but the majority had been dropped without sufficient trial. There was no doubt but that there was some value in tuberculin therapy. There had been much progress in surgical tuberculosis by means of the Bier method. There was much to be grateful for in the results that had already obtained. Much progress was on the whole to be noted and little of value had been lost.

Dr. Carroll E. Edson of Denver, Colo., emphasized the importance of a thorough and complete history of tuberculosis cases in making a prognosis. It was Hippocrates who said: "Prognosis was the summit of the art of medicine." Before giving your prognosis one should obtain the previous history, not only of the patient, but of the parents and even the grandparents. By so doing one would be amply repaid in the future care of these patients. The time was well spent and the knowledge gained would be to the patient's benefit. In their enthusiasm over skin tests they were likely to hear of curious things, and he reported the case of a man who went all over the country, having skin tests made, but neglected to have his sputum examined, in which were contained large numbers of tubercle bacilli.

Dr. Charles F. McGahan of Aiken, S. C., said that moving camps for tuberculous patients were all right if practical, but he did not think they were. With regard to cases of hemoptysis, he reported one case that died immediately and another case that died two days after its occurrence. Hemoptysis was less frequent in women than in men. When a woman got a hemorrhage she laid down, but a man would not take complete rest. There was nothing so good in cases of hemorrhage as complete rest. Dr. Pottenger's method was worth a great deal, no doubt, if he had demonstrated it to them; it required much tactile dexterity.

Dr. E. L. Shurley of Detroit believed that when hemorrhage occurred women were less frightened than men and showed more pluck, whether the hemorrhage was from the lungs or elsewhere. He believed that women had more courage than men in all walks of life.

Dr. Henry Lee Barnes of Wallum Lake, R. I., said that he had used the Lautier test in 100 cases of tuberculosis and in no case was he able to see any redness or anything that resembled a tuberculin reaction; in fact, there was no reaction at all.

Dr. De Lancy Rochester of Buffalo, N. Y., hoped that in a return to rational treatment they would continue to use tuberculin hypodermically. He got his enthusiasm from Dr. Trudeau a few years ago and in using small doses of tuberculin in suitable cases obtained good results. The reason the nuclein was in disrepute was on account of its being so painful. He said that one physician had used it by injection daily for eighteen months and the patient was virtually well. These were two very useful methods of treatment and he hoped that their use would be continued. With regard to the cough, he wished that they could devise some means of constant inhalation which would relieve it.

Dr. John W. Brannan of New York reported some experiences he had had at Sea Breeze, a hospital for surgical tuberculosis situated at Coney Island. Lanolin had little absorbent power and, therefore, he thought he would leave it out of the tuberculin preparation. The result was that the reaction appeared within fifteen or twenty hours; when lanolin was used it did not appear within two or three days.

Dr. A. Jacobi of New York believed lanolin to be an absorbent of the first class, but it should be used with a little water to get quick results. Increased resistance to the finger he believed was found in every case that was percussed where there was thickening underneath due to acute or chronic inflammation. With regard to muscle rigidity he called attention to this sign seen in hip-joint disease; the first symptom of hip-joint disease was a spasm of the muscles and the pain referred to the knee. With regard to the treatment of tuberculosis, he said that for eighteen years he had been using guaicol with splendid success. He also ordered arsenic and these patients seemed to grow fat on it.

Dr. Edward R. Baldwin of Saranac Lake, N. Y., said there was much confusion regarding the cutaneous or tuberculin test; it was not of such great value as a diagnostic test, but as a confirmatory test.

Dr. R. G. Curtin of Philadelphia called attention

to the different reactions that occurred from different preparations of the tuberculin.

Dr. James M. Anders of Philadelphia said that the duration of the fever was of more importance from the standpoint of prognosis than the degree of temperature. The pulse also was a splendid guide in the question of prognosis, but it should be borne in mind that the pulse was very much under the influence of the nervous system; the nervous element in many cases might explain the frequency of the pulse; in such cases it was not such a dangerous omen. In these cases digitalis, if used judiciously, would slow the pulse quite constantly, especially when used with nervines. He thought that Dr. Pottenger's article was one of great scientific as well as practical interest, although some of his explanations were perhaps open to mild criticism. The point he wished to make in his paper was that while fatal hemorrhage might occur in the female it was distinctly infrequent when compared with its occurrence in the male. He called attention to the importance of fresh air, diet, and rest in the treatment of tuberculosis; their increased knowledge of the value of rest in this disease, as well as proper feeding, marked a distinctive advance in the treatment of tuberculosis.

Dr. Herbert B. Whitney of Denver, Colo., spoke of cases of tuberculosis in which recovery had taken place; for ten years or longer patients would not cough or have any expectoration, yet when told to cough dry râles would be discovered.

Dr. Taylor of St. Paul objected to the idea of movable camps for the tuberculous patient; it was not practical. What these patients needed was rest, good food, and discipline. With regard to race, he said he had never seen a member of the colored race recover and he had seen but few Hebrews but what did recover.

Dr. F. M. Pottenger of Monrovia, Cal., believed that discipline was a very good thing. It would be bad for patients to look upon moving camps as a frolic; he did not believe they were practical. With regard to hemoptysis, he recalled two ladies who died of it, and probably ten or twelve men. It was a peculiar thing that these hemorrhages occurred in the early morning hours, or at midnight. If it was cold and turned warm, these patients spat blood; if it was warm and it turned cold, they spat blood; if there came on rain, they spat blood; bleeding depended upon meteorological conditions largely. He depended more upon the tactile touch in percussion than he did on the sound. He could not conceive of a pleuritis being present without this muscular rigidity.

Dr. James M. Anders of Philadelphia said that he had used guiacol for many years in the treatment of tuberculosis and in ascending doses, as they formerly used creosote. He thought that the use of guiacol increased the tendency to hemorrhage from the lungs.

Dr. Charles E. Quimby of New York said it was seventeen years since he read a paper before the association describing the pneumatic cabinet. The cabinet did to-day precisely what he claimed for it then. It did not produce hyperemia of the lungs; it produced a quantitative increase of the circulation through the lungs and lowered the blood pressure.

Climatology of the Northwestern States.—Dr. H. Longstreet Taylor of St. Paul read this paper, dealing with the climate of the sea coast, the mountains, the valleys, plateaus, and plains of the Northwest.

Climatology of the South.—Dr. Charles F. McGahan of Aiken, S. C., read this paper.

The Influence of Meteorological and Climatic Conditions on Metabolism.—Dr. John Benjamin Nichols of Washington, D. C., read this paper. (See page 471.)

A Diet for Every Day Use.—Dr. Horace D. Arnold of Boston presented charts to show the result of his efforts to put the regulation of diet on a practical basis. The quantitative regulation of diet was as important as the qualitative regulation. The basis of a scientific dietary was calculated on the nutritional value of food expressed in calories; they showed the total amount of nutrition in protein fats, and carbohydrates. In speaking of the principles of dietetics he said that the unit for the measurement of nutrition was the chemical heat-unit, or caloric, the amount of heat necessary to raise the temperature of one kilogram of water one degree centigrade. One gram of protein would produce 4 calories; 1 gram of fat would produce 9 calories; a gram of carbohydrate would produce 4 calories; and 1 gram of alcohol would produce 7 calories. With regard to nutrition for twenty-four hours, an adult required at rest 14 to 16 calories per pound; at light work, 16 to 18 calories per pound; at moderate work, 18 to 20 calories per pound. An average sized man required at rest 2,000 calories in twenty-four hours; at light work, 2,500; at moderate work, 3,000. Owing to the relatively greater surface in proportion to weight, the loss of heat was relatively greater in children and they required a higher number of calories per pound. The tables gave the composition of ordinary articles of food. The values were approximately only, but were sufficiently accurate for practical purposes. One table contained the articles of food which were most commonly employed. There were spaces for a summary of the nutriment in twenty-four hours. In the day record one column was for the total daily amount of each article of food used. In the next column was to be placed the corresponding value of each article of food, expressed in calories. A daily record of the number of grams of a given form of nutrition was often of very great value. For example, in nephritis the total daily grams of protein, and in diabetes the total daily grams of carbohydrates. Another column was for a record of the amount of water ingested daily. The daily records could be compared by glancing along the line.

Seasonal Influence on Suicides.—Dr. W. F. R. Phillips of Washington, D. C., in this paper stated that there was a regular rise and fall in the number of deaths self-committed, the greater number coinciding with the warmest part of the year, and the less number with the coldest part of the year. In midwinter there was the least number of self-inflicted deaths. The causes of self-murder he classified under two headings, the rational and the irrational. Under the latter, or true suicides, were to be included those who were tired of living and who had an extensive craving for or love of death. Here were to be included those with mental aberration, those whose act depended upon irresistible impulses, and a certain proportion of cases in which any slight shock would awaken unnatural impulses. The physical and mental instability of people furnished the true suicide. There were two suppositions regarding the causes; first, that based upon the accumulative irritability of the nervous system generally; secondly, that based upon the effect of annual variations, qualitatively and quantitatively, of the average daily diet.

A Note on Fresh Air in the Treatment of Acute Insanity.—Dr. Sanger Brown of Chicago read this paper, which was a plea for a more efficient system of ventilation in institutions devoted to the treatment of the insane, and also for outdoor treatment. Patients with acute insanity, aside from that which accompanied acute paresis, or where there were pronounced signs of mental deterioration, had a strong tendency to recover and the indications for treatment were to as-

sist nature in her restorative work. Every patient should be treated as an individual. He emphasized the importance of fresh air in the treatment of acute insanity and told how best it could be carried out. It was wonderful how patients acutely insane, noisy and wakeful, would become quiet when placed in fresh air and without the use of sedatives. They should be placed in an ample-sized room and where there was forced ventilation.

Diet and Climate.—Dr. W. M. Gibson of Utica, N. Y., called attention to the importance of the regulation of the diet in chronic diseases of the heart, blood-vessels, and kidneys, and to the great importance of a carefully selected diet for subjects of those disorders who would not, or who could not, seek relief from the depressing effects of a Northern winter. There was a great necessity of a close observation of the nutrition of persons of advanced life who wintered in the North, especially of those who manifested symptoms of cardiac and arterial degeneration.

Col. William C. Gorgas, U. S. A., who was introduced by the president, said that the work of the sanitary department in Panama had been kindly recognized by the medical profession in the United States and they had perhaps been given credit for some things they had not done. Manufacturing climate was a thing that was entirely new to him. His life during the past ten or fifteen years, dealing largely with tropical sanitation, had led him to minimize in his own mind the so-called paramount importance of climatic conditions in malaria and yellow fever. In the old days before the individual causes of these two diseases were known, one laid great stress upon climatic conditions, and thought that certain conditions of moisture and temperature were absolutely essential for the development of these two diseases; but when the true cause of these diseases was discovered this idea was minimized. As to protecting the men against the conditions met with in Panama, their health appeared to remain good in spite of the heavy rainfalls and heat; and it should be remembered that the conditions in the tropics tended to debilitate and pull down white men, although he could not state positively that they did. In Panama there were 8,000 Americans connected with the Commission and 12,000 in the Canal Zone, and on all these they had to keep an accurate tab. They belonged to a class of mechanics, and were of a higher degree of intelligence than the ordinary laborer and the death rate among them was very small; in fact, they appeared to be in better condition than they would have been had they been at their own homes. They were furnished good quarters. Connected with the Commission were the wives and children of these men, numbering 3,000, and their condition was equally as good as if they were home. It was surprising that the death rate among the women and children was even smaller than that of the men; there were four or five deaths per thousand among the women and children; he could not assign any satisfactory reason for this. He thought that too much stress was laid upon the debilitating effects of climate, but of course in dealing with such a comparatively small number of people one should not attempt to make any generalization in this direction.

Dr. Alton of Hartford, Conn., said that it was a mistake to attempt any generalization on the question of climate, and he called attention to the great variety of climates, and it was only by studying climate, especially that which was characteristic of small localities in large areas, that would bring them to the knowledge of the true place to send patients.

Dr. James M. Anders of Philadelphia said he was particularly interested in Dr. Nichol's paper on the subject of climate and metabolism. It was well recognized that climate was responsible for the various races and therefore it must have a tremendous effect upon bodily metabolism, but the exact effect of climate in this respect had not yet been determined. He was particularly struck with the practical bearing of the tables and charts presented by Dr. Arnold. His personal experience had shown him that the average physician was woefully deficient in his knowledge of dietetics. The effect of climate upon self-murder was very striking. Self-murder was perpetrated by persons perfectly sane and it seemed to him that the cases to be classed among the rational forms of suicides should have a better showing than in the chart presented.

Dr. Whitcomb of Norristown said they had been very much gratified by the results of open air treatment, night and day, at their institution at Norristown; in the acutely insane it was remarkable the rapidity with which they became quiet; many were subdued even quicker than if sedative medicines had been given.

Dr. Charles L. Minor of Asheville, N. C., said he did not believe in forced ventilation; this had been tried in large public institutions and had proven to be a failure.

Second Day—Saturday, June 5.

The Intravenous Administration of Strophanthin in Pneumonia.—Dr. A. K. Stone of Boston read this paper. In 1906 Fraenkel reported on the use of strophanthin administered intravenously, but the pain caused by its introduction was so great that it was abandoned. In cases of broken cardiac compensation the action of the drug was immediate. Strophanthin was a rapidly acting cardiac stimulant for use in desperate cases, where prompt results were desired. Dr. Stone said that one milligram injected intravenously would produce no evil effects and would have a prompt action upon the heart; a change for the better in these cases would occur in from five to fifteen minutes and would persist for from twelve to fifteen hours, and sometimes for several days. The blood-pressure would be improved. After giving a brief *résumé* of the literature on the intravenous administration of strophanthin and the dangers of its administration, he reported cases illustrative of its effects in collapse in pneumonia, in collapse following surgical operations, and in delirium tremens. A number of deaths had been reported as being attributable to strophanthin, but he thought that it was doubtful if it was the strophanthin that was at fault; any case of advanced cardiac disease, especially those cases in which strophanthin was indicated, might die suddenly. In the giving of digitalis by the stomach several hours might elapse before the cardiac action would occur and the patient might die before that, death occurring in spite of the digitalis, when in fact it was the cause of it by its delayed action. Again in some of these cases digitalis in frequent repeated doses might have been given prior to the giving of strophanthin and this might be a factor in cases of sudden death. Dr. Stone knew of eight cases of sudden death that had been recorded. In the introduction of strophanthin into a vein great care should be taken to get the solution in the blood stream. Any vein that was easy to get at could be used. Of course, failures in the use of this agent in cases of cardiac failure had exceeded the successes. In a series of pneumonia cases the use of the intravenous injection of strophanthin would enable a

number of the cases to be carried along until the patients were able to eliminate the toxin and get on the road to recovery. If the physician was on the spot when collapse occurred in these cases many lives might be saved. Dr. Stone did not advocate strophanthin as a specific in pneumonia by any means, but in certain cases of collapse strophanthin was capable of helping the heart do its work.

The Treatment of Pneumonia by Drugs, According to the Interpretation of Dr. Sajous.—Dr. J. Madison Taylor of Philadelphia read this paper, in which he stated that the crux of the whole matter of the treatment of pneumonia depended upon the management of the critical period. On or about the third day the reaction of the organism in its efforts to overcome the enormous quantity of toxins (specific and others) resulted in the production of an even greater amount of autoantitoxin in order to destroy them. This excess of protective substances became in themselves a source of danger, because of the large amount of adrenal secretion present. An enormous rise of blood-pressure followed in the already congested lung, which thus became overwhelmingly engorged. Hence the special danger of death by asphyxiation, a fatality which so often occurred at this stage. In the selection of remedies these pathological features should be kept in mind and counteracted. Creosote carbonate counteracted the congestion by causing dilatation of the arterioles throughout the entire body. The bromides also proved useful in assisting in the lowering of the blood-pressure and in counteracting congestion, yet without diminishing the antitoxic properties of the blood. Hypodermoclysis at this time was particularly useful and often proved life-saving by diluting the body fluids, enhancing osmosis and variously facilitating adrenal action, sustaining the alkalinity of the blood, promoting diuresis, and eliminating toxins and toxic waste. The use of physiologic salt solution as a beverage was indicated. The drugs cited were only types. Many others could be used which produced similar effects. Doses should be adequate in amount and given sufficient often to produce the desired results or they failed. All rational measures were likewise to be employed, open air treatment, etc.

The Treatment of Pneumonia and Its Variations in the Past Half Century.—Dr. A. Jacobi of New York reviewed the nature and treatment of pneumonia from the earliest days to the present. Interstitial pneumonia was a disease very frequently overlooked. There was the retracted chest, the bronchophony, the absence of cough, and of râles, etc. Cough was absent unless there was an accompanying bronchitis. There was dullness on percussion. In many cases this disease was mistaken for tuberculosis. Of the pneumonias there were now known as many as ten or fifteen varieties, and if one was looking for a specific for pneumonia he should have a specific for every one of the etiological factors. Treatment should be directed not to the pneumonia so much as to the individual who had one of the forms of pneumonia. The disease lasted a certain length of time and the best thing they could do was to keep the patient alive until the lungs were better. There were many things they might do for these patients. Strophanthin would save many patients that would have died without its use. If the circulation was slow, many mishaps might occur; if very slow thrombi might form in the vessels of the lungs, and they knew nothing that would dissolve thrombi. The prognosis should not be given as hopeless so long as there was anything to be done. A great many cases would recover without much treatment. But there were others where treatment, and prompt treatment, was required. For instance, take a patient in his third day of pneumonia with dilatation of the right heart, cyanosis, and beginning pulmonary edema; such cases were often given up, but they could be saved by venesection, thus enabling the right heart to contract again. These were the cases that responded to venesection, especially when it was combined with large doses of digitalis. He generally used the fluid extract of digitalis and such cases required as much as ten or twelve minims at once; in two hours he gave another dose; two or three such doses of the fluid extract of digitalis would very frequently save life. He said he was speaking only of the desperate cases. If the patient was left alone two, three, or four days, the heart would become weaker; he therefore insisted upon immediate stimulation with such agents as digitalis, sparteine, etc., from the beginning; but when the fifth, sixth, or seventh day was reached, with the pulse going up and becoming weaker, when the feet become cold and other signs of cardiac failure were present, then only large doses given subcutaneously would do good. He used caffeine for this purpose, both in adults and children, especially when there was pulmonary edema.

Indications for Venesection in Pneumonia.—Dr. De Lancy Rochester of Buffalo, N. Y., repeated an epigrammatic expression of an Englishman, which he thought gave the essence of the treatment of pneumonia: "Make the blood clean and keep it circulating." For this purpose relieve the toxemia and open up the emunctories. In a certain number of cases the invading bacteria apparently were getting the upper hand, and the toxemia was becoming profound, the temperature rising to 104°, 105°, or even 106°, with respirations 40, 50, or even 60, with flagging pulse, with coated tongue, sordes on the teeth, foul breath, carphologia, and subsultus tendinum, and something must be done and promptly to save life, and in such cases venesection gave striking results. The withdrawal of from 200 to 400 c.c. of blood was often followed by the recovery of the patient. He reported illustrative cases, but he cautioned against bleeding in these toxic cases when improvement had already set in; if one bled at that time there would follow an increase in the toxic symptoms and a fatal termination. The object of bleeding was to get rid of the toxic material. Sometimes enteroclysis of normal salt solution would be an aid. Another indication for venesection was in those cases of marked involvement of the lungs with marked toxemia, with a dilated right heart, and one that was unable to empty itself; in these cases, too, the results were often very striking. He closed his paper by stating again that bleeding was indicated in pneumonia (1) to clean the blood and (2) to keep it circulating.

A Report of Cases of Pneumonia in Colorado.—Dr. J. N. Hall of Denver, Colo., reported 250 successive cases of acute lobar pneumonia, studied especially as to the influence of altitude upon the disease. The mortality of this series was 42.8 per cent., but this was largely accounted for by the fact that all but 18 were seen in consultation, suggesting, of course, a grave class of cases. The mortality for the years 1903 to 1907, inclusive, for Denver was 172.0 per 100,000. The average for Chicago, Kansas City, Jersey City, New York City, Atlanta, Sacramento, Wilmington, and Taunton, Mass., for the same period was 183.3 per 100,000. In the mining communities of Colorado the rate was much higher; in Leadville it reached a proportion of 413 per 100,000. This was largely accounted for by the character of the population, the frequency of alcoholism, and especially the presence of

beginning miner's phthisis, although the altitude doubtless brought about cardiac failure and suffocative phenomena more frequently than at lower levels, and thus tended to increase the mortality.

Baths and Exercise in the Treatment of Heart Disease.—Dr. Robert H. Babcock of Chicago read this paper. He first considered baths, Nauheim baths, and after mentioning that it was Baeneke and the Schott brothers who drew the attention of the profession to the remedial virtues of Nauheim baths in acute and chronic endocarditis, outlined the principles underlying the same. Simple saline waters were soothing and quieting to the heart and hence at temperatures of 93° to 90° F. were indicated in cases showing considerable dilatation and weakness of the heart. These initial baths were not charged with carbonic acid, as a rule, or at least but feebly so. As the heart gained in strength and the circulation improved, the waters were charged more strongly with both chlorides of sodium and calcium, and their temperature was lowered from 90° to 87°. These baths were also strongly effervescent and now became powerful cardiac stimulants. In all the cases submitted to balneology after this method the reaction of the patient should be watched carefully, since these baths were cool and not hot baths. They were indicated in practically all forms of cardiac disease, except aneurysm of the aorta, or when there was pronounced fibrous mediastinopericarditis. They should be employed with care also in stenosis, and were of special service in dilatation from overstrain or chronic myocarditis. Exercises were of two kinds, the so-called resistance gymnastics elaborated by the Schott brothers and employed particularly in cases of pronounced cardiac feebleness with dilatation. The author now employed these resistance exercises but rarely, since he obtained better results from certain others, which consisted of active breathing movements, care being taken always by the gymnast that the breathing was diaphragmatic and in proper synchronism with the acts of inspiration and expiration. As the strength of the heart improved these respiratory gymnastics were supplemented by active movements of flexion, extension, and rotation of the extremities and trunk, these movements being assisted at first when the heart was weak and later performed by the patient alone, but in all cases were carefully supervised by the trained assistant to see that breathing was conducted properly and in harmony with inspiration and expiration. When these gymnastics were properly performed they slowed the pulse, improved its quality, lessened dyspnea, and reduced dilatation. They were especially suitable to cases of chronic myocarditis as seen in business men of full habit and usually with high blood-pressure. They might be applied with care, however, to cases of valvular disease, and in some children with small chests and hypertrophied hearts had accomplished most gratifying results. In all cases they should be supervised and controlled by the physician.

Dr. Charles E. Quimby of New York said that ten years ago he was disgusted with his own treatment of pneumonia and that of others and had never seen anything advocated in the treatment of this disease that had any good effect upon it, and, therefore, he thought he would try theory. The chlorides were retained, not because the kidneys were not able to excrete them, but because the system wanted them. Therefore, for ten years he had treated pneumonia patients with from ten to fifteen grains of sodium chloride with from six to eight ounces of fluid every hour of the twenty-four, with castor oil night and morning, and as yet he had not seen a case of pneumonia refuse to answer; he had not seen a single case with dry tongue or with delirium since he began this treatment. He said that he believed this treatment had helped; it certainly had done no harm, and he wished the members of the association would try it.

Dr. John W. Brannan of New York referred to the treatment of not only pneumonia but practically all diseases out of doors. He spoke of the testimony of physicians and nurses regarding the good effects of outdoor treatment of diseases and all were practically agreed as to the beneficial results following it.

Dr. Guy Hinsdale of Hot Springs, Va., advocated an abundance of fresh air and the use of water, ice, and compresses in the treatment of pneumonia. Treatment by outdoor air in outside wards, roof wards, etc., was of course one of the greatest helps in sustaining patients. The use of cold compresses over the chest and ice over the lungs was not only useful in adults, but in children as well. He presented pictures showing the balconies in three different hospitals. Dr. Lambert of Bellevue Hospital was not only impressed with this treatment, but thought there was nothing like it to shorten the course of the disease. Even children and babies were kept in the open air and did not require sedatives at night; their cough was apparently lessened, their appetite was improved, and their bowels were more regular.

Dr. E. L. Shurley of Detroit also spoke of the good effects of fresh air and water in cases of pneumonia; by means of osmosis there was a dilution of the toxins in the blood.

Dr. Boardman Reed of Los Angeles, Cal., said that the mortality from pneumonia to-day was three times as great as it was forty years ago and in those early days they used antiphlogistics and bleeding; therefore, careful and earnest thought should be exercised before condemning the old method. Dr. Rochester had called attention to the value of venesection; this was what saved the lives of so many of their forefathers. Why condemn it?

Dr. Carroll E. Edson of Denver called attention to the importance of increased frequency of visits to these patients. Cardiac stimulants were given, for instance, every four or six hours; it was just as necessary to have the physician's visit recorded as coming every four or six hours.

Dr. Charles F. McGahan of Aiken, S. C., acknowledged that he knew but little about the treatment of pneumonia. He had found in his experience that a certain set of pneumonic cases got well under a certain treatment and he felt encouraged; but with the next set of cases the treatment failed him.

Dr. Charles L. Minor of Asheville, N. C., said that the negro never ran the typical temperature course of pneumonia; the temperature was often subnormal. The cases he referred to were not those that were running on to tuberculosis. There was often no crisis. Convalescence in the negro ran a slower and atypical course.

Dr. John H. Lowman of Cleveland said that when the pulmonic second sound began to give out the interpretation was that the left heart was beginning to fail and this was usually the beginning of the end; more attention should be paid to the cardiac failure than to the disease existing in the lungs.

Dr. Herbert B. Whitney of Denver, Colo., said that his experience had shown that there was practically no difference in the course of pneumonia in Denver compared with those at the sea level.

Dr. De Lancey Rochester of Buffalo said that he did not wish to be understood advocating venesection in all cases of pneumonia. It was indicated only in certain cases. Among 400 cases that he had treated it had only been performed twenty times.

The Hygienic and Climatic Treatment of Arteriosclerosis.—Dr. Boardman Reed of Los Angeles, Cal., referred incidentally only to cases of arteriosclerosis due to syphilis, malaria, or other poisons from without which require the eliminant and antidotal drugs, and only briefly discussed those dependent upon physical, mental, or emotional overstrain which he believed required above all a cessation of the overstrain and more or less complete rest, often in bed, with massage, passive exercise, etc. He held that the great majority of cases of arteriosclerosis resulted directly or indirectly from an autotoxemia, and that the most prolific predisposing cause was an excess of food and drink ingested relative to the exercise taken, and the constipation arising so generally therefrom. The treatment recommended included, first of all, a reform of the bad habits, especially overeating and drinking, with lack of physical exercise; there should be a limitation of the food and drink to the actual needs of the system; the amount of liquids allowed should not exceed the quantity of urine passed, especially in those cases in which the heart shows failure of compensation. All the physical measures found useful in the maintenance of active circulation and elimination through the skin and in radically curing constipation should be employed. For these purposes he recommended various baths, especially the Nauheim effervescent baths, Swedish movements, and light regulated exercises, including particularly the resisted movements first practiced by the Schott brothers at Nauheim. He also recommended the various forms of electricity, such as general faradization, the high-frequency and Morton wave currents, massage, and vibration. Dr. Boardman Reed recognized three stages of the disease: (1) Presclerotic, in which the tension was variable but usually low; (2) one in which the heart was hypertrophied; (3) one in which there was failure of compensation. The treatment must vary with the stage as well as with the causes of the disease. He advised sanitarium treatment for the bad cases and for those having an unfavorable environment. A dry and equable climate suited such cases best and that of the Southwest, especially the regions in Southern California, not too far from the coast, were said to prove particularly advantageous.

Strophanthin in Dilatation of the Heart.—Dr. John H. Lowman of Cleveland, O., reported some concrete instances of the results of the use of strophanthin in cardiac dilatation.

Dr. De Lancey Rochester of Buffalo, N. Y., said that when one considered the subject of arteriosclerosis he should bear in mind that normally this change began in the arteries at about the age of thirty-seven, and from that time on one had more or less sclerotic arteries. When slight evidences of the disease appeared, it was very easy to advise a certain diet and mode of life, but it was exceedingly difficult to get the patients to live up to the rules and regulations given him. The regulation of the amount of food taken was a very important thing and in this he believed that Dr. Arnold's tables should be consulted. The use of salts to keep the tension down he believed to be better than the use of castor oil and similar eliminants. Alkaline drinks helped to eliminate better than ordinary water. Massage and proper exercises were of great value. Fresh air was as valuable in arteriosclerosis as it was in the treatment of tuberculosis. Warm equable climates were also useful. Any case of acute dilatation, especially in connection with arteriosclerosis, the patient should be placed in bed and be given milk, buttermilk, or a predigested milk diet. An agent of great value in his hands in the treatment of angina was tincture of aconite in large doses.

Election of Officers.—*President*, Dr. E. R. Baldwin of Saranac Lake, N. Y.; *Vice-Presidents*, Dr. James M. Anders of Philadelphia and Dr. H. Longstreet Taylor of St. Paul; *Secretary and Treasurer*, Dr. Guy Hinsdale of Hot Springs, Va.; *Council*, Dr. W. F. R. Phillips of Washington, Dr. E. L. Shurley of Detroit, Dr. Thomas Darlington of New York, Dr. Thomas D. Coleman of Augusta, Ga., and Dr. Charles E. Quimbey of New York; *Delegate to the Congress of American Physicians and Surgeons*, Dr. R. G. Curtin of Philadelphia; *Alternate*, Dr. Thomas Darlington of New York.

Malignant Empyema of the Antrum.—H. J. Davis has reported a case of chronic empyema of the antrum, which later became malignant and proved to be a fibromyxosarcoma.—*Proceedings of the Royal Medical Society.*

Scarlatina and Erysipelas.—Milhit and Vasseur have observed two cases of scarlatina complicated with erysipelas, a not infrequent association. It generally occurs late in the disease and accompanied by nephritis, which is often hemorrhagic. In view of the attempt to show that the streptococcus is the cause of scarlatina, it seems interesting to note that there is a partial vaccination against the streptococcus by scarlatina, sufficient to cause the general symptoms to be slight. There is only slight rise of temperature, and hearache; chills, and vomiting are not prominent symptoms. The erysipelas runs a mild course of eight or ten days, under the usual treatment, and is followed by a marked desquamation. The patient should be kept on a strict milk diet. The prognosis is not made worse by the presence of the erysipelas, as would be expected, the process being strictly a local one.—*Le Progrès Médical.*

The Influence of Cold on the Pathogenesis of Bacteriemia from Localized Pus Infections.—Francesco Stinelli has conducted experiments in animals to ascertain whether cold applied after inoculations with pus organisms would increase or diminish their effect. An injection of a sublethal dose of a culture of staphylococcus of low virulence, practised subcutaneously, causes rapid death of the animal if he be kept in a refrigerated atmosphere. In the control animals the same dose produced only local suppuration. Death did not depend on an increased virulence of the poison, but upon a lessened ability to resist the action of the germs. In the refrigerated animal, after a few hours, lesions were caused in the internal organs, producing transudation of serum into the peritoneal, pleural, and pericardial cavities. In the refrigerated animals a true bacteriemia occurred, while in the others the germs had not passed into the circulation. Inoculations into the veins had the same effects, the animals having a staphylococcemia with degenerative lesions of the internal organs, and multiple local metastases.—*Giornale Internazionale delle Scienze Mediche.*

Tarsalgia in the Puerperal State.—Tissier and Gautiez describe a certain kind of difficulty in walking which is experienced by women after labor, after a period of rest, more or less long, in which it would be supposed that the whole organism would be recruiting. This he finds to be due to a form of flat foot. The pregnant woman is obliged, in order to maintain her equilibrium, to walk in an unusual manner, on the fore part of the foot, instead of on the heel. This position allows of an atrophy of the posterior muscles of the leg, which do not function as usual. The weight of the body, instead of being supported by the mediotarsal bones, rests on the calcaneum. This bone becomes fatigued and sensitive. Another condition that tends to abnormal gait is that the woman is forced to walk with her feet wider apart than usual. The tibiae bear obliquely upon the astragalus, which pushes outward the calcaneum and favors the tendency to valgus. The general articular relaxation is a third factor in the production of flat foot. Now the muscles still further atrophy in the weeks of enforced rest, and when the woman comes to rise from her bed she experiences a true tarsalgia, a neuralgia that prevents her from walking easily. The plantar arch has lost its tone, sinks under the pressure of the body, and causes much pain in walking. The cure of this condition is easy and rapid; exercises of the muscles involved and a pad under the arch, or a flat-foot plate worn for a short time will bring about a cure.—*Réunion Obstetricale de Lyon.*

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Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of September 11, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	429	158
Diphtheria	188	23
Measles	88	6
Scarlet Fever	82	4
Smallpox	—	—
Varicella	11	—
Typhoid Fever	285	25
Whooping Cough	36	17
Cerebrospinal Meningitis	7	5
Malarial Fever	—	—
Totals	1,126	238

Acute Pulmonary Edema in Parturients.—A. Bonnet-Laborderie finds that acute pulmonary edema is an accident of pregnancy, of labor, of delivery, and immediately following labor. As to its production, in most cases it results from cardiac or renal lesions. But there are cases in which it occurs in which examination shows no cardiac lesions and no albumin in the urine. It is found that labor increases the pulse rate and the arterial tension, and that delivery does not at once reduce the tension on account of the removal of the fetal and placental vessels from it. The author recites the case of a healthy woman who passed through pregnancy and labor without accident, and after labor had a severe crisis of dyspnea, which cleared up entirely in twenty-four hours. She had neither heart nor kidney lesions. The author believes that we can only theorize as yet as to the causation in such cases.—*Journal des Sciences Médicales de Lille.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended September 10, 1909:

			Cases.	Deaths.
SMALLPOX—UNITED STATES.				
Iowa, Cedar Rapids	Aug.	1–31	1	..
Louisiana, New Orleans	Aug.	21–28	1	..
Minnesota, Duluth	Aug.	20–27	1	..
Montana, Butte	Aug.	12–26	6	..
Ohio, Dayton	Aug.	21–28	7	..
Toledo	July	31–Aug. 7	1	..
Oregon (4 counties)	May	1–31	31	..
Utah (11 counties)	July	1–31	110	1
SMALLPOX—FOREIGN.				
Algeria, Bona	July	1–31	19	10
Brazil, Pernambuco	June	1–15	..	11
Rio de Janeiro	July	25–Aug. 1	3	1
Ceylon, Colombo	May	8–15	1	..
Chile, Valparaiso	June	26–Aug. 7	..	Present
China, Tientsin	June	26–July 3	1	2
Egypt, Cairo	July	10–29	1	1
India, Bombay	July	20–Aug. 3	..	10
Madras	July	16–23	..	1
Rangoon	July	17–24	..	3
Italy, Genoa	Aug.	1–15	1	..
Naples	Aug.	8–15	22	6
Java, Batavia	July	18–24	2	..
Mexico, Chihuahua	Aug.	15–22	1	..
Guadalajara	Aug.	12–19	1	..
Veracruz	Aug.	15–22	2	Imported
Persia, Shiraz	June	7	..	Present
Russia, Moscow	July	24–31	..	14
	Aug.	7–14	8	2
Odessa	Aug.	1–7	2	..
Riga	Aug.	7–14	8	..
St. Petersburg	July	24–Aug. 6	28	10
Warsaw	June	19–July 3	..	3
Spain, Barcelona	Aug.	9–21	..	11
Valencia	July	31–Aug. 14	7	..
Vigo	Aug.	7–14	..	2
Tripoli, Tripoli	Aug.	1–7	8	2
YELLOW FEVER.				
Venezuela, Maiquetia	Aug.	14–21	1	In suburbs
CHOLERA—INSULAR.				
Philippine Islands, Manila	July	10–17	1	1
Provinces	July	3–10	580	386
CHOLERA—FOREIGN.				
China, Hankow	July	10–17	1	1
India, Bombay	July	20–Aug. 3	..	37
Calcutta	July	18–24	..	17
Indo-China, Saigon	July	10–17	1	1
Russia, general	Aug.	13–20	664	289
St. Petersburg	Aug.	13–20	201	71
PLAGUE.				
Chile, Iquique	July	28	7	In lazaretto
China, Hongkong	July	10–24	10	7
India, Bombay	July	20–Aug. 3	..	53
Calcutta	July	17–24	..	17
Indo-China, Saigon	July	10–17	16	14
Peru, general	July	31–Aug. 7	21	5
Callao	Aug.	4–7	1	1
Russia, Ural district	Aug.	5–13	19	19
Venezuela, Caracas	Aug.	7–16	4	2

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Original Articles.

CLINICAL EXPERIENCE WITH CALCIUM LACTATE IN HEMORRHAGES OF THE UPPER AIR TRACT.*

BY W. K. SIMPSON, M.D.,

NEW YORK.

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THE control or prevention of hemorrhage from whatever cause or wherever occurring is of such vital importance that any measures which will be of assistance to us should be at once recognized and eagerly pursued. We cannot have too many resources at our command to meet the emergency. The danger of a hemophilic tendency should be ever before us, not only in instances of spontaneous bleedings, but also in its bearing on operative procedures, and no operation should be undertaken until we have *fully* contemplated the question of hemorrhage as to both its effects and control. The question of hemorrhage in operations takes its place in importance alike with that of shock and sepsis, and although we may feel secure behind the many cases in which none has occurred, yet that one unlooked for or unprevented fatal hemorrhage will always stand before us for daily contemplation.

The use of calcium salts for the control of bleeding has been employed for a sufficient length of time to make them a factor deserving profound consideration, their efficiency depending on the increase of the calcium content of the blood and consequent diminution of the period required for coagulation. This subject was first brought to the attention of the profession by A. E. Wright, of London, in 1891 and 1893,[1] since which time it has received a great deal of well-marked consideration.

My interest in the employment of calcium lactate began in December, 1905, in conjunction with Dr. John W. Coe, of New York, in the treatment of a hemophilic patient, who had been the subject of severe attacks of epistaxis for many years. All the known means had been employed, including chloride of calcium, suprarenal extract, and other constitutional measures, but, apparently, without any positive effect in controlling the hemorrhages for any length of time. I may here call attention to a most excellent article by Dr. Coe,[2] going at length into the treatment of a number of cases.

At this time we became familiar with the experiments of Wright and Paramore of London,[3] and Boggs,[4] in the use of lactate of calcium, and decided to give it a trial in the treatment of our patient. The result of its use became at once so positive in the control of the hemorrhages, and so far exceeded the effect of any previous medication, that I determined to use it not only with this patient, but in all subsequent cases where the prevention or control of hemorrhage was necessary, especially in the upper respiratory tract.

As the result of an extended experience since that time, I have come to the conclusion that we have at our command in the lactate of calcium a remedy which has a profound effect in many hemorrhagic conditions. I have employed it not only in non-operative hemorrhages, but also in hemorrhages associated with operations with an idea to their modification, if not prevention. The non-operative cases have been mostly those of epistaxis, and one case of hemorrhage of the lower trachea. Although it is well known that severe cases of epistaxis may yield to various measures, or cease spontaneously, still in certain of the cases under my care there can be no doubt whatever but that the immediate and continued control of the bleeding was due to the use of lactate of calcium.

In the patient referred to above, a physician of large practice and experience, the effect has been so marked that I think it deserves detailed notice. Prior to the use of lactate of calcium, apparently nothing but local measures, such as cauterization of the bleeding points within the nose, would have any effect, and this effect was but temporary, to be followed in very short order by frequently renewed and severe attacks of epistaxis. Since the use of the lactate, however, extending over a period of three and a half years, the hemorrhages are so controlled that they occur only at very long intervals, and then are due to some error in diet or accidental cause. Not only have the hemorrhages been controlled, but the character of the mucous membrane of the nose has undergone a very marked improvement.

During the many years of his treatment for epistaxis, the nasal mucous membrane was such that the slightest touch with a cotton applicator would bring on a profuse hemorrhage, but at the present time, when any necessity arises for manipulating the nasal mucosa, it can be done with comparative impunity, thereby assisting greatly in pressure control and in the cauterization of the hemorrhagic area; and the ordinary appearance of the nasal mucous membrane is much more healthy and normal. There can be no doubt that the control of the hemorrhage in this instance is due to the hastening of the coagulation time. This has been proven a number of times by Wright's tubes, wherein the period of coagulation has been reduced from 9½ minutes to 4 minutes, and in another instance from 9 to 3½ minutes.

In another instance, a young girl of 16, who was the subject of profuse nasal hemorrhages, and whose coagulation period was above normal, the use of the lactate produced a marked controlling effect and cessation of the attacks. With this patient also, complete blood examinations were

*Read at the annual meeting of the American Laryngological Association, held in Boston, May 31-June 2, 1909.

made, with the result of demonstrating the change in the coagulation period.

With a view of ascertaining whether lactate of calcium would control operative hemorrhages, I have made it a practice, when it is possible to do so, to administer it for three days prior to operation and three days or more after. The operations in which I have used the drug have been for nasal polypi, turbinectomy, various operations on the septum, and antrum operations—but mostly tonsillotomy and for removal of adenoids. In the intranasal operations, we do not have such a good field for observation in the control of hemorrhages by general measures, as the areas are immediately under direct control by pressure, but in certain cases, where no post-operative packing has been employed, there appeared to be less tendency to after-hemorrhage than in cases where it was not used. In the operations on the tonsils and adenoid vegetations, however, the conditions are entirely different, and afford a most excellent opportunity for observation in the control of surface hemorrhage, and it was upon this type of cases that my observations were concentrated.

As in cases of epistaxis, so also is the hemorrhage from adenoid operations and tonsillotomy a variable quantity, and it is difficult to get an exact basis for comparison, but from careful observations, extending over a large number of operations in clinic and private practice, one can make a comparison which is practical and conclusive. From the results of 75 cases of operation in private practice for the removal of tonsils and adenoids, in which the calcium lactate was given, I can say positively—if clinical observation amounts to anything—that there has been a controlling influence at the time of operation, but more especially in the *prevention* of secondary hemorrhage. Even more especially has this been observed in the cases under general anesthesia, where it is a recognized fact that hemorrhages at the time of operation are much more severe than when anesthesia is not employed.

Acknowledging the comparative rarity of severe immediate or secondary hemorrhages in these operations, it is a fact far stronger than coincidence that the *only* severe hemorrhages during the period under consideration that have come to my experience in a very large number of cases comprising private and many additional clinic cases, have been those in which the lactate of calcium was *not* given. These are five in number, one of which will serve as a marked illustration. The patient was a lad of 15, from the West Indies, upon whom the adenoids and tonsils were removed under ether. On the removal of the adenoids a most violent hemorrhage ensued, and after this had diminished somewhat, the tonsils were removed. This operation was followed by a still more alarming bleeding, reducing the patient to a very extreme condition, and necessitating active measures for its immediate control. The hemorrhage from the tonsils continued for several days, with variable severity, and it was during this time that observation was afforded for watching the coagulating effect of the lactate of calcium. As soon after the operation as possible, when hemorrhagic vomiting had ceased and medication could be retained, he was given an initial dose of sixty grains of the lactate, which was followed by thirty grain doses, four times daily, for several days, and more often when it was deemed necessary; and many times during its administration the blood could be plainly seen to coagulate in distinct firm masses, as it appeared on the surface of the tonsils. No blood examinations relative to the period of coagulation were made with this patient, but it was clinically evident that the lactate had a controlling influence. It was subsequently learned that a sister of the patient had nearly "bled to death" a year previously from a similar operation, there being probably a family hemophilic tendency.

There is no doubt, in this case, that the calcium lactate exerted a strong influence in the control of bleeding, and in the remaining cases of severe operative hemorrhages, in which it was not given till after the operation, there is every reason to believe that it modified greatly the subsequent course of the bleeding.

Relative to the dosage, I think it best in all cases to begin with an initial does of sixty grains, especially in the adult, children in proportion, and then thirty grains twice during the first twenty-four hours. In the non-operative and hemophilic cases, the drachm doses may be contained every morning and then every other day, until such time as there is improvement in either the bleeding or in the hastening of the coagulation, as determined by laboratory tests, the improvement to be maintained by occasional drachm doses. There are no hard and fast rules as to the amount to be given, but each case must be treated as conditions indicate. In operative cases, epecially for the removal of tonsils and adenoids, preliminary treatment should begin by the administration of the calcium lactate, when possible, three days previous to operation, and the drug should be continued for three days after; as these operations occur mostly in children, the dosage may be proportionately smaller, giving twenty grains, thrice daily, as an average. There seem to be no untoward symptoms arising from large or continued dosage. Coe[2] cites an instance in which, by mistake, a patient of 33 years was given sixty grains every three hours for six doses, with no ill effects, and our first-mentioned patient has continued with drachm doses almost daily, and sometimes twice daily, for nearly three and a half years; he is a close observer, and thinks that sixty grains is a maximum dose, and further states that in his own instance, a better effect is maintained in controlling the bleeding by omitting one or two days after a maximum effect has been reached. I may say here in passing, that at one time he discontinued its use for some while, taking up the serum injections in its stead, with the result of return of very severe hemorrhages, which were subsequently controlled by the resumption of the calcium lactate. It seems preferable to administer it when the stomach is free from food, *i. e.*, in the early morning and between meals. The lactate not being immediately soluble, the best means for its administration is to place the powder in a tumbler adding a small quantity of warm water, stirring thoroughly, then adding cold water up to a half or full glass. Attention has been called to some instances in which the inferiority of the preparation has minimized the results, and I consider the purity of the preparation a very important factor.

The object of this contribution has been simply to relate my own clinical experience and impressions, and I have purposely refrained from discussing the theories and variations relative to the subject of coagulation, the various modes of determining the calcium content of the blood, the period of blood coagulability, or the conflicting opinions concerning the efficiency of the calcium salts in the control

of hemorrhage; still it is interesting to note, and at the same time somewhat difficult to understand this diversity of opinion. Wright, in 1896[5] showed that after the ingestion of calcium chloride or lactate, the time of coagulation was shortened in hemophilic as well as in normal cases, mentioning in the same article an instance of a hemophilic in whom the result was negative, who failed to absorb the calcium, and the effect was not produced until a subcutaneous injection of the lactate was given, which finally controlled the hemorrhage from the gums, from which he suffered. A few days previously, however, an injection had proved inefficient. He advises against the subcutaneous injection of the chloride, and in reference to the lactate, it should not be injected in a stronger concentration than 1 to 20.

Wright and Paramore[3] state that calcium lactate causes increased rapidity of coagulation in twenty minutes and its maximum effect is reached within forty-five minutes, the effect being maintained for from four to seventeen days, and also that the effect of four grams, *i. e.*, about one drachm, is greater than a similar dose of the chloride.

Boggs[4] states that a distinct influence was noted on the coagulation after the taking of calcium lactate. In intervals of three days in which the calcium was omitted, the time required for coagulation returned to its former period, and was again shortened after the resumption of the calcium. Boggs concludes that, as it displays its efficiency in those patients in whom the time of coagulation is physiologically diminished, it may be regarded as a valuable remedial agent.

In another paper Boggs,[6] states that, after the normal calcium content of the blood had been determined, the dogs used in the experiments were fed with calcium lactate, in dose of 2 to 4 grams, twice daily, and after five days the animals were again bled and the calcium content determined. In both animals there was a marked and constant increase in the calcium content of the blood; coincident with this, there was an increase in the coagulability of the blood.

Hinman and Sladen[7] "consider the lactate the best calcium salt, the chloride being too irritating"; they had never seen the lactate cause the slightest gastric disturbance; and when given either by mouth, rectum, subcutaneously, or intravenously, it tends to shorten a delayed coagulation time. While it is requisite always to determine the coagulation time, there is no contraindication in giving the drug in normal cases.

R. Kobert,[8] in considering calcium salts as styptics, states that gram doses of calcium salts, including the lactate, given by mouth, enema, subcutaneous, or intravenous injections, in a 1 per cent. solution, cause immediate styptic effect in individual cases.

T. Addis[9] gives the following general conclusions as a result of a number of experiments: (1) The coagulation time of the blood is unaffected by the administration by the mouth of soluble calcium salts or of citric acid. (2) The amount of calcium in the blood is increased by the giving of soluble calcium salts and diminished by citric acid, but the increase or decrease brought about is considerably less than the degree of variation in the calcium content which is necessary before any appreciable effect is produced in the coagulation time. As these results were at variance with those of Wright of London, he gives a description of the apparatus used and discusses the difference between the two coagulometers, giving his reasons for relying on Blair Bell's calcimeter.

Geo. W. Ross[10] speaks of the favorable results, in the treatment of headaches due to insufficient blood coagulation, from the use of calcium salts, preferring the lactate to the others, it being more palatable, less nauseating, and often better absorbed.

Arthur P. Luff,[11] on the basis of numerous favorable experiences, recommends the use of calcium salts, especially the lactate, in fresh solution, in all diseased conditions which are associated with a lessened coagulative condition of the blood, and thereby a tendency to increased transudation of plasma through the capillary wall, noting the condition occurring in frontal headache with slight edema of face, eyelids, hands, and feet, also in urticaria, chilblains, and edema of the feet and hands not due to heart or kidney disease or venous obstruction. In his summary of 121 cases treated, 78 per cent. were cured, 9 per cent. were considerably benefited, and in 13 per cent. no good resulted from the treatment. In the 121 cases, no bad symptoms were produced by the administration of the lactate. Among a large number of other cases treated, not included in his paper, were only three cases where any unpleasant symptoms supervened which necessitated the withdrawal of the calcium lactate. These symptoms, he states, certainly pointed to some commencing thrombosis. In one case, there was a definite slight attack of venous thrombosis in the right calf; in the second, slight numbness of the arms and legs associated with tingling, and in the third case, tinnitus and deafness were produced. In the three cases the unpleasant symptoms rapidly subsided after the withdrawal of the calcium salt.

This question, of the danger of thrombosis from the use of calcium lactate, is frequently raised, but I have never seen any instances of it.

F. C. Ard[12] reports a case of profuse hemorrhage following tonsillotomy in which lactate of calcium was used with most satisfactory results.

Opposing views as to the efficacy of the calcium lactate are held by Dahlgren.[13] In two cases in which the lactate was administered by the mouth and by enema, there was a negative effect, both patients dying from secondary hemorrhage following operation for acute appendicitis. He concludes that in hemophilia, bloody operations should not be performed unless necessary for the prolongation of life, but states at the same time that a prophylactic treatment with serum, gelatin, and the calcium salt, may possibly prove of value.

W. E. Robertson, G. M. Ullman and A. A. Duncan,[14] also speak very strongly in opposition to the beneficial effects of calcium salts or any other means in controlling the period of blood coagulation. Their observations were carried out mostly in cases of typhoid fever, and they present a table of cases in corroboration of their views. Their article was read at a meeting of the American Medical Association in 1907, and in the discussion (Section of Pharmacology and Therapeutics) Dr. Lowe said that his investigations led him to believe that calcium salts had little value upon the coagulability of the blood. Dr. M. Solis Cohen says that Dr. Wright's statements seem perfectly true till one investigates them. He (Cohen) tested the coagulability of the blood in 50 cases, and was unable to corroborate any of Wright's statements relative to the clotting time in diseased conditions. Robertson pointed out that the chief value of work of this kind, if confirmed by others, was in warning us

against false sense of security in giving the calcium salts. This article was made the basis for including the calcium salts among "Pharmacologic fetishisms" by Barton,[15] who considers their use folly.

As the writer of this paper mentioned above, it is indeed difficult, in view of his own observations, to reconcile these diverse opinions.

My conclusions are:

1. Clinical experience shows that calcium lactate has a controlling influence in hastening the coagulation of the blood.

2. Its efficacy is more marked in hemophilic cases where the coagulation is delayed, than in cases of normal coagulation time.

3. Before operation, especially on tonsils and adenoids, careful inquiry should be made relative to any hemophilic heredity or tendency.

4. In suspicious cases the coagulation period should be determined before operation.

5. It is questionable, if not positively contraindicated, whether such operations should be undertaken in hemophilic cases, other than under the most extreme urgency.

6. In all cases of operations for the removal of tonsils and adenoids, calcium lactate should be given for a period prior to and after the operation, both for its possible effect in diminishing the immediate hemorrhage and in preventing secondary surface hemorrhage.

7. Of the calcium salts, the lactate is more positive in its results, is more agreeable to administer, and is less irritating to the stomach.

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Concerning the Nature of Unilateral Pleuritic Effusion in Cardiac Disease.—Francesco Feliziani says that hydrothorax in cardiac and renal cases occurs only in the last stages of the disease. Unilateral effusions occur, however, only in the stage of good compensation, without hyposystolia. The appearance of this condition is slow and insidious, without dyspnea or other symptoms that would attract the attention. The cytological formula of the fluid is like that of pneumococcus pneumonia; there are present endothelial cells, polynucleated cells in large numbers, and a few lymphocytes. The fluid is small in amount, light yellow, and does not coagulate easily.—*Il Policlinico.*

THE THERAPEUTICS OF CALCIUM SULPHIDE IN RELATION TO SURGERY AND CONTAGIOUS DISEASES.*

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Where physicians are few and surgeons fewer, where civil hospitals are limited to the mission hospitals and operating surgeons to the one missionary physician, and no other is within from eight to fifteen days' journey, and assistants are none but uneducated natives who have never been beyond the confines of their own city, anything that can lessen the need of surgical interference or relieve the surgeon of the responsibility of major operations in purulent cases is most welcome. And where people have never heard of a microbe and know nothing of asepsis, infection, or segregation any remedy which will destroy infection and act as a prophylactic against contagious diseases is a boon. A perusal of books on Materia Medica and Therapeutics must impress one with the fewness of known positive remedies and the multiplicity of drugs of which we know little.

Calcium sulphide seems to be one of the drugs of which leading authors know or believe little. To us in our isolated Mission Station it has proven of untold value and we believe a knowledge of our experience may help to establish the efficiency of a much neglected drug and furnish a remedy for diseases heretofore beyond our control.

At the risk of arousing antagonism and incredulity at the outset, but with the hope of fixing attention, I propose to make first a bold statement of what we believe to be facts and then to follow it with case reports and illustrations showing what has led to these conclusions.

There may naturally arise a query as to credentials when any one presumes to speak authoritatively. My own use of calcium sulphide dates back to 1894, when under the advice of Dr. A. M. Wilson of Kansas City, Mo., I prescribed it in cases of purulent otitis media and furunculosis. In these cases it worked like a charm, as it did also in series of carbuncles on my own neck, one of which with thirteen openings had already run six weeks after free incisions and touching wtih phenol, and appeared likely to continue indefinitely. A few days of calcium sulphide stopped the discharge and dried up the other foci around it.

Our field of labor for the last ten and one-half years has been in Eastern Turkey, between five and six hundred miles south of the Black Sea, and for the past nine years at Van, a city of about 50,000 inhabitants, the ancient capital of Armenia, and situated at the same latitude and altitude as Colorado Springs and with similar climatic conditions.

The district from which we draw our patients and in which we have the only civil hospital, is larger than the State of New York and has a population probably in the neighborhood of two million. The immediate base for our observations is a hospital with 50 beds (where we have had more than 70 patients at one time), a dispensary with in and out-patient departments, where we gave in 1907 more than 24,356 treatments and made 1,207 visits

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in homes, and in addition to these we have had the medical care of orphanages with more than 500 boys and girls as well as oversight of schools with about 1,000 scholars.

Having been unfortunately very much alone, we lack the corroborative testimony of other physicians, but my own observations and those of my dispensors and nurses persuade me that at least in Van and probably anywhere else:

1. Calcium sulphide will disinfect and bring about absorption of even large quantities of pus and will prevent pus formation. For some reason, possibly non-absorption or age of drug, it is not always specific.

2. Calcium sulphide appears to be a specific cure and anti-infectant as well as prophylactic in typhus exanthematosus, variously known as famine fever, prison fever, and ship fever.

3. Calcium sulphide appears to be an efficient prophylactic for scarlet fever and distinctly modifies scarlet fever and measles.

4. It prevents pustulation, pitting, and secondary fever in smallpox, very decidedly shortens the disease, and appears to lessen if not entirely destroy the contagion, and also to act as an efficient prophylactic in the absence of vaccination.

In the beginning perhaps I should say it has always been our rule to evacuate pus wherever we found it. Sometimes, however, this is not feasible.

Now let me give a few cases in illustration of these points.

Suppuration.—Case 1. A. S., female, aged 26, married, debilitated, mother died of tuberculosis. In ill health several years. Suspicion of miscarriage. Severe pain in left inguinal region for several days and growing worse. Frequent sweats, chills and fever. Examination revealed what appeared to be an abscess of the left Fallopian tube about 3 inches in diameter. Family refused immediate operation and entreated that medical means be used. Prescribed calcium sulphide, one-half grain, every two hours. This caused vomiting and was reduced to one-quarter grain every two hours, which was well borne. Within 24 hours improvement was marked, pains steadily decreased and symptoms of pus absorption subsided. The tumor gradually contracted and in two weeks had disappeared.

Profiting by this experience I have tried the same treatment in many similar cases with gratifying results. In the succeeding five cases I tried it with fear and trembling, but seeing recovery where experience seemed to say that the knife or death was the only alternative, I have gained confidence and now for five years have made it almost a routine practice.

Case II. G. K. male, 47 years. Periosteal abscess of left shoulder with caries of acromion process and pus burrowing in several directions. Operation performed and apparently all necrosed bone removed. Patient did well for two weeks, but when about to leave the hospital another abscess formed which discharged about 210 cc. of pus daily from under the scapula. Irrigations and injections of iodoform emulsion, ether-iodoform, and other things seemed only to increase the pus discharge. Calcium sulphide in one-fourth grain doses was given first hourly, then every half hour, but the pus increased rather than diminished till we gave half a grain every half hour throughout the 24, and then the pus ceased as if by magic; the sinuses closed and the patient was well in a week and has continued so for three years.

Case III.—Victoria ——, girl, age 12, tuberculosis; had severe pain in the lower abdomen and especially in the vagina; there was a large indurated mass surrounding the rectum, very painful to the touch, but fluctuation was not perceptible; pus temperature, rapid emaciation, anorexia, and inability to retain any but small quantities of food. Calcium sulphide was badly tolerated and frequently caused vomiting in ¼ gr. doses every two hours, but the symptoms were slightly ameliorated for a few days, followed by septic peritonitis and death in a few hours. Post-mortem revealed 1½ pint cavity of foul smelling necrosed tissue back of the rectum and burrowing into the sacrum; very thick inflammatory wall about the rectum and vagina. This patient was not materially helped by calcium sulphide.

Case IV, being in the hospital at the same time, with identical symptoms minus tuberculosis, an operation was performed and the cavity drained through the vagina. Patient was discharged apparently cured, but returned in seven weeks with a recurrence of the symptoms. Calcium sulphide ½ gr. was administered every half hour when awake and, as saturation showed, was reduced to ¼ and then 1/6 gr. every two hours for two weeks. The patient was emaciated and the appetite was poor, but even ½ gr. every half hour did not seem to affect the stomach. Recovery was uneventful and no recurrence in 1½ years.

Turkey, in common with other parts of the world, was afflicted last year with the grip accompanied by many cases of otitis media and subsequent otorrhea. When we used calcium sulphide, the ear symptoms subsided rapidly and there was no pus discharge, whereas severe pain and purulent discharge was very general among those who did not use calcium sulphide. Did time permit, I could cite dozens of cases of otitis media, of localized empyema, furunculosis, appendicular abscess, and perityphlitis apparently demanding the knife but cured by calcium sulphide. I might also cite a number of cases in which it was given as high as 1 gr. every half hour with apparently no beneficial results.

Typhus.—Four years ago, as a result of starvation and overcrowding, typhus exanthematosus, variously known as famine, ship, or prison fever, broke out in very virulent form in Van and spread with alarming rapidity, carrying off the rich as well as poor. One of our much beloved foreign associates and one of our leading native teachers as well as some orphans and many in the city outside of our premises succumbed to the disease. The poor were herded four or five families in a room with earth floor, insufficient fuel, almost no windows, and those and the doors kept tightly closed because of severe cold. Many had been living for months on bread made of the bran and the dirt sifted from the soldiers' flour, or the husks of linseed left from the oil press, and some on bread made of ground grape seeds and skins left from the wine press. I have visited rooms with as many as fifteen individuals lying sick on the floor, and known as many as four deaths a day from one house. Our Mission Circle lost one member and our boys' school a valued teacher. The disease got into our orphanage with about 450 boys and girls. Our hospital was crowded with typhus cases of a severe type.

From my books on Therapeutics and Practice, Wood & Fitz, Hare, Quain, and others, I could get little more help than "treat the symptoms as they arise," "there is no known remedy which distinctly

modifies the disease," and this from the best of authors. Too late to save a beloved friend who had developed thrombosis and abscess in the brain, in the agony that comes to every true physician at some time, and especially to one compelled to care for his own loved ones when all his skill proves vain, I sought the source of all wisdom, The Great Physician, and it seemed as if a voice spoke, "Use calcium sulphide." Rising from my knees, I went to the hospital, where several patients were apparently near death; others had just been brought in; one of the nurses had contracted the disease. Three patients in dying condition were selected and given calcium sulphide ¼ gr. every two hours, and in less than twenty-four hours the fever was gone and the patients were convalescent. For some days other lines of treatment were continued with other patients without marked improvement. Then calcium sulphide was given to five patients in various stages of the disease with the same result as the first three. After this it became routine to give calcium sulphide to every typhus patient, both in the hospital and in private practice. There were hundreds of cases in which to test it. Soon it became apparent that in houses where patients used calcium sulphide, no others contracted the disease. In the hospital where we had only between forty and fifty beds, we were compelled to put typhus patients alongside typhoid, pneumonia, pleurisy, malaria, and surgical cases. The same few nurses had to care for all. We have no contagious disease hospital. One-quarter grain calcium sulphide three times daily proved an efficient prophylactic. With the exception of a night nurse mentioned above and the superintendent, neither of whom took calcium sulphide as a prophylactic, no one in the hospital contracted the disease. The superintendent began taking calcium sulphide the third day of her disease with a temperature of 106.5° and in twenty-four hours her temperature was normal. So far as known but two patients succumbed after using the drug and they both began taking it when in a dying condition, with severe lung and bowel complications. Hence calcium sulphide appears to be as near a specific for typhus exanthematosus in Van, as can be looked for, and we hope climatic conditions elsewhere will not be found to modify its results.

Scarlet Fever.—In the summer and fall of 1906, an unusually severe epidemic of scarlet fever swept over Van and its neighborhood, having progressed southward during a period of eighteen months from Erzroom. The disease had been unknown in Van for twenty-three years, hence susceptibles were many and immunes few. It was estimated that from 12,000 to 20,000 cases occurred and from 1,200 to 2,000 deaths or more. Moslems carefully concealing their death records and depending on "Kismet" for treatment, their graves were many. We managed to keep the disease out of our orphanages and homes till October, when it began in a most virulent form, carrying off two of our older boys within thirty-six hours. Then our oldest daughter was taken sick. After the usual incubation period, six or seven more boys took sick. Then the calcium sulphide idea occurred to me and I ordered my pharmacist to make 3,000 ¼ gr. pills and give them to the orphans three times daily, the larger boys or company leaders to be responsible for their companies of forty. Five companies remained free for three weeks but the sixth company had case after case, between fifteen and twenty cases occurring in that one company of forty boys while others remained immune. Investigation developed the fact that the company leader had refused to give his boys the pills. They were compelled to take them, and the epidemic stopped in that company. A little later about forty mild cases broke out among the other boys who had taken calcium sulphide for about one week, three weeks previously, and twenty or more girls in the girls' orphanage developed scarlatinal sore throat. Persistent calcium sulphide treatment all around stamped out the epidemic and greatly modified the disease in those who had it.

Of our 450 children none had even been exposed to the disease before this epidemic. Presumably, and judging from the epidemic in the city outside of our premises, four-fifths were susceptible, whereas less than one-sixth of our orphans contracted the disease and most of these had no symptoms other than sore throat and desquamation. Three boys who showed no symptoms developed scarlatinal nephritis and albuminuria, which was the cause of the majority of deaths in the city. Spirit of turpentine proved our best remedy for the albuminuria. When our supply gave out, we used the oil of turpentine with the same good results; 3 to 9 drops t.i.d. in milk. The same prophylactic value of calcium sulphide was proven in the homes about us.

Smallpox.—November 3, 1907, a girl was brought to the hospital from the German orphanage well broken out with variola just passing from the umbilicated vesicular to the pustular stage; a fairly thick eruption but discrete. Pustulation and secondary fever had begun before saturation with calcium sulphide was complete, but then ceased immediately. Less than quarter of the vesicles pustulated, secondary fever subsided in a few hours, and in four days (November 7) the patient was sitting up asking to go back to school.

November 8 the superintendent of the German orphanage wrote me that she thought that one of the girls had scarlet fever. I saw her some hours later lying in a small room with five other girls, two of whom had pleurisy, one incipient pneumonia, and two malaria. One of them had had smallpox, none of the others had even been vaccinated. This girl with supposed scarlet fever was well broken out with confluent vesicular variola. She was removed at once to the hospital, saturated with calcium sulphide, and given daily antiseptic (sulphonaphthol) baths, as is our custom. There was no pustulation, no pitting in either case and in the confluent case no secondary fever. The five exposed girls were given calcium sulphide and none of them developed the disease, though two other girls in the orphanage, not so much exposed, did develop it.

We have had dozens of cases to treat in their homes and even where red curtains were not used, but calcium sulphide was, there has been no pitting. The nurse who cared for our smallpox cases had not been vaccinated nor had had smallpox. We had no vaccine and are 1,000 miles horseback travel from the nearest supply. The only safeguard for our nurse was ¼ gr. calcium sulphide every 3 hours. She and many others not otherwise protected did not contract the disease though much exposed. This of course proved nothing, but strongly suggests the possibility of calcium sulphide being a prophylactic for variola and kindred diseases, and valuable were vaccine is not obtainable.

In conclusion I would say the case reports herewith given are mostly of adults. I have found children sometimes requiring fully as large doses as the

most resistant adults and tolerating them perfectly; and I have found other children of the same age respond to even 1/20 gr. every two or three hours.

I believe that the efficiency of calcium sulphide in pus cases is due to sulphureted hydrogen liberated in the blood and acting as a germicide; hence the preparation used should be fresh, and strong in that element. It loses its effect it left open to evaporate its odor. Many of the preparations on the market seem worthless.

The dose varies according to the patient and seems more dependent upon constitution than upon age or body weight. Our rule is—small doses frequently repeated to effect, then enough to continue effect. The physiological effect of calcium sulphide saturation is the odor of sulphureted hydrogen from the skin and breath, not belched from the stomach.

Typhus exanthematosus is practically unknown here, but frequent in Europe and Asia. With the hospital facilities and surgical skill throughout America, purulent conditions may not trouble you as they do us, but scarlet fever and smallpox terrorize a large portion of the population of America and cost both Federal and Municipal Governments large sums for quarantine and care, to say nothing of the disturbance of business and loss of valuable lives. Calcium sulphide merits the most careful and thorough study by every practitioner and student in the land.

THE CLINICAL SIDE OF DISEASE IN THE PHILIPPINE ISLANDS.*

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I HAVE been much impressed during the past few years by the wealth of clinical opportunity that exists for men actively engaged in professional practice in the Philippines. Not alone is the amount of material for clinical study very great, but the distribution is very general and the variety is certainly extensive. Doubtless, in our search for the unusual things, in our consideration of the various problems of medical and sanitary administration and our pursuit of disease organisms in the laboratory, we pass by many cases of great clinical interest, which in less opulent fields of medical work would be eagerly sought and utilized for instruction purposes. While the hospitals and the medical school are doing this for the medical student we should make greater use of this material for our personal and individual improvement. In Manila, the San Lazaro, Bilibid, Civil, University, San Juan de Dios and Military hospitals afford an opportunity for most valuable post-graduate instruction. In provincial regions the material is less easily accessible, but there is no community in the archipelago where the establishment of a modest dispensary would not reveal a valuable amount of material for self-instruction. Such work would not only be helpful to the observer, but special diseases would be of great statistical value.

For my own part, I regret the waste of the clinical opportunity about me quite as keenly as I appreciate the cases which I have been permittted to see and study. During the past two years I recall having seen or treated the following tropical and general diseases and doubtless this list is not complete. Many, but not all, of these cases have occurred in military organizations, and the outside field must certainly be even richer. As my memory serves me I have seen cholera, beri-beri, dengue, dysentery (amebic and specific), leprosy, malarial fever (tertian, quartan and estivo-autumnal), malarial cachexia, ankylostomiasis, filariasis, bilharziosis, tapeworm, both large and dwarf (tenia saginata and tenia nana), whip-worm and ascaris infections, trichphyton infections of sevaral varieties, erysipelas, pemphigus contagiosus, yaws, smallpox, syphilis, pneumonia, pleuritis, influenza, typhoid fever, rheumatism, cancer, tuberculosis, nephritis, aortic aneurism and various heart diseases, amebic liver abscess and hepatitis without abscess, and appendicitis. When one adds to this list gunshot wounds and fractures, major and minor surgical operations, obstetric and gynecologic cases, insanity, and organic and functional nervous diseases, and a host of gonorrheal and chancroidal cases with complications, it must be admitted that medical experience here, if anywhere, is cosmopolitan.

I desire to make a few observations, with practical bearings, resulting from this experience and from the experience of others, either verbally related or reported in print.

Typhoid Fever.—Within the past two years inquiry into the prevalence of typhoid fever has led to a modification of the belief that the disease is a rare one in the Philippine Islands. It has been found to exist among both natives and whites, and to play a part of some importance in certain localities. The Surgeon General's Report for the Army for 1908 shows that the rate of incidence for the Philippine Islands per thousand men (white troops) was practically the same as for the United States (3.50 for the Philippine Islands and 3.53 for the United States), and the latest quarterly report of vital statistics for Manila (July to September, 1908) shows that thirty-three deaths from typhoid fever, all among Filipinos, occurred during these three months. Investigations by medical officers of the army show that the disease is also prevalent among the natives of the southern islands. Various departures from the classical types have been noted, but in the cases observed by me there were no specially noteworthy differences from the disease as seen in various parts of the United States and in Cuba. In the southern islands cases were reported showing deviations, both as to type and as to delayed response to the Widal test, but the modern conception of typhoid infections is more elastic than formerly and contemplates less dogmatic views as to fever curves and symptoms, while cultural and technical factors still enter into serum diagnosis.

A closer study of our cases of continued and remittent fever, with the possibility of enteric fever in mind, is therefore appropriate under the circumstances.

Cholera.—Concerning cholera I have little to say as we are soon to have the opportunity of studying valuable reports from those actually engaged in cholera work during the recent epidemic. But I cannot refrain from quoting and indorsing the following paragraph in the Third Quarterly Report for 1908 of Acting Director of Health McLaughlin. Dr. McLaughlin says: "However, cholera may be expected in the Philippines until provision is made for thorough organization of the provincial districts under trained men, the employment of local health

*Read by title at the sixth annual meeting of the American Society of Tropical Medicine, held at the United States Naval Medical School, Washington, D. C., April 10, 1909.

officers properly instructed and supervised, and the education of the people as to the cause of the infection, as to cleanly habits, and the proper disposal of feces."

Personally I am inclined to wonder whether we have not committed an error in placing our sole reliance upon the laboratory diagnosis of cholera. In the report just quoted, Dr. McLaughlin points out the fact that the interval between the January, 1908, epidemic and the reappearance of epidemic cholera in Manila in July, 1908, was bridged over by a series of cases in February, March, April, May and June, which clinically resembled the true disease, some cases proving fatal in a few days, yet negative bacteriologically, so far as the agglutination test was concerned. Few medical men in Manila doubt that these interim cases were cholera cases, negative laboratory reports to the contrary notwithstanding. In other words, cholera was present during every month. I am inclined to believe that the clinical diagnosis of cholera in these cases should be accepted and that the treatment, so far as isolation, disinfection and supervision of contacts is concerned, should be the same as in the bacteriologically proven disease, especially in the light of Manila's unfortunate experience and the difficulties which attend the fight here. I am sure that no one will interpret this view as indicating a disregard for laboratory methods and exact diagnosis. Difficulties of technique and variation of agglutinability of the organism are recognized as existing, particularly during periods of quiescence of the disease. During the active period of an epidemic, Manson's law should be remembered. He states that "it may be laid down that epidemic diarrhea with a case mortality of over fifty per cent. is cholera."

Self-deception as to the non-existence of Asiatic cholera in Manila and the provinces can only result disastrously. The official report of the Acting Director of Health for the Third Quarter, 1908, gives 673 cases of Cholera, with 458 deaths for Manila, and 17,619 cases, with 11,115 deaths from cholera for the provinces outside of Manila for the three months reported.

Dengue.—Concerning dengue, a disease which plays no part in the mortality statistics of the Philippines but figures distinctly in the morbidity among both natives and whites, there is naturally and properly much interest. This disease deserves closer attention, especially from the side of diagnosis and prophylaxis. During the past year (by reason of my station at Fort McKinley, where the disease prevails) I saw many more cases than in the previous twelve months, and I appreciate, more than ever, the difficulties attendant upon the diagnosis of the numerous sporadic cases, some of them atypical, which occur. In the midst of an epidemic the diagnosis by exclusion and by the direct method is not difficult in the great majority of cases, but in the isolated cases, constantly occurring, considerable diagnostic care is called for. As is well known the diseases which dengue most resembles in this latitude are malarial fever and influenza. From the former it may be definitely differentiated by microscopic blood examinations, but it should be remembered that a single negative blood examination is hardly sufficient to exclude malaria, as the parasites may be difficult to find under certain conditions—for example, owing to their small size immediately after sporulation or owing to their relative scarcity in the peripheral blood in certain stages of infection with estivoautumnal organisms. Three negative examinations of blood within forty-eight hours, however, will ordinarily suffice to exclude malaria.

The cases of dengue which, probably, most resemble malarial attacks are those relatively infrequent ones with single febrile periods, and the absence of the eruptive feature. A dengue case terminating its febrile course with a critical drop in temperature at the end of twenty-four or thirty-six hours will sometimes resemble malaria rather closely, but the severe pains and aches of dengue are not often simulated. The essential type of dengue, however, is a two-period fever in which the first period is sudden of onset, brief, and followed by an intermission or a marked remission; while the secondary fever is marked by a terminal rash, either distinct and striking, or faint and evanescent. This secondary period lasts for upward of forty-eight hours. The important diagnostic features of dengue, then, are the history, fever curve, pains and eruption.

In exceptional cases dengue attacks individuals infected with malaria. A puzzling symptom-complex may result under these circumstances.

The occurrence of influenza in the Philippines has not received much attention heretofore, but I am inclined to believe that cases occur, not infrequently, and that we must discriminate between this disease and dengue. The resemblance is well known and need not be dwelt upon here. I have recently seen more than a few cases which were clinically indistinguishable from influenza; marked by fever, catarrhal symptoms (expressed by coryza, pharyngitis, tracheitis, bronchitis and sinusitis), and general aching pains throughout the body. The temperature curves in these cases were certainly not those of dengue, and the catarrhal symptoms were prominent. In the United States these cases would be pronounced influenza without hesitation.

There is no good reason why influenza should not occur here, or why the influenza bacillus should not be freqnently imported into these islands, while the excess of sunlight and the universal open-air life led by the people—the two most discouraging conditions of existence for the influenza bacillus—will readily account for the absence of the disease in the epidemic form. Influenza occurs in Calcutta and elsewhere in India in December, January and February.

Without desiring to devote too much attention to dengue I would like to give a few of the conclusions reached by the Dengue Board at Fort McKinley, during 1908.*

The board, in brief, found that dengue has been present at Fort McKinley continuously since July, 1906, and that it has cut a decided figure in the sick report of the post. It confirmed the opinion that the disease is not contagious and tentatively accepted the finding of Craig and Ashburn that the disease is communicable by the mosquito *Culex fatigans*.

This mosquito has been constantly present, and during many months has been present in greater numbers than any other mosquito. It also concluded that the disease is preventable, in military posts, theoretically at least, and that it is entirely practicable to reduce the number of cases to an inconsequential one by the destruction of mosquitoes. It is interesting to observe that Sir Patrick Manson, in a recent address, gave his endorsement

*This Board was made up of army medical officers, and consisted of Drs. Boyer, Conner, Gapen, and myself.

to the view that the mosquito is the carrier of dengue, and stated that, "Given a patient with dengue, or with yellow fever, and you may inhabit the same room with him without risk of infection, if adequately protected from mosquitoes."

Individually, as clinical observers, we noted the symptoms of afflorescence of the bucal and pharyngeal mucosa, and of inguinal adenitis, or at least enlarged inguinal glands, in many cases, as well as all of the generally accepted symptoms of dengue.

In those cases in which leucocyte counts and differential white blood counts were made the total leucocytes were usually reduced and the lymphocytes were relatively increased.

In some hundreds of blood examinations of dengue patients no organisms were demonstrated other than a few malaria parasites.

Dysentery.—Concerning the clinical classification of tropical dysentery and its treatment I wish to express a few ideas only—the results of observations of this important group of diseases. I find the classification of tropical dysentery into bacillary and amebic varieties to be feasible and practical and, on the whole, quite satisfactory. Under the bacillary division I would expand the grouping to include some milder types of dysentery than the acute epidemic specific dysentery of Shiga (these subtypes due, perhaps, to variant strains of Flexner's or Shiga's organism), as we doubtless have true infections with *bacillus dysenteriae* which find expression in comparatively mild manifestations, both as to cases and as to epidemic occurrence. If the agglutination test be desired the test organism used should be grown from the stools of coincident cases, *secundem artem*, rather than from a laboratory strain of indefinite age or descent.

The occurrence of a few amebæ in the stools of acute dysentery cases does not necessarily indicate that the infection is amebic and not bacillary. While most of us are willing to admit that we are unable to distinguish between pathogenic and innocent entamebæ, and while we believe that all entamebæ in these islands should be regarded as potentially pathogenic, there is not, in my opinion, sufficient evidence to warrant us in pronouncing every case of dysentery with ameba-containing stools as one of amebic dysentery, pure and simple. On the contrary, I believe that a few amebæ may often be found, and are found, in the stools of patients with bacillary infections. And just here the clinical circumstances and aspects should be helpful. If it be remembered that bacillary dysentery is essentially an epidemic disease of acute onset, with a short incubation period and a more or less self-limited course; and that amebic dysentery usually begins as a moderate diarrhea, the stools at first being mucous in character and gradually becoming bloody, and that it is essentially chronic, with a marked tendency to relapse, there should be less confusion. It should also be remembered that fever may be absent in both diseases, although it is usually present in acute infectious dysentery of severe type.

Treatment.—In the past year or two, in Manila, there has been manifested some disposition, by a few men, to depart from the rather general agreement among Americans as to the treatment of amebic dysentery, which was reached in Manila and San Francisco and elsewhere in the United States, in the days when the military hospitals treated hundreds of cases of dysentery where they now treat tens. The empiric doctrine of "Ipecachuana for dysentery," much favored by British practitioners, has developed some exponents here. Personally, I have reviewed my opinions, formed in the old days when material for observation was most abundant and interest was keen, with a particular desire to find in ipecac the specific curative qualities claimed for it; but I confess that I have been unable to find them, and that I still believe that ipecac is not a specific for amebic dysentery. In my service in the medical wards at Fort McKinley during the past year I tried, impartially, the ipecac treatment and the local treatment, with colonic flushings and irrigations with amebacide solutions. The results were distinctly in favor of amebacide solutions. In cases treated empirically with ipecac it was necessary to resort to direct treatment, and in a few instances amebic cases previously scheduled for transfer to the United States, were able to return to duty with their organizations, instead, after a course of direct medication.

In August, 1908, while on transport, en route to the United States, I encountered an officer invalided home for amebic dysentery. He had been treated from the southern islands to Baguio over a period of months, and had submitted to an unsuccessful operation for producing an appendiceal opening through the abdominal wall for irrigation from above downwards. He had received the ipecac treatment upon several occasions, and he had also received colonic flushings, usually self-administered and without special attention to technique. He was emaciated, discouraged and disheartened, and looked forward to an early separation from the service. He was persuaded to take a course of high enemata with amebacide solutions, giving strict attention to technique to assure prolonged contact of the solution with diseased surfaces. These details include posture, adequate hydrostatic pressure, lengths of time of contact, adequate strength of solutions, and regularity. He arrived in San Francisco free from symptoms, fat, and fit for duty, and he is now performing duty in the United States. He expressed himself as being benefited as never before in treatment extending over nearly a year.

I do not claim that this man is cured, nor do I disregard the part which the sea voyage may have played in his restoration to health, but I do claim that his case exemplifies the superior efficacy of direct treatment in amebic dysentery. Unless we are willing to abandon our conception of the pathology of amebic dysentery we cannot escape the conclusion that direct treatment is the rational treatment.

Why should we treat a local condition of the colon by administering drugs by mouth, expecting a local action from them at the remote distance of twenty odd feet, any more than we should expect a local action upon the urethra, in inflammations of that structure, by mouth-administered drugs?

I do not undertake to say that ipecachuana is entirely without virtue in all cases of dysentery. Scheube states that when used in connection with calomel it is useful in catarrhal dysentery, but of little effect in gangrenous and chronic dysenteries, both of which latter cases come within the amebic or bacillary groups. Manson advocates ipecachuana in dysentery, as we are often reminded by its exponents, but he states also that it frequently fails, and that when found ineffective other drug treatment should be resorted to, mentioning the aperient sulphates, calomel and other drugs. He does not, however, disregard the local treatment of dysentery, but speaks with much praise of direct colonic treat-

ment. Manson, however, makes no distinction between varieties, in discussing the treatment, other than division into acute and chronic cases.

Concerning the treatment of bacillary dysentery I have nothing new to offer, but I believe that, internally, magnesium sulphate, intestinal antiseptics and opium, judiciously used, constitute the best drug treatment. However, I should regard topical treatment by enemata, with the strictest attention to the technique of their administration, confinement to bed with close dietary supervision and careful stimulation as the really important part of the treatment. It is to be regretted that treatment by antidysenteric serum has not, as yet, entirely justified its promises. Our efforts along this line should be continued.

Concerning the particular medicament for local use by enemata, I am less insistent upon a given solution than I am upon the principle of treatment involved. In amebic dysentery it should be the mildest efficient amebacide, and in bacillary dysentery it should be an effective antiseptic, as slightly irritant and toxic as may be.

I believe that there is more than one useful solution for both classes of dysentery. Strong reminds us that there are protozoal causes of dysentery other than entamebæ, and accepts the common intestinal parasites, including hookworms, as occasional causes of dysentery, as well as the rarer parasites such as *Balantidium coli* and *Schistosomum japonicum*. He also recognizes a dysentery due to malaria. During the past year a few cases of balantidium dysentery have been found in the Philippines, and I observed the first recorded case of infection with *Schistosomum mansoni* for the Philippine Islands in May, 1908, in an American. There is some probability that this case was imported from Porto Rico. Bilharzia dysentery was a feature of the case.

I would like to say something of leprosy, tuberculosis, malarial infections, filariasis and beriberi, all of them diseases of great medical and economic importance in the Philippine Islands, but I have already exceeded my allowance of time. I shall close, therefore, with a single word about the last-mentioned disease.

Beriberi, in particular, is a disease which just now, by reason of its continuance among the native troops, is giving special concern to the military authorities, both on account of the increased number of ineffective soldiers which it causes, and on account of the baffling front it has presented to investigators hitherto. To some of us who are especially interested in the disease it appears that the present local tendency or disposition to explain beriberi solely by dietary circumstances, on the hypothesis that it is a food toxemia, or that it is incidental to fat starvation, to nitrogen starvation, or, as has been recently proposed by an observer in the Philippines, to an excess of nitrogen or protein food, is quite without warrant.

This controversy has gone on for years, and many of the theories now being advanced have been discarded as exploded by the best authorities long since. Sir Patrick Manson states that the favorite view that beriberi is caused by special varieties of rice, or by diseased or mouldy rice, has been disposed of effectually by experiments upon a large scale, prolonged and scrupulously conducted. Most of the European students of this question are in accord with this belief and are inclined to look upon the disease as an infection. Manson, in the past, has leaned to the view that the germ is a saprophyte, not invading the human body but residing locally in the soil or the surroundings of man, and that its toxin is inhaled, swallowed or otherwise introduced into the body. The weight of opinion, however, and the weight of presumption from analogy, and especially from prophylactic experimentation, points to an organismal infection as the probable cause of the disease, be this infection one communicated directly from man to man or intermediately by living carrier or through infected food. One thing is certain, viz., that here in the Philippine Islands, with material at hand, we have not followed a single phase of the infection theory to a reliable conclusion, either positive or negative. Some who have had the best opportunities to observe the disease have been content to speculate upon it along lines previously followed by others to logical negative endings. There remains, then, this opportunity and this duty, and unless promptly embraced the honor of discovery and the credit for the resultant benefits to mankind will not go to Americans.

It seems to me that we should be more careful in making the diagnosis of beriberi. I am inclined to doubt whether all cases so reported are true beriberi, and I freely admit that I have been puzzled more than once by some cases much resembling rudimentary beriberi, yet lacking a convincing symptom complex and history. When it is possible to diagnose beriberi at all it shoud be possible to classify it, as both the classifications of Scheube, based upon clinical expressions, and of Wright, based upon pathological expression, are comprehensive and contain ample subdivisions. Owing to the native misuse of the term beriberi and to the difficulties in eliciting true and complete histories from our native patients we will frequently be handicapped.

It has been suggested to me by a careful observer that the Filipinos, while not a drunken people, are more given to tippling than is generally supposed. He points out the fact that almost every native or Chinese tienda (store) is also a saloon for the retail sale of liquor, and that many natives, both men and women, consume considerable quantities of gin and impure native alcoholic drinks, daily and habitually. I have confirmed this observation to my own satisfaction, and consider it not improbable that many of the indefinite cases reported as beriberi are in reality, cases of alcoholic neuritis.

MANILA, P. I.

SIMPSON AND CHLOROFORM.

BY VICTOR ROBINSON,

NEW YORK.

I also attended on two occasions the operating theatre in the hospital at Edinburgh, and saw two very bad operations, one on a child, but I rushed away before they were completed. Nor did I ever attend again, for hardly any inducement would have been strong enough to make me do so; this being long before the blessed days of chloroform. The two cases fairly haunted me for many a long year.—*Charles Darwin.*

A GOSSAMER mist glided out of cloudland, floating quietly and falling gently on the crags of the shore. The delicate water-dust struck the points, settled on the peaks, and broke into a vaprous fog. The opaque haze bedimmed the air, but the careful pilot in the sea below steered his passengers along the southern coast of the Firth of Forth. To the castled county of hilly Linlithgow were the tourists bound. Toward the green knolls that divide the lake in twain were they traveling. They were on their way to the remains of the finest ruin in Scotland—the Linlithgow Palace.

They walked around the fountain whose waters had once bubbled for the delight of royalty—now as dry as a rill that has ceased to be fed by rain. They looked at the chambers in which were born James II., James V., and Mary Stuart. They stood on the very spot where King Fieryface, from the window above, had hurled the lifeless body of the Earl of Douglas. They climbed the spiral staircase till they came to the bower where Queen Margaret used to wait for James IV.—who never returned from Flodden Field.

They lifted their eyes and saw the famous battle-field of Bannockburn. Here Robert Bruce defeated the English army, restored Scottish independence, and gave Robert Burns a chance to write what Carlyle called the mightiest war-ode in the world—*Scots wha hae wi' Wallace bled.*

Surely the scene is romantic enough, and many would fain dwell longer in the enchanted vicinity and imagine a chieftain fighting in every cave and cliff, while the minstrels chanted ballads o' the border. Some would sentimentalize on the kings and queens whose blue-blooded bones are mouldering like the walls of their favorite castle.

But no pen of mine can scratch a line of praise for monarch or warrior. Besides, lest it be imagined that every goose in Linlithgow is a swan, and all the lads and lassies be of blood-royal, I hasten to add that here lived, with his wife and family, a simple baker named Simpson.

Seven children tarried in the old home-nest, and grew lusty on their father's bread. They loved each other heartily, and made merry under the paternal roof. Yet one day they were warned to be very quiet. The baker himself walked on tiptoe, and spoke in whispers. A nurse moved noiselessly through the rooms.

Plaintive moans were heard. Such sounds were not strange to Simpson, and still they frightened him. He knew the woman he loved was fighting the brave battle and facing the great mystery. The cries increased—the pangs of childbirth are severe. Scream followed scream—the mother labored in the agony of agonies. A heartbreaking wail which the closed door could illy bar pierced every corner of the house and pierced likewise the soul of the father. Again that shriek escaped her, and the middle of the marrow of his bones seemed to shake. He rose in his nervousness, and shuddered with an uncommon fear.

He heard gasps. Was she struggling? Was she trying to breathe? Was she dying? Ah, what a shrill, keen outcry! How long must it last? Will it never end? Is there nothing to stop such suffering? Can the physician offer no remedy to assuage such violent anguish? No, Simpson, no. The doctor who now stands in your rooms is empty-handed, but listen—the times may change.

Open the door and peep in the chamber. On the bed lies your exhausted wife. The tears are in her eyes, and her face is pale with pain. But see what she holds in the crook of her elbow—a babe.

Father, you should tell the highlanders to play a gladder pibroch than their bagpipes yet have known; the times will change, the times will change. Tell them to pipe it over the tallest hills and across the faraway seas; the times will change, the times will change. Shout to them to blow stoutly on their sturdy reeds until the new tune brings a new joy upon the earth; the times will change, the times will change. A babe who is born of woman will bring unto woman a boon!

The Simpson family held a serious consultation—what was to be done with their youngest boy? It would be fine to send him to the University, but this required more bank-notes than Simpson received for his oaten cakes and barley bannocks. The sacks of flour were ready, the stone ovens were heated hot, and the yeast was added to the dough till the mixture rose like a living thing—but the cold money did not rise.

They discussed the matter again, and at night the father and mother whispered low and lovingly—so the children could not hear. The University idea became the dream and desire of their hearts—James must go.

Even if poor, there is little a united family cannot do. In union there is a strength that conquers adversity and puts a quietus on poverty. You cannot break the bundle of sticks when they are tied together. All the Simpsons agreed to save and struggle and sacrifice for the sake of the little brother, and thus it was that at the age of fourteen James Young Simpson became a student in the University of Edinburgh.

For the first two years he attended the arts classes, and then began his medical studies. The boyhood history of many men of eminence reveals the fact that they flunked in their quizzes at school, and received degrees only from the University of Life. But Simpson, being the son of poor parents, could not afford to indulge in this luxury. He seized the college curricula with both hands, and held on. He studied diligently, passed the required examinations, became a Doctor of Medicine at the age of twenty-one, and presented a thesis, *On Death from Inflammation*, which so impressed the Professor of Pathology that the recent graduate was offered and accepted an assistantship.

In this respect Simpson differed materially from a tall young fellow who entered the Edinburgh University the same year that he did. The aforesaid tall young fellow was the son and grandson of a physician, and he likewise commenced the pursuit of medicine. But he found the lectures so intolerably dull that it was impossible for him to prepare his lessons. Perhaps the cheerful fact that his father was well-to-do acted as an additional stimulant to his idleness. He soon deserted medicine in disgust, and solemly vowed never to look within the covers of a scientific book. Yet the day came when the Royal Medical Society of Edinburgh made him an honorary member, and the strict Universities of Breslau, Bonn and Leyden honored themselves by giving him an honorary M.D. This drone did not eat in the hive of inactivity till he was stung to death by the workers. The time came when he gathered more honey than all the others. He was Charles Darwin.

Who invented the telegraph? Morse, you say, but Morse built on Henry, who built on Steinheil, who built on Weber and Gaus, who built on Faraday, who built on Davy, who built on Nicholson and Carlisle, who built on Galvani and Volta, who built on Don Silva and Cavallo, who built on Lomond, who built on Lesage, who built on Stephen Gray, who built on others, back and still further back.

Who first scanned the heavens with a telescope? Galileo, you cry, but before the great Italian fitted a convex lens at one end of a leaden tube and a concave at the other, he had heard of an instrument which annihilates distance and magnifies small objects in a wondrous way. Some say—and with good reason—that the telescope was invented by

three clever Dutchmen, Jansen, Metius and Lippershey; others claim that long before these Dutchmen saw the light, Roger Bacon knew all about optic glasses and could combine them to form a telescope. And, reader, haven't you read that five centuries B.C. the Laughing Philosopher declared the Milky Way to be composed of vast multitudes of stars? Could he have seen this without some sort of a telescope? If so, then the eye of Democritus was as unusual as his brain.

Whom shall we call the Father of Anesthetics: Davy, Faraday, Pearson, Warren, Long, Jackson, Wood and Bache, Wells, Morton or Liston? That drugs have the power to cause deep sleep and insensibility was known to the ancients. The Shaksperean student will recall the master's frequent reference to the soporific effects of mandrake. Iago tells Othello of it, and Cleopatra calls for mandragora when Anthony is away, to sleep out the great gap of time. In the thirteenth century mandragora was extensively used as an anesthetic by Hugo de Lucca, and a full thousand years before this time Dr. Hoa-tho anesthetized his patients during surgical operations. Dioscorides and Pliny wrote of anesthetics, Herodotus mentioned hemp, and Homer sang of nepenthe.

So who deserves to be designated the Founder of Anesthetics? We do not know, but one event in the history of anesthesia is certain. In the distance the dust has settled, and from the scientific sky clearly shines this fact: the first physician to use an anesthetic in a case of childbirth was James Young Simpson. In this he had no precedent. He was inspired by the example of no one, unless, perchance, it were the murdered spirit of the Lady Eufame Macalyene, who in this very city of Edinburgh was burned at the stake by the ecclesiastics for using artificial means to deaden the pangs of labor.

The first drug which Simpson used in his obstetric case—January 19, 1847, a date worth remembering—was ether. Not being quite satisfied with its efficiency, he searched for an anesthetic of more energetic action. With his talented assistants, Drs. Keith and Matthews Duncan, he tested the properties of the vapor of iodoform, acetone, benzine, chloride of hydrocarbon, nitrate of oxide of ethyl, and various oils and gases. None of these caused him to cry, "Eureka!"

On the evening of November 4, 1847, the experimenters inhaled several substances without any marked effect. Ether still remained the unrivalled anesthetic. At this moment Simpson happened to remember that a Liverpool chemist named Waldie had spoken to him about a certain heavy colorless liquid. Simpson looked for the bottle, but could not find it. Probably when he was on the point of remarking that it wasn't of much importance anyhow, the amber-colored bottle was pulled out from the bottom of a heap of waste paper. Simpson scrutinized it again, and shook his head dubiously. It seemed to him too ponderous to be of much value.

But he took out the stopper, poured the contents in the tumblers, and the three inhalers eagerly shoved their noses to the brim. In a moment they rose—happier than when they had sat down. Dr. Keith's eyes grew bright and he laughed heartily. Dr. Duncan waltzed around the room, and Dr. Simpson, although he was usually the dignified Professor of Medicine and Midwifery at the University of Edinburgh, now wiggled his toes and would have stood on his learned head for a doughnut. Some ladies came into the room, and the gentlemen were remarkably amiable. They were more polite than Chesterfield, and the silvery stream of continual conversation which unceasingly flowed from their gifted tongues would have worried the mouth of Richard Brinsley Sheridan. The delighted ladies had never before met such pleasant companions. They did not know that these gay Lotharios were drunk—on chloroform! General Wolfe was killed at the moment of victory, and, unfortunately, in the midst of their newly-acquired popularity with admiring femininity, the secondary effects of the chloroform vapors became evident. The charming doctors became confused, and then like the crew in Coleridge's *Ancient Mariner*—a heavy thump, a lifeless lump, they dropped down one by one.

When Professor Simpson awoke, he found himself prostrate on the floor. His thought was as follows: "This is better than ether."

He soon prepared a paper on Anesthetics which he read before the Medico-Chirurgical Society of Edinburgh, and dwelt especially on the superiority of chloroform over ether. He began at once to use it in his obstetrical practice. One would naturally suppose that the whole world rose as one person and hailed Simpson as blessed, and that women especially felt like traveling from the ends of the earth to cast flowers in his path. Instead of this adulation, however, he was attacked on so many sides that like the lofty Milton he might have said:

". . . . . a barbarous noise environs me,
Of owls and cuckoos, asses, apes and dogs."

The controversy grew so bitter that had Simpson been a Semmelweis he might have become insane, and had he been a Horace Wells he would have hanged himself. But Simpson was the right man in the right place; he had the courage which defends and the courage which attacks. His was a warm and tender heart, but these desirable qualities did not prevent him from showing proper temper at unwarranted conservatism and unnecessary stupidity. He was no meek-cheeked weakling, and his hand was not lily-fingered. He was the leader of a great battle and he fought with a clenched fist, for the man behind the truth has little time to waste in mewing to the macrobiotic mush of the multitude.

Unfortunately, it was not only the unscientific rabble which shouted at Simpson. Meigs of Philadelphia, Ramsbotham of Great Britain, Scanzoni of Germany—men of brains and skill—opposed the innovation. Will it be out of place if I quote here the epigram with which I began my article on *Silence or Science?* "It seems to be an historical fact, governed by a natural law, that whenever a great radical steers his progressive ship over the waves of improvement, there is pitted against him a great reactionist, who by the weight of his authority beats back the advancing craft, and causes it to tremble and flounder among the sands and shoals of established usage."

It is interesting to recall the arguments which were urged against Simpson's introduction of anesthetics into obstetrics. Objections were seldom raised on the ground that the administration of chloroform would prove injurious to either mother or child. The disputants did not claim that the anesthetic would interfere with the natural progress of labor, or impede the uterine contractions, or that there would be an increased elimination of nitrogen in the new-born babe. Such statements—though in-

correct—would at least be entitled to the gravest and most careful consideration. But such arguments were not advanced. Instead, much stress was laid on the fact that an anesthetic sometimes arouses the amorous feelings, and that some women who have been under the influence of ether or chloroform have confessed that while anesthetized they believed they were engaged in the act of coition. That such occurrences were exceptional and unusual, while labor-pains were otherwise, was not taken into account, and it was both seriously asserted and solemnly maintained that if anesthetics were used in obstetrics the holy pangs of labor would be metamorphosed into exhibitions of sexual passion.

It was further argued that the maternal instinct was in danger of being abolished, as a mother could not love children whom she had brought into the world without suffering.

But even these were not the main contentions. Indeed, they were only breezes in relation to the whirlwind which was to overwhelm him; they were only the lapping of the waves in comparison with the howling storm which was to seethe about him. For, in endeavoring to assuage the pangs of childbirth, Simpson had forgotten to reckon with Genesis III, 16—the passage which contains God's malediction to mothers: "I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children."

The parsons got busy. Simpson was denounced as an impious meddler who sought to overthrow the divine decree of Providence. Of course, they called him an atheist, and his followers were considered imps of Beelzebub. Someone quoted Dr. Osborn's essay in which the author claims that God's curse as to painful parturition was intended to be continued as long as the world endures, which could be seen by the fact that the erect position of woman's body makes labor more tedious and difficult in her case than in the case of cows, sows and other quadrupeds which have the horizontal form.

But Scripture can be answered by Scripture, and Simpson on his part quoted Genesis II, 21, in which it is related that when the Lord wished to take a rib from Adam in order to make Eve, he "caused a deep sleep to fall upon Adam, and he slept." This citation helped to dispel prejudice in some quarters. It was seen that God himself made use of anesthetics in difficult operations!

Yet it is impossible to predict what would have been the immediate fate of anesthetics in general, and chloroform in particular, had not Simpson unexpectedly found an almighty ally, stronger than a fort of facts, more powerful than an arsenal of arguments. Darwin had a first-rate bulldog named Huxley which showed its teeth when its gentle master was attacked, but Simpson had a mastiff that disarmed criticism and made further abuse impossible. Queen Victoria was pregnant; there was a quickening within the royal womb; the day for labor arrived; Dr. Snow stood by her bedside; he put something on her face, and the regal mother inhaled chloroform. A few years later England's Queen conceived once more, and on the approach of parturition again availed herself of Simpson's anesthetic.

What had become of blasphemy? Where was sacrilege now? How about that passage in Genesis? Who now dare call anesthesia an invention of the devil? Did not God's right-hand favorite approve of it? Instead of a heretic Simpson became a hero; he was no longer a rebel, but a saviour.

Queen Victoria seemed grateful to the man who had eased her passage through life, for in due time the baker's son had a Sir in front of his name and a Bart. after.

The times had changed, the times had changed. The old order perished, and a better rose from its ashes. A blessing of inestimable value was conferred upon all mankind. He who was born of woman had brought unto woman a boon!

12 Mt. Morris Park W.

THE AFTER CARE OF THE INSANE.

By G. H. WILLIAMS, M.D.,

COLUMBUS, OHIO.

The object in bringing the subject of the after care of the insane to your notice is to show what has been accomplished along this line of work in other States and to cite the needs in our own. That such a work is needed in Ohio cannot be doubted, but so far practically nothing has been done.

The after care work was inaugurated with the object in view of assisting those in charge of State hospitals, by improving many existing conditions and coping with emergencies which constantly arise in the routine of such work.

Any new line of work undertaken by those connected with State offices or institutions is liable to close scrutiny as to its advisability or feasibility and as to the probable returns for the money invested. It has been proved that the After Care agents while engaged in following their line of work accomplished much good in various ways for the State hospitals. These different features I wish to outline more extensively.

The State Hospital for the Insane has for years past been the recipient of much undue criticism. In some instances it may have been well merited. There have been and always will be mistakes and at times mismanagement in this as in other lines of work, but even this does not warrant the exaggerated expressions of distrust so frequently heard in connection with the subject of the State's care of its unfortunates.

It has been found that the agents of the After Care Committee, in their frequent contact with expatients and friends of patients, by proper explanation and education, place the hospital in its proper and just light before the people of the community in which they visit.

This subject is of necessity of most interest to those concerned directly with the institution caring for those mentally aberrated. The crowded conditions of our present hospitals behooves us to adopt some measures to relieve the congestion and assist in the better care or treatment of those in our charge. Coupled with this is the fact that many cases of mental disease, either because of association with old companions, recourse to former habits, lack of self-attention, or kindred causes, recur, notwithstanding the fact that they left the hospital in good condition, both physically and mentally. Superintendents, knowing these facts, fear to discharge some cases even though they have recovered mentally.

In every hospital, excepting possibly those for the acute insane, there are many cases that remain in the institution merely for custodial care. Many of these cases could under the proper conditions be cared for outside.

At this time I wish to cite and state briefly some facts in regard to ten male patients who would be-

yond doubt be suitable cases for after care work. They are selected at random from our records at the Columbus State Hospital; the cases having been residents all of or part of the time from April 1, 1907, to April 1, 1909.

Of the ten, three are dementia præcox cases, two are manic depressive, one an imbecile, and four are alcoholics.

Case I, has spent, since April 1, 1907, 273 days inside and 458 outside the hospital, going in and out on several trial visits. His home surroundings are not pleasant or agreeable and not in the least conducive to his well-being. His mother does not exercise proper judgment in her care of him. The boy usually returns to the hospital of his own accord and is at once placed at some light employment and allowed to go about the grounds unattended. He is never quarrelsome while in the hospital and is withal a case who could without doubt spend much more of his time outside if the proper environment was created for him.

Case II.—This patient has spent 220 days in, and 511 days outside. He is a young man who was admitted in a more or less maniacal state and for several months was regarded with anything but a hopeful prognosis. He had a short time previous to his commitment been deeply engrossed in school work, and expected, upon his discharge, even against the advice of the physician to again engage in the same line of work. This patient should have had some one to advise him in regard to the kind of occupation best suited to the retention of his good mental condition.

Case III has spent all of the past two years in the hospital. During the past five years he has made at least two attempts to find some employment in the city. He has succeeded, but when he attempts to assume the necessary responsibility incident to his independent existence, he cannot stand the strain and returns to the shelter of the hospital. He is a young man of good habits, and, under proper home environments, would no doubt lead a very happy life.

Case IV is a case of manic depressive insanity. He has been in and out of the hospital for at least six different trial visits since his first commitment, December 1, 1902. Since April 1, 1907, he has spent 351 days inside, and 380 days outside, the time being almost equally divided. He is a farmer who owns quite a large farm, with always an abundant amount of work on hand. He is rearing a family, and always does much more work than is proper. As a rule he returns to the hospital in a more or less disturbed condition, reduced physically, bowels constipated, etc. He has so far refused to come to the hospital for advice while on trial visits, and is a case that would profit abundantly by having some agent call on him with timely advice as to the proper care of himself.

Case V is another maniacal case, who has been in the hospital under two distinct commitments. The last period he was in the hospital but 67 days. His occupation is that of a blacksmith, and during the busy seasons the patient works both day and night, neglects his physical welfare, develops insomnia and delusions, becomes maniacal, and returns to the hospital. This is a case in which advice is very necessary.

Case VI is one of imbecilic basis. By occupation the patient is a blacksmith. He has made several trips to the hospital, staying for greater or less periods of time. During the past two years he has spent 292 days in the hospital. As soon as he recovers from the excited condition in which he generally returns, he is placed at work, and under proper medical supervision gets along very well. When at home, owing to poor home surroundings, and the need of a dependent family, he is of necessity compelled to work much more strenuously than he should.

Cases VII, VIII, IX, and X are selected from the different classes of alcoholics in the hospital. They have been patients since 1902, 1891, 1893, and 1903, respectively. All of them have spent the last two years continuously in this institution. These are cases of at least the average mentality, some more than the average. Some have held important and responsible positions. Two of them have no homes but the hospital, and are hardly of sufficient judgment and will power to make a separate livelihood, but under proper home surroundings would live comfortably for the remainder of their lives.

To summarize: We have ten cases of different kinds who have during the past two years spent collectively 4,858 days in the institution. How many of these days could they have spent outside had there been suitable surroundings, proper companions, and someone to advise them, and to look after their personal welfare? Estimates are only matters of conjecture. After surveying the cases and studying them with their many characteristics, it seems both fair and reasonable to suppose that one-fourth of the total time could have been saved to these unfortunates. Granting such to be the case, it means a total of 1,214 days. The average daily per capita cost of keeping each patient during the years 1907-1908 was approximately 48 cents, so that the cost of keeping our ten patients the 1,214 days was $582.72. We all realize how fallacious figures are at times, but we have cited the above amounts merely to show that the subject of after care is a vital one if it is judged from a pecuniary basis alone. It certainly is not economy in any sense of the word to keep within a hospital patients who are in no further need of treatment, and who cannot be cared for as cheaply there as they can be outside. To view the subject from the humanitarian standpoint, the basis from which it should be judged, we have no right to allow such conditions.

During the past year the total cost of the entire after care work in New York was $1,700. For next year they asked $2,500. If one institution with ten cases alone could have been benefited nearly $600, does it not seem to be purely a business matter to make some efforts to remedy such defects? The State is certainly not justified in keeping under restraint, in no matter how modern or well equipped the hospital may be, chronic and harmless patients who can be more cheaply, more comfortably, and as, or even more, safely cared for under outside influences. The State has certainly been negligent in this one respect. One of the first objections to the work is to find places of employment either for those who have recovered or for those who are of the harmless chronic classes. Several different lines of work have been proposed for such persons. In some localities the experiment of placing insane patients in farm dwellings has proved of marked benefit from the medical, as well as from the financial, standpoint. The patients are exceedingly well pleased to return to home life, and take far more pleasure in such living than they do in the dances, entertainments, etc., of the usual hospital routine.

The objection of the commonwealth, that homicide, suicide, or some other casualty would take place, is far from being proved. So far, as a rule, these accidents are far less common in the free, out-of-door life than they are in the places of restraint. For over forty years Scotland has had her dependent insane in private dwellings, and now boards out at least 23 per cent. of this class. In some cases it has been found feasible to have old attendants or nurses who have left the hospital take patients into their homes at a very nominal cost. These persons more readily understand the mentally sick, and can do more to assist them to a rapid recovery.

Some institutions allow their patients who have recovered and have no home to become employees at a greater or less salary. They make their homes in the hospital under the conditions best suited to them until such opportunities as they desire arise, and they are able to go out into the world, shouldering the necessary responsibilities of their existence in the struggle with their fellow creatures. Any mental patient that is cured should be regarded in the same light as the normal individual, and should have sufficient work of a kind adapted to each individual case.

As New York and Massachusetts have taken perhaps more interest in this work than the other States I wish to state briefly what they have done. The care of insane in private families was first inaugurated in Europe about 1850, and in Massachusetts between the years 1880-1885. John E. Fish states that during 1907 there were 267 patients, 13 men, 254 women, living with families outside of State hospitals. They were living with unquestionable advantage to themselves, and without injurious influences upon others.

The work has been carried on actively in New York during the past three or four years. At the present time they have various committees and sub-committees who look after the patients discharged from the different hospitals. The officers of the hospitals work in conjunction with these committees and assist them as much as possible. A short time before the patient is to leave the hospital the fact is reported to the agent, who investigates the home life, the surroundings into which he is about to enter, and whether or not suitable employment is at hand. Many times the statement that a patient is discharged to the care of his family means but little, as the home surroundings are very poor, and in every way deleterious to his continued good health. His dismissal under such conditions means a far greater hardship than remaining in the hospital.

The After Care Committees look into such conditions, and try to remedy them so that relapses and returns to the hospital may be prevented. After the patient has left the hospital the agent makes periodical calls on him, inquires into his welfare, gives suggestions, and if necessary, has him report to the hospital for advice and treatment. The patient and patient's friends in practically every case feel very kindly toward the agent. They know that someone is interested in them, and as a rule the agent is kindly received into the home. Conditions are freely discussed, and evils remedied. The agent is able many times to relieve any feeling of uneasiness about the patient's treatment while in the hospital, and to assist in effacing the prejudice that exists in the minds of the laity in regard to such institutions.

The small hospitals with their few patients can quite easily come in touch with the home life of the individual case, and find out wherein some of the causative factors of the patient's mental condition may lie, but with the large hospital such is not the case. So much the more need of some investigating officer or agent. The patient that is ready to be discharged needs advice as to his future, as to his home life, the company he expects to keep, and the work he expects to follow. The physician can give such advice, but there is need of someone to see that his advice is followed. For at least two reasons it has been found advisable and more profitable to employ agents who were not in any way connected with the hospitals. First, the patient's friends feel more freedom in discussing the patient's welfare with such persons, and secondly, in the usual hospital none of those fitted to do such work have the time to devote to it.

The time was, and not many years since, when the unfortunate who in many cases through no fault of his own, was afflicted with some mental disease, was considered as the leper, one to be shunned, a hopeless wreck, a derelict of society. He in many cases could not find a haven with his family doctor, for even he was only too glad to shift the care and responsibility incident to the welfare of the "crazy man" to the shoulders of some other individual. But the dawn has certainly broken for the insane. With the present modern facilities the percentage of recoveries in the usual hospital excepting those for chronic or epileptic insane, ranges from 20 to 30 per cent. of the cases admitted. There can be no doubt that our methods now in use will, to those of the next generation, seem crude indeed, but the constant aim of the alienist is to use every means that comes under his control to further the work of caring for his brother in distress.

The after care agent gives him another avenue of help. With this means of assistance the percentage of recoveries can be increased, and the work begun for the individual while in the hospital can be carried on outside until the patient is once more the useful member of society that he was before his disease developed.

It is hard at times to overcome the prejudice of employers, some of whom will not employ under any circumstances a person whom they have known to be insane. Many will receive them on certain conditions, while some are broad minded and optimistic enough to assist such people to their former stations in life. There are numerous insane persons neither destructive or dangerous, who were cared for at home many years. While at home they are neither feared nor shunned by their friends or neighbors; but as soon as they are committed to a hospital for the insane the token of disgrace is placed upon them too often to remain for life. Mental patients realize these handicaps and many of them prefer to remain in the hospitals rather than to go out and labor against such odds. Many relapse on account of trivial things connected with their work, incidents which could have easily been adjusted by some one who has an insight into their past and present existence.

In perhaps no special class of cases is the after care work needed more than in the alcoholics. The constantly increasing numbers that are being sent to our hospitals as a rule for short periods only is appalling. As one sees such cases admitted, in a few weeks improve or for the time recover, leave the hospital, and within a few days become intoxicated

by associating with their old companions, he certainly has a very narrow mind who cannot see the need of some one to assist such patients.

If we are to conserve the beneficial results of hospital care to treat the patient justly and wisely, with full knowledge of his past existence and due regard to his future welfare, not as though he were an outcast, an isolated unit, but recognizing his duties to his family and other members of society, we must make some provision for after care for those who may need it.

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TONSIL REMOVAL, OPSONIC INDEX, AND IMMUNITY.

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The subject of immunity to disease and the factors that bring about that condition are interesting to all physicians alike, whether working along special lines or devoted to the broader field of general medicine.

Since Sir Almroth Wright made his rather absolute statements relative to the opsonic index and general immunity, and the relation that tonsillar tissue probably bears to the subject of immunity, medical men in all parts of the world of all kinds and classes have been discussing the subject with much vigor.

It was not long after Wright's paper was published, however, before laboratory specialists and investigators began to improve on his teachings, and so rapidly did changes occur that few physicians, with the limited time at their disposal for such work, could keep pace with the strides and alterations made in his teachings, and if you ask almost any one to-day to explain what he means by immunity, the opsonic index, and other matters bearing on immunity, and the relation the tonsils probably bear to it, he will at once become indefinite and ambiguous in his statements. This is not surprising, for daily do we read of new teachings, some of which though not directly opposed to Wright's views are far from agreeing with them.

I am free to confess that for a number of years, as a teacher of medicine, my ideas as to the real function of tonsillar tissue have been quite as hazy as the teachings imparted to me many years ago by my good professor, who stated that he really could not tell us or give us any good reason why we had tonsils.

Many of us hoped that when Wright's paper was published we had at last reached a stage in our development where we could point to something positively definite as to the real function of the tonsils and the relation of that function to immunity.

In studying the subject carefully, we find that all tonsillar tissue is derived from the hypoblast and the special ring of lymphoid tissue found in the oropharynx, forming the faucial tonsils, pharyngeal tonsil, and lingual tonsils, is really the surplus portion of that membrane left over where it joins the membrane of the anterior portion of the nose, the epiblast.

The hypoblastic membrane extends from the oropharynx above to the anal opening below. In early fetal life this membrane is filled with lymphoid structures of a uniform thickness and consistency, but as the fetus grows certain portions of this membrane become absorbed while certain other portions develop and go to make up the glandular structures that in the oropharynx we call tonsils, in the stomach gastric follicles, in the intestine, duodenal glands, and in the lower portion of the small intestine, Peyer's patches. The vermiform appendix is lined with this same lymphoid structure, and the mucoid glands of the rectum, so often swollen and enlarged and projecting as hemorrhoids, are often nothing more than enlarged rectal tonsils.

In the embryo the faucial tonsil is not developed until the fourth or fifth month, so that when we are considering its function we must keep in mind that the prior development of the embryo did not depend upon any tonsillar function.

At birth we find the tonsils fully developed and performing their functions. We further note that when the tonsils are enucleated after three years of age the child apparently suffers no loss; the tonsils, like adenoids, decrease in size from the third or fourth year up to puberty if the patient has been healthy and free from attacks of tonsillitis up to that age.

If we study the faucial tonsils more particularly we find them made up of lymphoid tissue arranged in a very special manner. We find the surface of the mass studded with depressions leading into small pouches or pockets, frequently called crypts or lacunæ, each lined with stratified squamous epithelium. Into the bottom of these crypts or pockets we find mucous glands depositing their secretions. Beyond and surrounding this glandular tissue we find more or less fibrous tissue, making up what is generally called the capsule of the tonsil, and beyond this the loose connective tissue on which the tonsil rests.

In considering the functions of the tonsil and the part it plays in early immunization we must take into consideration and study carefully the teachings of Goodal, Wood, Wright, and others, all practically agreeing (1) that the tonsils possess phagocytic properties; (2) that the lymph currents from the mouth and nose converge toward the tonsil; (3) that the lymph passes into the cervical lymphatics through the tonsils.

Some observers have noted that foreign particles pass with the lymph current through the epithelium lining the crypts of the tonsil, but that living bacteria remain in the crypts.

When we consider the location of the tonsils above described, generally spoken of as Waldeyer's ring, we are forced to the conclusion that this circular fortification of secreting tissue was not erected there without some good purpose in view. This becomes more apparent when we stop to consider that, while all roads at one time led to Rome, all channels, whether over or under the mucous membrane, lead toward the tonsil. Food laden with bacteria on its way to the stomach is forced against some portion of the tonsillar ring by the muscles of deglutition. Food ejected from the stomach is also forced against it and the millions of bacteria passing into or out of the body through the nose and

mouth pass or come in contact with this fortification.

One investigator pointed out that bacteria entering the crypts of the tonsil remained there while their toxins passed on into the blood current *via* the lymph channels, and those toxins in the tissues or by their presence in the circulation stimulated the opsonins or resisting substances, thus developing what we call immunity.

By immunity we mean that condition which prevents the gaining of a foothold by germs or bacteria in the living body, or that condition which overcomes or neutralizes their harmful products or destroys the organisms themselves.

Not all animals (including man), however, suffer from an infection after the germs of a given disease have been introduced into the system. For example, we may point out the goat and tuberculosis, the white rat and anthrax, the chicken and tetanus; yet all of these exceptions may conform to the rule when subjected to certain unusual conditions. According to most of the writers of the present time—and I may say that for this article I have accepted many of the points as well as definitions from Good's article on early immunization—according to that article immunity is divided into (1) naturally acquired immunity, and (2) artificially acquired immunity. By naturally acquired immunity we mean that immunity which is established by the natural forces of the body. This is brought about by different organisms existing in the body of the individual throwing off their products into the circulation. As an example we need but mention measles, diphtheria, tonsillitis, etc.

By artificially acquired immunity we mean that condition of the system which is brought about by inoculating the patient with live germs which ordinarily cause the disease, or by injecting into the body of the patient the products of those germs. Any material used to induce this immunity, either by injection or inoculation, is generally known by the term vaccine. As a definition for this term we may say that it is any substance derived from bacteria which when taken into the body fluids is capable of exciting or developing protective substances.

Protective substances are certain anti-substances found in the fluids of the body which antagonize disease germs. These anti-substances act in several ways—principally by mechanical interference and physiological action. As an example of the mechanical interference we may mention phagocytosis and opsonic power of these anti-substances, and as an example of the physiological process we would mention agglutination and bacteriolysis.

By agglutination we mean that process whereby bacteria are rounded into clumps; an example of which is seen in typhoid fever.

Bacteriolysis is the physiological destruction of the bacteria by the anti-structures.

Opsonic power is the ability the body possesses of preparing pathogenic bacteria to be acted upon by the phagocytes.

Phagocytosis consists in the destruction of the bacteria by the phagocyte after the bacteria have been prepared by the opsonins.

A phagocyte is any cell which has the power to take within itself a foreign substance and destroy it. This process may be carried out in the form of a digestion, or the phagocyte may so entwine itself with the bacteria that both are inseparable and as they pass into the excretory ducts are destroyed.

Opsonins are substances distributed through the fluids of the body produced as a result of the tissues resisting bacterial irritation.

Artificially acquired immunity may be established in two ways: (1) By injecting bacteria or their products into an individual whose tissues will react and produce protective substances or antibodies. These protective substances aid the body by neutralizing the bacterial toxins or by destroying the bacteria themselves. These protective bodies may remain in the system for years, thus causing a temporary or permanent immunity, as the case may be. When immunity is secured in this manner it is termed active immunity.

(2) If the serum of an actively immunized animal is injected into a second animal the second animal becomes immune without its cells developing the anti-substances. This process is termed passive immunity. If the serum used in bringing about this immunity contains only the property of neutralizing this toxic product of the bacteria, it is known as antitoxic immunity. It should be noted that bacteria against which antitoxic immunity is established give off their poisons while alive. An example of this variety is the antitoxic serum used in diphtheria. It is also observed that some bacteria give off a toxin after their death. Any serum introduced for the destruction of organisms is known as antimicrobic serum. In all cases where this serum is employed the patient shows marked reaction or a toxemia from its use.

All immunities except inherent immunities may be produced by the processes in the tonsil. Natural immunity is brought about by inflammation in the tonsil, and a species of artificially acquired immunity is produced in the crypts of the tonsil by agglutination and the development of opsonic power.

That children of tender years are not thoroughly immunized is proven by the fact that they so readily succumb to the many germs attacking and destroying child life, thus, for example, of pneumonia, diphtheria, scarlet fever, etc. I interpret the opinion of investigators to-day to be that the normal tonsils are most active during the first two or three years of life, and that they are not absolutely necessary to the wellbeing of the individual after the period of childhood. The fact that they are not necessary is proven every day through our enucleating them without apparent injury.

It is believed that the ring of lymphoid tissues surrounding the oropharynx, as well as the other masses of lymphoid tissue throughout the intestinal tract, have the same functions, but to a lesser extent, than we find in the faucial tonsils.

We therefore conclude that the tonsils in young children serve an important purpose and should not be removed unless they are so far diseased as to have their normal functions interfered with, when, instead of acting as a fortification and protection against the inroads of bacteria, they may, and very often do, become the portals by which the enemies to health gain admittance.

164 West Seventy-third Street.

Pathogenesis of Unilateral Pleuritic Effusion in Cardiac Disease.—Feliziani says the pathogenic factors in this condition are pericarditis, perihepatitis from hepatic congestion, and pulmonary infarctions. Pulmonary hemorrhagic infarctions are the cause in the great majority of cases. These arise from cardiac diseases, especially of the atrioventricular orifices, small coagula being detached and carried into the lungs to form pulmonary embolisms. Aortic affections and arteriosclerosis also cause embolisms. The upper level of the fluid is not above the angle of the scapula.—*Il Policlinico.*

MEDICAL RECORD.

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A NEW TEST FOR BLOOD.

TESTING for the presence of blood under various conditions is a common procedure in both clinical and legal medicine. For this purpose there are several good and reliable methods which give accurate and delicate indications of the presence of the blood pigments. Most of these are, however, more or less complicated or require a certain amount of expensive apparatus, and are, in consequence, though of value in the laboratory, somewhat cumbersome for private practice. The test requires a microscope and the spectroscopic test demands an instrument but rarely found in the equipment of the practising physician. The guaiac test is good, and is made in a test tube, but has the disadvantage of requiring drugs not often found in an office, and demanding careful technique in carrying out its various steps. Recently, however, Julius von Kóssa of Budapest has devised a new blood test (*Deutsche medizinische Wochenschrift*, August 26, 1909) which is simple and requires only such chemicals as are found in the cabinet of every country physician.

The principle of this test is based upon the insolubility of hemoglobins in alcohol. To ten cubic centimeters of a watery solution of the material to be tested is added an equal amount of ninety per cent. alcohol. The solutions are mixed carefully without shaking and five cubic centimeters of chloroform added. This is then mixed gently. If blood is present the hemoglobin is precipitated out of the solution, and falls to the top of the chloroform, where it collects in a layer of tiny red droplets. The author claims that the test is extremely delicate, giving a definite reaction with a solution containing so little blood that a layer six centimeters thick gives no absorption band visible in the spectroscope. In applying the test to the urine, von Kóssa varies the concentration in that to the ten cubic centimeters of urine he adds an equal amount of distilled water and only five cubic centimeters of alcohol. After adding the chloroform, as above, especial care must be taken to prevent shaking and consequent emulsification. Occasionally instead of the hemoglobin droplets a rose-colored ring appears between the chloroform and the alcoholic solution. If this happens the overlying fluid is poured off and a few cubic centimeters of alcohol added, whereon the typical droplets appear.

The simplicity of this test is an advantage, and if on further use it is found to be as delicate and as accurate as the author considers it, it should prove, though perhaps not a great addition to a scientific laboratory, at least a useful help to the practising physician.

ALCOHOLISM, CRIME AND INSANITY.

AT the annual meeting of the Medico-Psychological Association, held on July 22 and 23 last at Leeds, Mr. L. O. Fuller read a very interesting paper dealing with the above subject. He regarded postnatal environment as a very potent cause of degeneracy. The child is naturally imitative, and although he may not be intellectual he will copy the habits of his parents with great facility, and seeing that in many cases parents drink and frequently suffer from tubercle and syphilis, it is not surprising that their offispring contract their vices and become themselves degenerates and breed degenerates. Mr. Fuller is of the opinion that the most scientific way of dealing with degeneracy is one which aims at removing the causes rather than alleviating the symptoms, a great desideratum being much greater elasticity in the educational system. The inebriate should have a period of instructional detention, with a view to prevent drink habits being firmly formed; this should combine medical instruction with disciplinary methods. He strongly objected to a predetermined sentence which to the youngster was often a hardening process; it threw him into the ranks of the unemployed and often the unemployable, and finally he became hostile to society. Mr. Fuller advocated the establishment of receiving houses to which first commitments for inebriety could be made.

The general custom in England as regards the treatment of inebriates appears to be their detention in a reformatory for a period of three years, and it was against this fixed term that the majority of speakers at the meeting referred to protested, for it is absurd that all cases sentenced to reformatory treatment should be subjected to detention for a period of three years neither more nor less. In many instances, after three years of such life, a man is good for nothing upon his release. He has forgotten how to work.

The problem of how to deal with vice in the great cities and especially how to treat the inebriate is most pressing. The modern methods of living, especially in towns, leads directly to degeneracy, for in the crowded centers of population habits of drink and immorality are fostered and predispose to crime and insanity. It is impossible wholly to remove the causes, although undoubtedly the most strenuous efforts should be made in this direction. There must, however, be numerous cases which call for treatment, and it is in the best interests of the population at large that this treatment be rational and effective as possible. It must be borne in mind that the children of degenerates will be probably worse than their parents, and therefore if the race is to survive and prosper, it behooves the sensible healthy inhabitants of a country to use their utmost endeavors to stamp out vice and intemperance.

VENTILATION IN THE TROPICS.

A WHITE person who goes to a tropical country to live for any length of time, if he wishes to keep in good health, must follow certain definite rules. One of the most fruitful causes of the deterioration of health of Europeans in the tropics is held to be the defective ventilation of the dwellings and other buildings. This subject has certainly not received the notice its importance deserves.

A correspondent of the *Lancet* sends to that journal, August 14, a very interesting communication dealing with the question somewhat fully. A tropical atmosphere is not only of a high temperature but is charged with moisture in varying degrees. The more moisture there is in the air, the greater the injurious effect, as a rule, on the human being. If energetic steps be not taken to ventilate the dwellings, it stands to reason that in such circumstances the air must be inimical to health, and, of course, must especially adversely affect the white people not born in the country. The writer in the *Lancet* points out that the ventilation of dwellings in the tropics presents features that are totally distinct from those of cold or temperate climates; "this," he says, "is proved by the failure of appliances, successful in Europe, that are brought out from time to time to be attached to buildings in hot countries." Such inventions depend for their efficiency almost entirely on the movement of the wind. In India, the country concerning which the writer discourses, although his remarks apply to a greater or less extent to the majority of tropical lands away from the seacoast, the period of greatest heat is usually accompanied by a dead calm, which affords no assistance to the ventilation. In fact, the methods of ventilation in vogue in northern countries generally are comparatively useless in the tropics, but with the usual obstinacy and adherence to customs of the white man, he is slow to adapt himself to the exigences of climate, and is apt to think, until he learns the lesson from harsh experience, that as regards ventilation, the means that are suitable to temperate lands are fitting also for tropical countries. When there is no wind, it is obvious that a ventilation which relies upon a current of air for its efficiency is of no avail, and therefore other methods of ventilation must be sought.

Houses in tropical countries are, as a rule, kept closed, in order to exclude the burning rays of the sun, but unless ventilation is good, this renders the inside air impure and unwholesome, for the reason that perspiration is much more profuse in hot climates, thus necessarily tainting the atmosphere. The writer in the *Lancet* runs over several modes of ventilation which came under his observation when living in India which there is no space to discuss here. It is pointed out, however, that in hot weather the difference of temperature of the air indoors and out is comparatively small, and as that difference is all there is in the absence of wind to produce a current, vertical openings alone are effective in India, that is to say in most tropical lands.

So far as personal ventilation is concerned, clothing is a factor of much moment. A European in the tropics, when indoors, wears more clothing than he really needs, for the greater the amount of clothing the greater the velocity of current required to carry off the surplus heat, and this strength of current is liable to cool the head too quickly and cause catarrh. Electricity should greatly simplify ventilation, for by the aid of electric currents it should be neither difficult nor unduly expensive to renew and cool the air supply to suit the requirements of the season and the occupants. But in India, so far, the only use made of the electric current has been the substitution of an overhead fan for an overhead punkha, neither of which renews the air supply.

THE DANGERS OF SUN BATHS.

THE readers of the daily newspapers who read and believe everything published pertaining to medicine must look upon the average German physician as a sort of a high grade bathhouse attendant. For it is at about this time of the year that the annual homecoming of American millionaires occurs, that throng of humanity with "livers" and with "rheumatism" returning from the renowned and always fashionable German health resorts, rearmed for the social gaiety and dissipations of the coming winter. Some of these have consulted eminent physicians and surgeons of Berlin or Vienna, but of that one does not hear. What the papers tell and what the layman remembers is that they took baths. These may have been mud baths, salt baths, sulphur baths, dust baths, sand baths, hot baths, air baths, whey baths, sun baths, Schott baths, or, if the patient's pocketbook is sufficiently well lined, even champagne baths. The special variety is immaterial, the point of importance being that the patient went to Europe and took baths. Against the excessive employment of one of these forms of nature cure Grawitz utters a warning in the *Deutsche medizinische Wochenschrift* for August 19, 1909, in which he says that the sun bath may be not only not a source of health but an actual menace to the patient. The author has noted in many persons who had exposed their naked bodies to the rays of the sun for several hours in various Berlin sun-bath parlors symptoms often serious and at times dangerous. Besides dermatitides, he has noticed irregularity and acceleration of the heart, systolic murmurs at various orifices, increased cardiac dullness, especially toward the right, high pulse tension, accentuated second sound, and in a few cases collapse from cardiac insufficiency. The temperature was elevated in some cases and headache and general malaise often lasted for days. The evil effects of undue exposure to the rays of the sun have of course been shown before, notably by Woodruff in his work on "The Effects of Tropical Light on White Men," but the impulse to sun worship has been through centuries so firmly planted in mankind that it is well to repeat from time to time such warnings as that of Grawitz.

VACATIONS.

THIS pleasant topic conveys fresh recollections of pleasure at the summer's close—of days in cool valleys, hours upon the water, and meeting with interesting people. The physician has sent away many to such enjoyment, and himself probably

found an interval to test these relaxations. Most of us approve of vacations. Yet the question is still asked, Are vacations necessary? Do they benefit? Should our lives be lived in such an unhygienic fashion that we have to drop everything and seek refreshment, health, life itself, in an utter nullification of all that life had meant for us? A strange ordering of life, that, if it is self-destructive! There are many reasons for patients being sent away. Some expect this, and relish the order of the medical man, believing it gives importance to them and their illnesses. Other patients are stupid. They will not be reasonable in work. We must tear them from their fatal paths, and can do so only by forcing them to depart from localities and atmospheres which seem to act like whips to tired horses. Separating these groups, however, there remains the great mass of humanity which does not take vacations, at least not voluntarily, and cannot think of life aside from labor. Happy as the thought is, the notion of a break in life is not always feasible. The late Russell Sage is said to have held that vacations were unnecesary in the widest sense, and that life should be so ordered, that routine could relax, and that in the natural course of events a variation in routine, of a broad character, would be attainable. It is a fortunate man, or woman, who can find relief even in routine. Meanwhile, we have no objections to vacations, none at all! We are sorry we need them—and glad to take them.

Ataxia Following Diphtheria.

The occurrence of the common form of flaccid paralysis following diphtheria, appearing as it does, either in the palate, the ocular muscles, or as a monoplegia, diplegia, or hemiplegia, is such a frequent complication of the disease, that it is apt to overshadow in one's mind a different type of postdiphtheritic nervous disease which, if not appreciated, occasionally leads to grave errors in diagnosis, and more especially in prognosis. This is the postdiphtheritic ataxia, a condition which appears suddenly following an acute attack of diphtheria and may at first, and even after careful study, be extremely difficult to differentiate from true tabes dorsalis, the definite diagnosis being at times possible only when, at the end of from one to six months, the patient makes a complete recovery. These cases, though rare and scarcely mentioned in the text-books, should always be taken into consideration in determining the diagnosis and especially the prognosis of cases of ataxia with sudden onset. Still another type of postdiphtheritic ataxia, possibly even more rare than the last, is illustrate l by a case reported by Brückner in the *Berliner klinische Wochenschrift* for August 23, 1909. The patient, a little girl of four, during the second week of laryngeal diphtheria suddenly developed inability to speak and at the same time a high grade of ataxia, without paralysis or altered sensibility. The intelligence was affected, and on the return of the power of speech the phrasing was of a delayed, monotonous, expressionless, and at times explosive type. Later paralysis of the bladder and the sphincter ani developed. The disease lasted for several months and then gradually improved, ending finally in complete recovery. The case here reported Brückner considers to belong to the type of acute cerebral ataxia, and he holds very justly that its occurrence following diphtheria is a distinct rarity.

News of the Week.

Hospitals for the Hudson-Fulton Celebration. The following location of floating and field hospitals has been announced for the Hudson-Fulton celebration:

Floating Hospitals.—St. John's Guild hospital ship *Helen C. Juilliard* (police), Ninety-seventh Street, Hudson River. Barge *Starin*, Spuyten Duyvil Creek—life-saving station, 24 beds.

Field Hospitals.—Dyckman Street, Hudson River, 4 beds. Fort Washington, 178th Street, 4 beds. 129th Street, Hudson River (1 ambulance), 4 beds. 111th Street, Hudson River (2 ambulances), 16 beds. At Bluff, Recreation Park, 108th Street, Hudson River, 6 beds. Float, Hudson River Yacht Club, 107th Street, Hudson River, Telephone 2355 Riverside. 50th Street, North River, necessary cots. 42d Street, North River (1 ambulance). Telephone 3940 Bryant. 34th Street, North River, 4 beds. Small park, West 23d Street, east of ferry, 8 beds. 15th Street, North River. Pier 20, North River, Chambers Street. Battery, opposite Pier A, 16 beds. Brooklyn end of Brooklyn Bridge. Municipal Ferry, St. George, S. I.

Hospital Signals.—By Day—White bunting flag, with gold cross, and white bunting flag, with green cross. By Night—Will be a balloon flying from flagpole of hospitals, with green and white lights.

Plague Epidemic at Caracas.—According to dispatches recently received at the State Department no new cases of bubonic plague had been reported in Caracas for eighteen days, which fact is taken to mean that the epidemic is over.

Poliomyelitis in Minnesota.—The epidemic of infantile paralysis has been so severe in St. Paul that the schools have remained closed in consequence. The disease is reported also to be prevalent in Minneapolis.

Cholera in St. Petersburg.—Dispatches from St. Petersburg state that during the fifteen months of the cholera epidemic there have been 14,865 persons ill, and 5,759 deaths. The cases are confined largely to the illiterate classes.

A Journal for the Study of the Circulation.—We have received the first number of a new journal, entitled *Heart*, established to record the new facts and new conclusions relating to hemodynamics. By means of new instruments and new methods of approach, the study of disease of the heart, especially of the heart muscle and its several parts, has of late been prosecuted with zeal, and it is believed by the projectors that the knowledge acquired by such investigation is of sufficient importance to be collected and recorded in a special journal. The editor of the journal is Dr. Thomas Lewis, assisted by Drs. Gaskell, Cushing and Mackenzie of London, Hewlett of Ann Arbor, and Stewart of Cleveland, with a large staff of collaborators in Great Britain and this country. It will be published quarterly by Shaw & Sons, London. The first issue contains papers on nodal bradycardia by James Mackenzie, paroxysmal tachycardia by Thomas Lewis, irregularities of the mammalian heart observed under aconotine and on electrical stimulation by A. R. Cushing, and the measurement of systolic blood pressure in man by Leonard Hill.

Dr. Frank P. Norbury of Jacksonville, Ill., was recently appointed superintendent of the Kankakee Hospital for the Insane. He will succeed Dr.

James L. Greene, whom Governor Deneen made the alienist member of the State Board of Control of the States Charitable Institution.

The New Medical Practice Act of Washington State provides for issuing licenses of three forms. "First, a certificate authorizing the holder thereof to practise medicine and surgery; second, a certificate authorizing the holder thereof to practise osteopathy; third, a certificate authorizing the holder thereof to practise any other system or mode of treating the sick or afflicted not referred to in this section." In order to obtain a license one must present a diploma from a legitimately chartered school of the system he proposes to follow, besides testimonials of good moral character, etc. The applicant for a license from an examination must be examined on the following subjects: Anatomy, histology, gynecology, pathology, bacteriology, chemistry, toxicology, physiology, obstetrics, general diagnosis, and hygiene. All applicants must obtain an average of not less than 60 per cent. on each of these subjects.

At the July examination 112 physicians presented themselves for examination; of these 76 were successful. Since a new law cannot be retroactive, provision was made in the Act for licensing without examination practitioners of the second and third class, who could comply with certain requirements, specifying the number of years they must have been in practice previous to this time, or the number of years and the months of each in which they had studied in a legitimately incorporated school teaching the system of treatment they proposed to follow. Under this feature of the law, there were 337 applicants for license, the majority of whom were osteopaths, the remainder comprising an extensive collection of systems and forms of treating the sick. Of these, 178 received licenses to practise osteopathy. About 100 of those whose applications were refused have brought suit against the board to compel it to issue them licenses to practise.

Examination of School Teachers.—The Lawrence, Kansas, School Board has adopted a rule that all school teachers, from the superintendent down, must submit to a physical examination and present a physician's certificate as to their good health before beginning their work in the schools.

New Embalming Law in Minnesota.—The State Board of Health of Minnesota has announced a new law relating to embalming. By the law embalming fluids must contain five per cent. by weight of formaldehyde gas and no poisonous matters such as chloral, arsenic, zinc, or mercury. This law is of importance in medicolegal work as it eliminates the danger of embalming preventing determination of the presence of poisons in the stomach of cases of sudden death.

Bequests.—By the will of the late Mr. Benjamin Ellis Martin of New York the Darrach Home for Crippled Children is to receive the sum of $10,000. The Mary Hitchcock Memorial Hospital of Hanover, N. H., received $5,000 by the will of the late Stephen M. Crosby of Boston. The Allegany General Hospital has received $20,000 from the late William H. Singer of Pittsburg.

The Stanford Medical Department, formed by a consolidation of the Leland Stanford, Jr., University and the Cooper Medical College, was formally opened at an assembly held at Stanford University on September 8, 1909. The principal address was delivered by Dr. Henry Ashbury Christian, the dean of the Harvard Medical School, who spoke on the subject of "A Career in Medicine, and Present Day Preparation for It."

The Oakland College of Medicine, situated at Oakland, California, has founded a chair in Tropical Medicine. Dr. Creighton Wellman has been appointed to the professorship of the new department.

The San José General Hospital was opened at San José, California, on September 3, 1909. The hospital at present has accommodations for 18 medical and obstetric cases. A surgical division will be added in the near future.

The Butterworth Hospital Dispensary was opened in Grand Rapids on September 8, 1909, in connection with the Butterworth Hospital of that city. The establishment of this free dispensary was made possible by the generosity of Mr. John Widdicomb who donated the furniture necessary to equip the dispensary.

Belmont Hospital.—It has been reported from Hempstead, L. I., that a new hospital is to be given to that town by Mrs. O. H. P. Belmont, in memory of her husband, to be known as the Belmont Hospital.

The City Hospital of Nashville has announced the following appointments to its visiting staff: From Vanderbilt University, Drs. Lucius E. Burch, James Handley, and George H. Price; from the combined medical departments of the University of Nashville and Tennessee, Drs. Charles Brower, R. O. Tucker, and C. E. Brush.

The Michigan State Medical Society, at its annual meeting in Kalamazoo on September 15 and 16, elected the following officers for the ensuing year: *President*, Dr. J. H. Carstens, Detroit; *First Vice-President*, Dr. V. Tupper, Bay City; *Second Vice-President*, Dr. E. H. Webster, Sault Ste. Marie; *Third Vice-President*, Dr. J. F. Breakey, Ann Arbor; *Fourth Vice-President*, Dr. E. M. Eccles, Blissfield; *Secretary*, B. R. Schenck, Detroit; *Treasurer*, Dr. W. S. Anderson, Detroit. Bay City was selected as the place for holding the next annual meeting.

The International Esperanto Congress met this year, during the second week in September in Barcelona. An attendance of 1300 delegates of 33 nationalities was reported. The next congress will be held in Washington, D. C., in August, 1910, which seems a queer time of year for a meeting in Washington; but perhaps the delegates are used to a hot time at their meetings. The newspapers state that if the Esperantists show any backwardness in announcing their intention to be present at this congress an American delegate will charter a steamship and bring them over, volonte, malvolonte.

The Wyoming State Medical Society at its annual meeting held at Cheyenne, September 2, 1909, elected the following officers: *President*, Dr. N. D. Nelson of Shoshoni; *Vice-Presidents*, Dr. C. E. McCallum of Laramie, Dr. S. W. Johnson of Newcastle, and Dr. J. J. Fossler of Sheridan; Treasurer, Dr. W. A. Wyman of Cheyenne; Secretary, Dr. W. H. Robinson of Sheridan.

The Rutland Medical Reporting Club was organized in Rutland, Vt., on September 9, 1909, the purpose of the club being the stimulation of its members to more extensive reading of the current

medical literature. The following officers were elected: *President*, Dr. M. R. Crain; *Vice-President*, Dr. W. W. Townsend; *Secretary-Treasurer*, Dr. R. E. Smith.

An International Congress of Otology will be held in Boston, in August, 1912. The *Boston Medical and Surgical Journal*, which makes this announcement, states that Dr. Clarence J. Blake of that city has been made president of the Congress.

Obituary Notes.— Dr. William Thayer Smith of Hanover, N. H., died at his home on September 17, 1909, aged 71 years. Dr. Smith received the degree of A. B. from Yale University in 1860 and that of A.M. in 1874. The degree of M.D. was conferred upon him by Dartmouth College in 1878 and by New York University in 1879, and that of LL.D by Dartmouth in 1897. In 1885 he was made Professor of Physiology at Dartmouth, in 1896 Dean of the medical school, and in 1907 Professor Emeritus of Physiology and Professor of Clinical Surgery. He was the author of several text-books, especially of an elementary character, and was a member of the American Medical Association and the American Academy of Medicine.

Dr. G. D. Munger of Oklahoma City died at his home on September 4, 1909, aged 68 years. He was a graduate of the College of Physicians and Surgeons of St. Louis in 1884. Dr. Munger served through the Civil War, rising from the ranks to a captaincy. He was the pioneer physician of Oklahoma City, having gone there in 1889.

Dr. David Finney Stuart of Houston, Texas, died at his home on September 8, 1909, at the age of 76 years. Dr. Stuart was a graduate of the Jefferson Medical College. He served through the Civil War as brigade surgeon of Granberry's Texas Brigade, and since 1867 had practised in Houston. During that time he was chief surgeon of the Houston and Texas Central Railroad, and of many other systems in Texas. He was also at one time president of the Texas Medical College and of the Texas State Medical Association.

Dr. Henry T. Barstow of Boston died at his home on September 7, 1909. He was a graduate of Harvard University in 1880 and of the Harvard Medical School in 1884, and a member of the Massachusetts Medical Society.

Dr. Charles T. Newkirk died September 16, 1909, in Bay City, Mich., aged 68 years. He was Major and Brigade Surgeon U. S. Volunteers. He went through several yellow fever epidemics in South America, besides being a Volunteer Army Surgeon in the Cuban War. Besides also being a member of the Board of U. S. Pension Examining Surgeons, he was an active Railway surgeon and belonged to the American Medical Association, Michigan State and Bay Co. Medical Societies. He is survived by a widow and two children, Dr. Harry A. Newkirk of Iron Mountain, Mich., and Mrs. A. S. Crockett of London.

Dr. Truman S. Sumner of Brooklyn died at his home September 17, 1909, aged 62 years. He was a graduate of the Medical Department of the New York University in 1874 and had been on the staff of the Bellevue Hospital and the Hospital for Ruptured and Crippled. Dr. Sumner retired from practice several years ago.

Dr. Clarence Stephan Perry of Brooklyn died at his home on September 16, 1909, at the age of 44 years. Dr. Perry was a graduate of the Long Island College Hospital in 1885 and a member of the Kings County Medical Society.

Correspondence.

CARE OF THE DEFECTIVE CHILD IN NEW YORK.

To the Editor of the Medical Record:

Sir:—Will you grant me space in which to make a statement in reply to your editorial on "The Defective Child," printed in the issue of August 28, 1909. This statement may seem as "tardy" as New York is claimed to be, but is so merely from the fact that I was away from town and did not have access to the Medical Record until my return.

New York has been doing some good work for the defective child for several years past, and especially for the past three years. These children are being cared for as fast as they are presented, and the necessary teacher can be secured. I have been surprised at the lack of knowledge on the part of many of our physicians in this city regarding the work done, and it may be to the point to state that medical examinations of mentally defective children are being conducted regularly in each borough of the city as the need arises. Classes are formed when a sufficient number of children are found in a locality to warrant this.

The conditions surrounding many of these classes are very good; the appointed teacher must have special qualifications, *i.e.* besides her regular license No. 1 and several years' experience with the normal child she must have made some special preparation for this particular work by special courses of study on the physiology and psychology of the defective child, and attendance at some institution or school for feebleminded children. Many of the teachers employed for these classes, called ungraded classes, are women of the best type and of excellent ability.

The classes are small in number, fifteen pupils being the number allotted to each teacher. We have nearly one hundred of these classes in the system at present, some in each borough, but the major number are to be found in Manhattan and Brooklyn. As far as possible every effort is made to gain the interest and consent of the parents to have remedial physical defects treated. In some instances the results have been very gratifying, in others there have been discouragements. The City Superintendent of Instruction, Dr. William H. Maxwell, is keenly interested in furthering this work, and were it not for his able support and kindly interest the work would never have grown to its present proportions.

An inspector of ungraded classes, Miss Elizabeth E. Farrell, appointed as a result of competitive examination and who has studied the problem both in England and Germany, is at work constantly, furthering the establishment of these classes in every way possible. We are conversant with the excellent work done in Germany and in England, but the conditions in cosmopolitan New York furnish a very difficult problem, and existing conditions must be met as we find them. The comparison between the German Empire and the city of New York seems hardly a fair one; two hundred and thirty schools in *one hundred and fifty* German provinces are hardly comparable to the needs of *one* city, even though that one is the world's second city. It is perhaps an interesting fact that of all the children reported and examined last year the largest number were foreign, and Germany was second on the list, Russia alone outranking her in number. American-born children of American parents found eligible for the ungraded classes form but a small percentage.

Isabelle Thompson Smart, M.D.,
Medical Examiner Mentally Defective Children, City of New York.

THE FOWLER POSITION.

To the Editor of the Medical Record:

Sir:—In reading Dr. Dorland's article on "Some Practical Aspects of the Surgery of the Peritoneum," appearing in your issue of September 18, 1909, I note that the author states in regard to the "Fowler position" that "the wave of improvement rolls on" and that "McGuire's suggestion of the elevation of the head of the bed," made by him in an article March 8, 1908, "will obviously meet these objections." In justice to Dr. Fowler, whose house surgeon I was from July 1, 1900, to January 1, 1901, at the M. E. Hospital in Brooklyn, I wish to say that Dr. Fowler, in all cases where he

used his position, secured it by elevating the head of the bed, and never used the semi-sitting posture, so McGuire's suggestion is not new.

C. F. Buckley, M.D.

Brooklyn, New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CARE OF FEEBLE MINDED—ENTOMOLOGICAL RESEARCH AND TROPICAL DISEASES—MIDWIVES' ACT—BARBADOS REPORT ON YELLOW FEVER—BOARDING OUT OF PATIENTS—ITEMS—OBITUARY.

London, September 3, 1909.

The Home Secretary, Mr. H. Gladstone, on Tuesday received a deputation of gentlemen interested in the care of the feeble-mindd. Important suggestions were urged and received with sympathy. One of these, relating to inebriates, deserves special notice, as it was stated by Dr. Ramsay that in one reformatory, by keeping the patients at work as part of the treatment, he had been able to send out 25 per cent. to lead the lives of industrious citizens. Mr. Gladstone told the deputation that some of the anomalies and deficiencies they had pointed out ought to be dealt with at the earliest possible date. But, of course, there were difficulties, and these were in proportion to the scope of the subject and the public issues involved, as well as in the private interests concerned and the ever-pressing question of cost. All agreed, he said, that the only remedy was legislation, and the earlier it came the better. Then he went on to say that the report of the Royal Commission covered very wide ground, so that it might be necessary to deal with it, not as a whole, but in parts. He had communicated with the Lord Chancellor, who regarded the question of supreme importance and would confer with him as to the best line of action. All this seemed to be leading up to announcing immediate action, but was followed instead by the impotent conclusion that he had regretfully to abandon the hope of introducing a bill this year, but he hoped and trusted that a practical effort might be possible next year, and he was sure that the Government, in any action they might then take, would follow the lines of the Royal Commission's report.

The Colonial Office is reaping a good deal of credit for appointing the African Entomological Research Committee. It is recognized that a decided move in advance has been made in the campaign against tropical diseases. The great tradition initiated by Mr. Chamberlain, when Colonial Secretary, of recognizing the value of science in assisting the spread of civilization has been followed by his successors in office. Official support has been of the utmost value to the scattered workers in Africa and the schools of tropical medicine have promoted widespread research and propagated the knowledge thereby acquired. Both these schools, as well as the universities and other bodies, are ably represented on the new Research Committee. A small sum has been voted by the Colonial Office and will no doubt require to be supplemented as the work proceeds, for the scientific societies of this country have no funds to devote to it. We are much behind other nations in the help afforded to science or learning. In France societies devoted to such work almost invariably enjoy a subvention from the government or the municipality—often from both—while here they have to depend on the subscriptions of members. I am told that on your side science is more generally recognized, and as to entomology that each of the States of the Union has an official expert to whom farmers and others may apply for advice. Our new Research Committee will be largely concerned with agriculture as well as medicine; sub-committees have already been arranged to deal with insects in relation to (a) diseases of men and animals, (b) plants. It is also intended to issue at intervals a bulletin or reports of the results accomplished. In the great work which has been carried on during the last few years there has been a certain lack of coordination, which will disappear under the new organization. In this great work the part taken by the Liverpool Tropical School has been most prominent. Expedition after expedition has been sent out by this school, stimulated by the zeal of Sir Alfred Jones and supported by the mercantile shipping world. So valuable has its work been that it has attracted attention in other countries, and Sir A. Jones says that both by sympathy and money it has been largely helped from abroad. He also declares that for further progress more money is needed and if supplied will be used to "kill the flies and so prevent people being bitten." Sir Patrick Manson, Professor Ronald Ross, Sir Rupert Boyce, and other recognized authorities have publicly expressed gratification at the new step taken and will all be more or less engaged in promoting it. Mr. Robert Newstead, M.Sc., lecturer on economic entomology and parasitology in the Liverpool School, says that school has kept in close and constant touch with students and others engaged in research and assisted them as far as possible in identifying material of all kinds in relation to medicine and agriculture. He looks to the new committee to be the future advisory board to those at work in the tropics, and he expects that in return for assistance given in the past both schools will receive material which will help them in teaching other students.

I mentioned last week that Sir A. Jones has determined to equip a branch in the Canary Islands. Dr. Wilfred Parsons, who is to be in charge, after considerable experience as residential officer in hospitals, entered the Royal Army Medical Corps in January, 1905, spent two years in India, and afterward held an appointment in the Persian Gulf.

A report of a departmental committee on the Midwives Act, appointed last December, has been issued, and expresses rather more satisfaction than several practitioners entertain. But these gentlemen should remember that they have only their own apathy to thank, or, in some cases, their pride, for the condition in which they find themselves placed. They were warned at the time that, led by consultants who did not practice midwifery, they were assenting to something like the establishment of an inferior order, and in many places this is the result. The certified midwife takes the cases and the doctor is only called in when danger or difficulty appears—and then he is seldom paid.

The committee reports that an adequate supply of midwives is a matter of organization and no subvention by the State is required. They advocate the establishment of county nursing associations to cooperate with local supervising authorities. The committee thinks the powers of County Councils should be extended to enable them to charge on their funds contributions for training midwives for their areas. Boards of guardians, too, are to be authorized to subscribe and all facilities be given by such authorities toward utilizing their institutions as training centers. More examination centers and more women examiners are suggested to reduce the cost of training and give confidence to nervous candidates. Clearly it is desired by this committee to flood the country with midwives to the ruin of the poorer medical practitioners. A prosperous family doctor may willingly give up the poorer class of midwifery cases, but the struggling ones would be glad to take them. The Poor Law authority should pay the doctor who comes to the aid of the midwife in emergency, and charge the fee to the patient as a loan. It is recommended to enlarge the Central Board, and of three new members to give one to the British Medical Association, though as the appointment will be arranged by the Council the general practitioners need expect no consideration of their position.

The Colonial Secretary, at the request of the Governor of Barbados, has issued a statement as to the epidemic of yellow fever in the island, which is now ended. The first case was reported in December, 1908, prior to which the colony had been free from the disease for twenty-six years. The last case was on the 8th of April last. Altogether, eighty-six cases were notified. Of those attacked thirty-two were whites with fifteen deaths, and fifty-four colored with twenty-one deaths. The estimated population of the colony is 194,477. The death rate for six months ending in May and the average rates for the same six months in the preceding five years were: 1908-1909, 10.9 per 1,000; 1907-1908, 10.8; 1906-1907, 11.7; 1905-1906, 10.8; 1904-1905, 12.5; 1903-1904, 9.4.

The Local Government Board yesterday sent a letter to port sanitary authorities and certain riparian authorities informing them of the movements of cholera and the necessity of taking precautions against its entrance. They also request the medical officers to be furnished with a copy of the letter

The Coventry Hospital is trying a plan of boarding out some of the patients who are sufficiently convales-

cent to make room for more urgent cases in the wards, but over whom it is desirable to retain medical supervision. They are sent to farm houses in the country where the tenants are willing to receive them on moderate terms.

Yesterday Mr. Le Champion called at the London Hospital to see the working. He was shown over the wards and left £1,000 for the general fund and a further £500 to establish a cot in memory of his mother. The hospital would be glad of more such visitors.

A verdict of accidental death was returned last Friday in the case of Dr. Dalrymple, who was cycling home from a patient at Birmingham, where he had been locum tenens for about a week. He passed one tramcar and was killed by another coming from the opposite direction.

Mr. John Bowes of Herne Bay, who had for some time retired from practice, has died at the age of 75. He was M.R.C.S. of 1858 and an ex-president of the Kent and Canterbury Medical Society.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

THE HOOKWORM COMMISSION—THE LOUISIANA LEPER COLONY—SERUM WORK IN THE TROPICS—THE CHOLERA—MEDICAL IMPRESSION OF RELIGIOUS PILGRIMAGES—PERSONALS.

MANILA, P. I., July 19, 1909.

THE Hookworm Commission, of which mention was made recently, which was composed of representatives of the Bureau of Science, the Philippine Medical School, and the Bureau of Health, and operated at Taytay for the purpose of making a sanitary survey of a typical Filipino town, with special reference to the incidence of intestinal parasites, discontinued work early in June, because many of its members had either to return to their positions as instructors at the Philippine Medical School or sever connection with the work for some other reason. It was very unfortunate that the examination of all the inhabitants of the town could not be completed; but it is of interest to note that of the 1,000 examined it was found that over 10 per cent. were suffering with uncinariasis, and that 95 per cent. had some form of intestinal parasite.

In order, however, that this work might be continued in the Philippines, the Bureau of Health immediately put another commission in the field under the direction of Medical Inspector Rissler. This commission will confine itself entirely to intestinal parasites, and will operate in the vicinity of Las Piñas, in Cavite Province, which has a sandy soil, and in this respect differs from Taytay, which has a clay soil. Up to the close of the fiscal year, June 30, 1909, 623 cases had been examined, and it was found that 14 per cent. of the males and 10.6 per cent. of the females were infected with hookworms. In the nearby town of Parañaque, which is also built upon sandy soil, a total of 159 persons were examined, of whom 76 males showed a percentage of 18.4 and 83 females of 12. From the foregoing it will be apparent that more males than females harbor the hookworm, and that the percentage of infection was slightly larger in sandy soil than in clay soil. The figures, of course, are entirely too small to permit any definite conclusion being drawn; but they do show the importance of continuing this work on a large scale in the Philippines and taking the necessary measures for the elimination of the parasite.

The regular monthly meeting of the Manila Medical Society was held on the evening of July 7 in the rooms of the Philippine Medical School.

A paper was read by Dr. Heiser, entitled "The Louisiana Leper Colony," in which he gave a brief description of the Louisiana State Colony, which is located at Iberville Parish, about 80 miles north of New Orleans. It appears that about 45 lepers were confined in this institution, and that the majority of them are white Americans, who have been recruited from the better classes of population. He stated that the disease did not appear to be as severe in the Louisiana lepers as in the Philippine Islands. One noticeable difference is the fact that the Louisiana lepers seemed to be severely affected with leprous eye involvements, particularly iritis, which condition is seldom encountered in the Philippines. Special stress was laid upon the apparent cures which had been made in Louisiana by the chaulmoogra oil treatment, and the improvement which undoubtedly took place in those lepers who took the oil regularly.

The next paper, entitled "A Case of Embryotomy," was read by Dr. Roxas.

The next paper, entitled "Serum Therapy," was read by Dr. E. H. Ruediger, the official in charge of the manufacture of serums and vaccines at the Bureau of Science in Manila. He gave a brief description of the manner in which serums are prepared, and stated that the serum work in the Philippines was not materially different from that which is carried on in other parts of the world. No special climatic difficulties were encountered.

During the past week cholera appeared in a threatening manner over widely scattered sections of the Philippines. Cases in rapidly increasing numbers commenced to occur in Isabela, Cagayan, Tarlac, Pampanga, Bulacan, Albay, Camarines, Samar, Leyte, Oriental Negros, and Cebu. One case occurred in Manila. The infection in Albay and the Camarines was the first, so far as is known, that has taken place in those provinces since 1904. It has been found in the Philippines that usually when the disease appears in a section which has been free for a few years it apparently spreads with greater rapidity than in those sections in which it has been more or less prevalent. This is held to indicate that the occurrence of the disease in a community perhaps gives a certain amount of immunity, and that there is less susceptible material.

It is presumed that the disease was carried to Albay in February as a result of the transfer of a company of Constabulary from an infected district in Samar to Ligao. Whether it was carried by Constabulary by "cholera carriers" or whether a mild case was imported through the large number of women that followed the soldiers to Albay for a number of weeks after the company itself was moved, is not known. However, the first cases of the disease appeared in a small town which is situated a few miles below Ligao on the same river on which Ligao is located, and the next case occurred at Daraga, which is also situated farther down on the same river. The sudden appearance of cholera in the interior of the province of Albay among persons who had not been out of the province for many weeks was at first difficult to explain; but it is believed that the Constabulary company and their camp followers at least throw some light upon the case.

The large religious pilgrimage which takes place annually to Antipolo, and at which sometimes as many as 10,000 persons are present in one day, was very carefully supervised this year, and no infections occurred. A number of cases of diarrhea and other suspicious cases were encountered, but they were promptly isolated and no spread took place. As in the times of old, the religious gatherings are still one of the greatest causes for the spread of cholera in the Philippines. The sudden appearance of the disease over so large an area in the Cagayan Valley has been directly traced to the large religious gathering which took place at Piatt. Cholera appeared among the participants, whereupon they commenced to scatter in all directions, and consequently the disease made its appearance simultaneously in a great number of towns.

Assistant Surgeon H. J. Nichols, U. S. A., who has been a member of the Army Board for the Study of Tropical Diseases, has completed his detail and sailed for San Francisco on the United States army transport *Logan*, which left Manila July 14.

Passed Assistant Surgeon Pettyjohn, United States Philippine Hospital and Manila Hospital Service, who has been quarantine officer at Iloilo for the past two years, has been relieved by Assistant Surgeon Olesen, Philippine Hospital and Manila Hospital Service, and sails for San Francisco July 21 on the steamship *Manchuria* in pursuance of official orders.

SIXTEENTH INTERNATIONAL MEDICAL CONGRESS.

(Special Report by Our Vienna Correspondent.)

TUBERCULIN—PERICARDITIS EPISTENOCARDICA—ABDOMINAL ARTERIOSCLEROSIS—ANEMIC MURMURS—POLYCYTHEMIA—OBESITY—PATHOLOGY OF LEUKEMIA—AMEBIC DYSENTERY.

IN the section on internal medicine Pel of Amsterdam in a paper on the treatment of pulmonary tuberculosis by means of tuberculin said that it was difficult to judge of its real value. Spontaneous changes in the patient, the effect of suggestion, the possibility of spontaneous cures, and the difficulty in diagnosis must be considered. Theo-

retically, by raising an active immunity it should tend to produce cures, but the tuberculin varied in itself and in its effect on individual animals. Tuberculin should be derived from the patient's own organisms. Opinion as to its therapeutic value varied widely. It should not be used as a prophylactic. As individual susceptibility to tuberculin varied greatly, cases treated with it must be carefully watched by competent physicians. In any case the treatment was not danger-free. Tuberculin was a dangerous friend, and its general use in practice would cause more harm than good. If properly used it offered us a valuable therapeutic agent.

Dr. Maximilian Sternberg of Vienna spoke on the syndrome first described by Kernig, pericarditis following angina pectoris attacks, and described his experience with it. This was an important syndrome of great diagnostic and prognostic value. The condition consisted in the occurrence of myomalacious foci, either superficial or extending to the surface from large deeper foci, which caused a pericardial exudate. Chronic aneurysm of the heart was especially frequently associated with such a pericarditis. If the condition did not cause immediate death, the attack might cause a sort of cure of the angina pectoris, at least to the extent that the anginal attacks might be less frequent or for a time entirely absent. A knowledge of this pericarditis epistenocardica was of importance in the understanding of the noninfectious pericarditides of middle and advanced age, in the prognosis of angina pectoris, and in the diagnosis of chronic parietal aneurysm of the heart, in that by the aid of this syndrome one distinguished, from the general picture of disease, the occurrence of myocarditis and myocardial degeneration.

Professor Kolman Müller of Budapest said that arteriosclerosis of the gastrointestinal tract was a very common condition—more so than previously appreciated. The important diagnostic point was attacks of abdominal pain concomitant with lesions or functional injuries to the heart or blood-vessels. It was not known whether the pain was due to cramps of the vessels or to a neuralgia of the sympathetics. The disease was more common in men than women. Vasodilators were beneficial in the attacks. With the knowledge of their arteriosclerotic etiology many gastrointestinal conditions could be successfully treated.

Professor S. E. Henschen of Stockholm said that the systolic anemic murmurs were but poorly understood. He discussed the physical characters of such murmurs, and said that such murmurs signified a dilatation of the heart, and that the loudness of the murmur was in proportion to the extent of the dilatation. The relative insufficiency occurred when the blood current was under a pressure not sufficient to close the valves, when the valves were not normal, when the papillary muscles were weak, or when the mitral orifice was dilated or the mitral ring weak. Febrile murmurs were closely related to the anemic. In septic fever and typhoid the murmur was usually weak and soft, but by percussion the heart was found dilated. Rougher murmurs occurred in diphtheria and influenza; a similar dilatation murmur having nothing to do with endocarditis might occur in acute articular rheumatism. In chorea murmurs were more commonly endocardial than spasmodic. Pericardial synechiæ often caused strong, rough, systolic murmurs when no valvular lesion could be found at autopsy. So also could cardiac hypertrophy. In paroxysmal tachycardia (typhoid and diphtheria) the murmur disappeared with the subsiding of the tachycardia. The murmurs of Basedow's disease and chronic nephritis belonged to this same class. The patients should be kept in bed during the continuance of the symptoms of insufficiency.

Polycythemia rubra or erythrocytosis was, according to Professor Senator, either a relative or an absolute increase of the red cells. Physiological polycythemia occurred through loss of water, after eating a rich protein meal, during convalescence from anemias, in the new-born, in a rarefied atmosphere, accompanying artificial dyspnea, and during hibernation. Pathological polycythemia was seen with thickening of the blood from sickness, with cyanosis from congenital heart disease or venous stasis, with intoxications or infections preceding hemolysis, rarely in other diseases with unknown blood changes, and in nervous diseases. Polycythemia megalosplenica, Vaquez's disease, in which the polycythemia occurred in middle life and was associated with cyanosis and an enlarged spleen, was due to a primary unknown disease of the bone marrow. The therapy for it consisted of vegetarian diet and bleeding. In polycythemia hypertonica (Geisböck), with a high blood pressure but no splenic tumor, the therapy was the same. In two cases thyroid iodine had a favorable influence.

Professor Carl von Noorden of Vienna discussed the subject of obesity. He said that most cases depended upon the fact that the calorie content of the ingested food was greater than that required by an average man under the same external relations, or that the energy demanded by muscular activity was abnormally low (overfeeding or inertia obesity), or else that the laying on of fat was due to some delay of metabolism. By either of these protoplasmic processes a certain amount of material was spared. The abnormal reduction of required energy in such cases could be dependent upon special properties of the protoplasm or abnormal regulation of the glands which had internal secretions. Hyperplasia or hyperfunction of the thyroid caused increased oxidation, as in Grave's disease. This, as well as the ingestion of thyroid substance, caused loss of weight. Hypoplasia, atrophy, degeneration, or extirpation of the thyroid led to reduced oxidation, myxedema, and obesity. In premature atrophy, degeneration, or extirpation of the generative glands, obesity often occurred. Extirpation of the pancreas, according to Falto, produced decided obesity. In acromegaly, that is, hyperplasia of the hypophysis gland, there was usually increased oxidation and loss of weight, despite polyphagia. In hypophysis tumors there was usually obesity called degeneratio adiposa genitalis (typus Fröhlich), in which the secondary sexual characteristics of the man assumed the female type, and of women the infantile. We must assume that the internal secretion of the thyroid alone stimulated oxidation directly, but that its function might be regulated by the other organs. A chemical relation between the thyroid and the pancreas had been demonstrated. Constitutional obesity, slowing of metabolism, was dependent upon a weakening of the specific function of the thyroid, which controlled the transformation of energy. He distinguished "secondary thyrogenic obesity," in which the functional anomaly of the thyroid was caused by influence of other organs as the pancreas, ovary, hypophysis, suprarenals, thymus, pineal body, etc., and "primary thyrogenic obesity," in which the anomaly of function was dependent upon an intrinsic lesion of the thyroid itself, atrophy, degeneration, functional weakness, etc. The relation between obesity and reduced transformation of energy by the thyroid was only a hypothesis, but was based on clinical and experimental facts.

Dr. Wilhelm Ebstein of Göttingen discussed the pathology of leukemia, which he said might be acute or chronic. The acute form usually lasted about two months, at most six months, and might attack the healthy or follow infections, malaria, syphilis, or repeated pregnancies. The onset was sudden, often with a chill, with headache, pain in the joints and legs suggesting rheumatism, with a typhoid state and enlarged spleen, with tonsillitis and cervical lymphadenitis, following which scorbutic symptoms and hemorrhages gave the diagnosis of leukemia. With the hemorrhages appeared enlarged, hard, and tender lymph glands; the mediastinal glands and thymus were also enlarged. Splenic tumor was rare in the acute form. The tonsils were inflamed, phlegmonous, and often gangrenous. Loss of appetite occurred early; diarrhea later, from intestinal lymphadenitis. Lymphatic deposits in various organs caused hemorrhages on slight trauma. The teeth loosened, and salivation symptoms occurred. Destruction of lymph tissue in the vessels produced scattered hemorrhages, thrombosis, skin hemorrhages, paralysis from hemorrhage into tendons, blindness, deafness, etc. Microscopically the blood was not white, the characteristic leucocytosis developing only in the course of the disease. The prognosis was hopeless, death occurring from hemorrhage or secondary infection. The diagnosis depended upon the blood picture with the erythocytes in embryonal stages. The chronic form lasted one and a half to two years. In the early stages there were often remissions, either spontaneously or under arsenic. The question of the infectiousness of the disease was still obscure. The leukemia of pregnancy was not transmitted to the embryo, but living children could as a rule be obtained only by premature labor. Among exciting causes of leukemia were sepsis, influenza, pneumonia, erysipelas, tuberculosis, especially miliary tuberculosis, and, much more rarely, gout.

George Dock of New Orleans reported on the results of treatment of cases of amebic dysentery. Following the administration of ipecac, the amebas disappeared from the feces within a few hours, the stools became less dysenteric, and in a short time normal. There was continued good health, with no amebas in the feces up to four years and a half after treatment. In some cases previous treatment with quinine enemata, intestinal antiseptics, and other drugs had been carried out carefully, but without success. The ipecac was given in pills covered with salol. The

dose was gm. 4.0 to 7.0 a day, one pill every hour, or gm. 2 to 4 twice a day for one, two, or three days, according to the severity of the case. Following the use of salol-covered pills, vomiting occurred but rarely, and opium was not necessary. The results should be controlled by examinations of the feces, and by the use of the sigmoidoscope or proctoscope. Enemata or local medicinal treatment of the colon might be used in addition to the ipecac.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 9, 1909.

Simple Inspection of the Eyes as an Aid in General Diagnosis.—H. B. Stevens makes a plea for a more thorough inspection of our patients' eyes in general diagnosis. He gives an outline of the anatomy and physiology of this organ, and then passes on to enumerate some of the eye symptoms and signs of various local and general diseases. Nothing new is brought out, but the paper is of value as being a vigorous exhortation to use our eyes more and not to be misled by those variations from the strictly normal which may be compatible with health. Attention is also directed to the parts which border on the eyelid and to the nearness of the brain and other vital structures.

Sudden Deaths in a Synopsis of Twenty Years' Medicolegal Work.—F. J. Canedy analyzes his experience as Medical Examiner in a district of Western Massachusetts. In the course of twenty years he saw 202 cases. Of these 54 were killed by the cars, 33 died from heart disease, 10 apoplexy, 1 from measles, 2 from alcoholism, and 10 from pulmonary hemorrhage. There were 36 suicides, 11 from hanging, 4 from drowning, 8 from shooting, 5 from laudanum, corrosive sublimate, and chloral, each 1, and 1 from throwing himself in front of an engine. The author then gives various facts about individual cases, and says that sudden death comes from circulatory systemic disturbances more often than from all the rest of the other systems of the body combined. Under this general heading special mention is made of fatty and fibroid degeneration of the heart, endocarditis, and arteriosclerosis of the vessels, which probably causes sudden death more often than any other vascular lesion. The fatal change generally begins around the aortic arch and thence spreads. The fragility of the arterial walls may eventuate in aneurysm, rupture of the aorta, thrombosis, or rupture of the basilar artery of the brain, causing in either case sudden death. But the most common fatal cause is angina pectoris from sudden spasm of the coronary arteries.

New York Medical Journal, September 11, 1909.

Treatment of Pruritus Ani.—W. M. Beach considers the pathology and etiology of this condition, and reaches the following conclusions: (1) Pruritus ani occurs in mild and severe forms; mostly in middle life; the mild type with simple pruritus, the severe type with marked eczema and skin changes. (2) Certain aberrations in general metabolism, or in adjacent structures are simply incidental, and should be considered as complications. (3) Intrarectal growths, as hemorrhoids, adenomata, etc., and the presence of parasites are contributory. (4) The distinct pathogenesis of pruritus ani consists of single or multiple burrowings from the anal pockets, emitting a serous or seropurulent substance, which sinus may be complete or blind, and is always accompanied by proctitis, and frequently by cryptitis and small ulcers at the anorectal line. (5) These sinuses when complete are sequelæ to an abscess history, but the origin of the blind recesses is in doubt, and yet it is not unlikely due to an infection by the colon bacillus. (6) The treatment is surgical for the purpose of obliterating the sinuses, correcting a rigid sphincter when necessary, and curing the proctitis and ulceration. (7) Gastrointestinal and general metabolic disturbances must be met by rational measures.

Blood Examination in the Presence of Gangrene.—I. S. Wile refers to the errors of certain observers who have reported on blood counts in certain abdominal infections, errors especially evident in conditions of gangrene attended by no leucocytosis and no increase in polynuclears. Leucocytosis is an index of body resistance, and the relative increase of polynuclear neutrophiles parallels approximately the degree of toxic absorption. Therefore gangrenous conditions of the appendix without much absorption show little or no increase of these cells, while the total leucocyte count may be scarcely altered. Blood examinations afford symptomatic facts, to be interpreted only in the light of the clinical history of the patient. In surgical conditions, as appendicitis, the hematological facts may have corroborative value in determining the time of operation. The operation, however, should never be based merely upon the blood examination. In gangrenous appendicitis, particularly, the blood examination demands most careful interpretation to afford diagnostic aid to the surgeon. Its prognostic value is limited to the time at which the blood was taken for examination. It has no prognostic value for the future pathological developments. Therefore frequent blood examinations are required to keep a record of the prognostic indications of the blood conditions. The indications for operation arise from a consideration of the history, physical examination, and clinical facts elicited. The blood examinations merely supply part of the clinical facts.

Do the Saprophytes, So Called, Produce Toxins Which Have Selective Attraction for the Brain and Nerve Tissue and Thus Cause the Idiopathic Diseases of These Structures?—B. R. Le Roy discusses this question, giving an affirmative answer. Starting from the proposition that a normal person was free from unpleasant odor, and that a diseased person was afflicted with varied odors, and that many diseases are as readily recognized by their odors as by any other method, the first step was to examine into the odors of the nerve diseases in which the writer was most interested, paralysis and the epilepsies. It is well known that all paralytics, without reference to the cause, have an odor that is very peculiar, and peculiar to that disease; no other diseased condition known to the writer will or can produce the same odoriferous emanation that is readily noticed in all cases of paralysis. Again, the odor of paresis is as nothing when compared with the odor emanating from an epileptic! Now, why should these diseases produce such vile odors? What is it about the disease or diseased person that produces these infernal stenches? Surely there must be a reasonable cause, and if so, why not try to discover it, and when found try to remove the cause of the odors, and perhaps the removal might modify or change the course of the disease. The author relates his experience with several cases, removing, by various methods of cleansing, the secretions from the various offensive parts of the body and finding great relief to the nervous symptoms of his patients. The essential feature was a "scrub-bath" of the entire skin with a weak acid solution, vaginal douches, etc.

Journal of the American Medical Association, September 11, 1909.

Disposal of Sputum.—W. J. Manning considers that we are generally too careless in the disposal of sputum, especially in workshops and in hotels, saloons, barber shops, railway stations, and other public places. Signs are up in most of these in every town, cautioning against spitting on the floor and advising the use of cuspidors, but the disposal of the contents of these last is often very faulty. The observing person will see these vessels cleaned near drinking water supplies or roughly dumped in any convenient locality. The type of cuspidor in use in the great majority of cases is faulty, very little attention having been given to ease and thoroughness of cleaning. The repulsiveness of the cleaning operation almost prohibits the worker from putting his hand or sponge in the places that need most of the cleansing. In breaking up the ordinary type of cuspidor he found incrustations in some instances of dried sputum half an inch thick, and, if not dried, in a semisolid putrid condition. He figures the type of cuspidor devised by him for the government printing office use, which permits easy rapid cleaning with a common dish mop and boiling water. The cuspidors are cleaned in a large trough filled with hot water, which destroys at once the bacteria, and the method of cleaning is described in detail. Besides this, an antiseptic is used, potassium permanganate being preferred for reasons of safety and cheapness. Fourteen hundred cuspidors of this pattern are washed and sterilized in the method described at the end of every shift of eight hours in the government printing office. While the conditions there are almost ideal, as befits a great government institution, effective arrangements can be obtained in the corner of any basement of a factory, hotel, depot, or other public building, as the fittings and equipment are very simple and inexpensive.

The Flexner Serum in Meningitis.—F. S. Churchill shows how the use of the Flexner serum has reversed the proportions of deaths and recoveries and greatly reduced the unpleasant sequelæ of the disease. He also gives his own observations of forty-one cases, of which twenty-nine were demonstrated as beyond question due to the meningococcus. In these twenty-nine, thirteen, or 44 per cent., died, but closer analysis shows that lateness of beginning

of the treatment in the disease and lack of proper dosage accounts for the mortality. Hospital patients do better than those treated at home. They can be watched more closely, the serum can be given more persistently and thoroughly, and more exhaustive laboratory investigations as to the blood, etc., can be carried out to guide the treatment. The most striking thing in the cases treated early in the hospital is the high percentage of perfect recoveries without sequelæ and the especially low rate of mortality, it being sometimes as low as 10 per cent. in cases treated within the first three or four days. The course of the disease is materially shortened and the patient is much more comfortable. The increased phagocytosis can be observed with the successive injections. He describes the technique of the method. The injection must be made at the pathological seat of the disease by lumbar puncture. Evacuate 30 to 45 c.c. of the spinal fluid if possible, and, if it is at all turbid, inject an equal quantity of the serum at once, without waiting for an examination. If the bacteriological examination shows the presence of the meningococcus, subsequent injections of the serum should be given. It is better to repeat the dose daily for three or four successive days before stopping the injections, and as a rule it will then be found that the patient is decidedly improving. If the conditions do not improve, repeat the process, and so on until bacteria have disappeared, giving occasional injections until no organisms are found in either smears or cultures. Five cases are reported, two of them illustrated by charts.

The Expression of Cataract in Its Capsule.—H. V. Würdemann describes Pagenstecher's operation, or expression of cataract in its capsule, and quotes that author's definition as the most accurate that has yet been given. He sees nothing specially original in the modifications introduced by Major Smith of Jullunder, India, whose experience of 20,000 operations has aroused so much interest. Würdemann does not deem the purely corneal section acceptable, as it is followed by slow healing, iridic prolapse, distorted pupils, and excessive astigmatism, nor is the operation with iridectomy acceptable on account of iridic prolapse. In his experience the two-fifths sclerocorneal section with conjunctival flaps combined with a very small iridectomy and extraction of the lens, *i.e.* the regular operation less a capsulotomy, in immature and hypermature cataract, is the only all-round satisfactory operation. Würdemann gives the details of the technique, stating that it is no operation for the beginner or the average operator, and gives brief notes of his forty cases. He hints in conclusion that the apparent lessened susceptibility to infection of the Hindoos, as in other less civilized races, and, above all, the fact that these patients disappear from observation, may account for the remarkable success reported by Indian operators. For the final results we must depend on the testimony of those who practise in countries where patients can be more easily followed up.

Alimentary Albuminuria.—H. G. Wells has employed the anaphylaxis test to decide whether the albumin found in the urine in so-called alimentary albuminuria is simply filtrated through the kidneys or is of human origin. Although a few observers report having found evidence of the presence of specific food protein in the urine in alimentary albuminuria by means of the precipitin reaction, yet by the anaphylaxis reaction the results are found quite different. Guinea-pigs sensitized with urine from four healthy persons with experimental albuminuria produced by eating raw eggs, and with urine from two patients with nephritis, reacted typically and severely to subsequent injection of human ascites fluid and not at all to egg white or egg albumin. Wells says, that in view of the extremely minute quantity of protein necessary to sensitize guinea-pigs to the homologous protein, these results speak against the prevalent view that the albumin found in the urine in alimentary albuminuria is the same protein that has been taken in the food. Either it has been altered to the extent of acquiring specific human properties after ingestion and before being eliminated in the urine, or else it is not excreted at all, but injures the kidneys slightly and transitorily by overloading the blood with nitrogenous waste products so that they become more permeable to the normal serum proteins. This last explanation, he says, would seem most probable but for the fact mentioned above of food proteins being detected by several observers by means of the precipitin reaction. This discrepancy between the two tests may be interpreted as meaning that the two methods are not of equal value, or it may be suggested that the precipitin reaction is given by food proteins that have been so altered during absorption and excretion that they will not sensitize guinea-pigs to the original protein. Previously reported experiments, however, show that digestion of proteins quickly destroys their power of reacting with precipitin, while the anaphylactic properties of protein are not lost by digestion for a very long time. In any case, Wells says, there can be no question that in alimentary albuminuria, as well as in nephritis, the urinary proteins are chiefly, if not exclusively, human proteins and therefore presumably derived from the blood and not from food. Whether any unaltered food protein reaches the urine is still in question on account of the statements of the observers who have reported it with the precipitin test. Further studies are needed to clear up this point, both because it is desirable to know just the relation of the two tests to each other and to settle the physiological question whether unaltered food proteins can pass through the intestinal wall. There is some practical importance to this question because at times it might be desirable to know whether the albumin in a given sample of urine comes from the food or the blood. To show the delicacy of the anaphylactic reaction, he reports experiments made with sensitizing guinea-pigs with urine from healthy young men and detecting the presence of albumin when it existed in so small amount that it gave no reaction to the heat or nitric acid tests.

The Lancet, September 4, 1909.

A Possible Natural Enemy to the Mosquito.—J. M. Atkinson writes of his observations in Hong Kong, stating that he has seen flies eating the larvæ of the mosquito. Some of these flies were collected and are figured by the author. They have been identified as belonging to the species *Lispa sinesis*, Schiner, of the family of anthomyidæ or flower flies. A technical description of these flies is given in the original paper.

A Case of Delayed Chloroform Poisoning Treated with Dextrose; Recovery.—The patient of A. A. Weir was a boy of nine years, operated on for appendical abscess, the time of the anesthetic being about forty-five minutes. After the operation the patient was restless and vomited once. Otherwise all went well for forty-eight hours, when the restlessness increased into a maniacal delirium, the patient tearing off his bandages and requiring mechanical restraint. A condition of delayed chloroform poisoning was diagnosed, although vomiting was absent, except as stated, and sodium bicarbonate was given by rectal injection. On the third day the patient was alternately delirious and comatose. The urine was normal in amount, and when tested by liquor ferri chloridi showed the presence of diacetic acid. Acting on a suggestion seen by the author in a medical journal, a solution of glucose, half an ounce to half a pint of milk, was given through the nasal tube and a 10 per cent. solution by the rectum every four hours. Carbohydrate food was given freely. For the next twenty hours all went from bad to worse, the face becoming a deep plum color, the coma deepening, frothy saliva drooling from the mouth, etc. Sweating was profuse and Cheyne-Stokes breathing developed. The pulse remained good, however, and was never above 108, while everything administered was retained. After a few hours the tide turned and the patient began to move his head. In six hours more he was apparently out of danger, and recovery was without incident. The boy had previously taken chloroform for the removal of adenoids, and without any alarming symptoms. The author says that in view of previously reported cases of delayed chloroform poisoning, it is hard to account for the absence of vomiting, which has always been a prominent feature. In fact, it has been the most constant symptom. In his case another noteworthy feature was the slow onset of symptoms.

The Vacuolation of the Blood Platelets: an Experimental Proof of Their Cellular Nature.—H. C. Ross refers to the reported experiments of Moore and Walker in the *Lancet* of July 27, 1907, in which they determined the utility of certain new methods of staining blood cells *in vitro*. This paper described how small, bright, red spots developed in the leucocytes after resting for some time on agar jelly, and it was suggested that the spots might be centrosomes. Recently Ross has found that by following a certain technique (described in full) these red spots can easily and constantly be found in the blood platelets. He found, however, that the spots were not centrosomes, but diffusion vacuoles. If the diffusion of stains into leucocytes is accelerated by heat or an alkali, so as to cause maximum staining without actually killing the cells, then stained liquid also passes into the colloid cytoplasm and remains suspended in it as a red spot. Morphine will also cause extreme vacuolation of the leucocytes. Ross has shown that cells have different coefficients of diffusion, and that in blood cells, approaching death

causes a lowered coefficient. It is obvious that the vacuoles will appear more readily, *i.e.* liquid will diffuse more easily into cells which have a lowered coefficient of diffusion. It is apparent, therefore, that the blood platelets must be cells, or rather must be composed of living protoplasm, for their vacuolation is produced experimentally by the action of poison, as morphine, in causing the gradual approach of death, also lowers the coefficient of diffusion. As all the platelets in a specimen usually become vacuolated, Ross believes that they all belong to one class of cell, derived from one source. In view of the vacuolation, he believes that the precipitate theory of the blood platelets is untenable. He also dismisses the theory that they are the extruded nuclei of red cells. The correct theory, according to him, is that the platelets are fragments of leucocytes. They have the same coefficient of diffusion as these cells and usually contain a few granules which have the same staining rate as those of the leucocytes. When blood is placed on jelly which excites ameboid movements in leucocytes the platelets have been noticed to extrude and retract pseudopodia, and these when separated appear to be identical with the other platelets seen in the specimen.

Berliner klinische Wochenschrift, August 23, 1909.

Monoplegic Syringomyelia.—August Wimmer reports three cases of syringomyelia, involving in each case but one extremity, a form of the disease which is not common. The first case, in a shoemaker aged 38, began with paresthesia in the left thumb, and later progressed to trophic disturbance and ulcerations. Anesthesia then appeared, and a tendency to cyanosis and swelling of the hand. The tendon reflexes were absent, and thermal and pain sense were affected in the left arm. In the second case a student, aged 19, had noticed for a year weakness and coldness of the right hand. There was a definite atrophy of the intrinsic muscles of the left hand. There was no pain. In the third case the left leg was involved, weakness having been noticed for six months. The left leg on examination was seen to be smaller than the right, cold, and showed peroneus paralysis, and hypoalgesia: hypoesthesia to heat and cold occurred in this leg alone.

Pharyngeal and Laryngeal Symptoms of Syringomyelia.—Baumgarten says that laryngeal symptoms in syringomyelia are much rarer than in tabes dorsalis. He has seen but one case in twenty years, which he reports. The patient sought advice for hoarseness without knowing that he had the more serious nervous disease. This is not usually the case, the laryngeal symptoms coming on as a rule late in the disease. Laryngoscopic examination showed that the vocal cords were fixed in the middle line, due to bilateral posticus paralysis. There was a right-sided hemiatrophy of the tongue, and the motion of the right half of the soft palate decreased. Tabes was ruled out, and a diagnosis of syringomyelia made by a neurological examination. Baumgarten analyzes the twenty-seven cases of laryngeal complications of syringomyelia which have been reported. In twenty-four of the twenty-seven there was a paralysis of the vocal cords; in the other three a loss of the larynx reflex and sensibility. In one case analgesia and loss of thermal sensation was noted. Of the twenty-four paralyzed cases one showed bilateral and ten unilateral recurrens paralysis, unilateral recurrens paralysis with posticus paralysis of the opposite side occurred four times, bilateral posticus paralysis four times, unilateral posticus paralysis three times, and unilateral paresis (probably posticus) twice. In three cases the hoarseness came on suddenly, associated with recurrens paralysis. In one of these the recurrens paralysis followed a chronic posticus paralysis. In seventeen of the cases there was paralysis or paresis of the soft palate. These in some cases improved, whereas the laryngeal paralysis does not improve. Atrophy of the tongue was noted in nine of the twenty-seven cases. In one case the atrophy was preceded by thickening. In two cases there was reduced sensibility and heat perception on the atrophied side of the tongue. The lingual atrophy was always unilateral. The sense of smell was rarely examined, but was found to be lost in two cases.

Münchener medizinische Wochenschrift, August 17 and 24, 1909.

The Decrease of the Sensitiveness of Tuberculosis Patients to Tuberculin During Measles.—Grüner calls attention to the liability of measles to light up a latent tuberculosis or to increase a patient's susceptibility to tuberculous infection, and to the fact that Pirquet has shown that during an attack of measles tuberculous children fail to give the skin reaction with tuberculin. The question arises as to whether this is an absolute loss of sensitiveness to tuberculin or merely a hyposensibility. To test this the author investigated thirteen cases of measles in tuberculous children. These were injected with old tuberculin, some in doses of 0.1 mg., some 1.0 mg. From the results which are reported in tabular form the author states that the loss of sensitiveness to tuberculin during measles is only a relative one. Whereas the injection of 0.1 mg. did not give a reaction, the use of 1.0 mg. gave positive results in six of the seven cases. These reactions, however, became more intense after eight days, the time that the effect of the measles wears off. The author states that during measles the susceptibility to tuberculin is reduced at least one thousand times, but returns rapidly after the eighth day. This reduction is not due to an antituberculin. It is more likely due to the loss of the natural reactive power, and consequent defenselessness of the body against the poisons of the tubercle bacillus.

Relation of Albuminuria to the Acidity of the Urine.—V. Hoesslin has studied the relation existing between the acidity of the urine and the amount of albumin and number of casts in cases of chronic nephritis. The acidity of the urine was regulated by giving sodium bicarbonate by mouth. He concludes that albuminuria and casts stand in many cases in direct proportion to the acidity of the urine. In such cases the albuminuria and number of casts decrease or disappear with the reduction of the acidity by the use of sodium bicarbonate. In all cases of albuminuria the estimation of the urine acidity must be made. The dose of sodium bicarbonate must be regulated in each case by quantitative estimation of the albumin and acidity of the urine.

Changes of Blood Pressure under Compressed Air—Schöppner investigated the blood pressure of himself and a coworker under normal atmospheric pressure and then when in air compressed to a pressure of 350 mm. He concluded that the increased atmospheric pressure did not cause a sinking of the blood pressure.

The Use of Marmorek's Tuberculosis Serum Locally.—Schnöller says that the general use of the serum has the following drawbacks: (1) It is greatly diluted by the general blood. (2) Thereby it is distributed over the entire body, and but a very small portion is enabled to act upon the local focus of disease. (3) The rapid flow of the blood prevents the serum from reaching the diseased tissues and remaining there long enough to produce effect. For these reasons the author considered it better in cases of local tuberculous disease to inject the serum directly into the diseased focus, whereby one would expect a stronger and more rapid activity. He reports two cases. In the first the injection of from 2.5 to 3.0 c.c. of the serum caused rapid healing in a tuberculous abscess which had shown no signs of improvement during three months of the usual treatment. The second case was in a patient with advanced pulmonary and laryngeal tuberculosis. In this case one abscess of the rib occurred which broke down and formed an ulcer which showed no signs of healing. Three weeks after the injection of 2 c.c. of the serum the wound was completely healed.

The Diagnosis of Latent Malaria.—Plehn says that three latent periods may be recognized in the course of malaria. The first phase is that after the initial infection and before the first chill. This may last for months, and may be characterized by great nervousness, digestive disturbances, and more or less anemia. Basophile granules may occur in the blood. The second latent period is the best known. This occurs between the acute attacks, and may be called the intermediate latent periods. It may vary from a few days to several weeks. The final latent period of malaria consists of the period after treatment and apparent recovery before a relapse occurs. This may be as long as two years. Plehn says that in all such cases the liver is markedly affected, and that a most important help in the diagnosis of such a case is the presence of urobilin in the urine.

Crypto-Diphtherias.—Abrand says that cases come into every hospital without visible membrane in the throat, which later prove to have been true diphtheria, the membrane being located in the larynx, nasopharynx, trachea, or esophagus. They are discovered late in the disease, when they have been severely poisoned, perhaps diagnosed only by the symptoms of diphtheritic paralysis of the palate, and have already spread the disease to other patients. The symptoms that indicate this state of things are extreme fatigue, loss of weight, rapid pulse, marked swelling of the glands of the neck, with or without high fever.—*Annales de Médecine et de Chirurgie Infantiles.*

MEDICAL LIBRARIES.

II. 1909.

In the following list the name of the library is followed by the post office address, the name of the librarian, and the number of bound volumes. Corrections and communications concerning libraries and applications for copies of the list (with stamp enclosed) may be addressed to the Librarian of the New York Academy of Medicine. Collections of medical works in general libraries, some of them very important, are omitted.

ALBANY—New York State Medical Library, Albany, N. Y., U. S. A. Miss Ada Bunnell. 20,087.

AMSTERDAM—Library of the Netherlands Medical Society, 87 Hoofstraat, Amsterdam, Netherlands. Dr. C. P. Daniells. 25,000.

ANTWERP—Library of the Antwerp Medical Society, Royal Atheneum, 40 Rue van Straalen, Antwerp, Belgium. Dr. Edward d'Haenens. 3,120.

ATLANTA—Library of the Atlanta Medical Library Association, Carnegie Bldg., Atlanta, Ga., U. S. A. Miss Rankin. 2,000.

BALTIMORE—Library of the Medical and Chirurgical Faculty of Maryland, 1211 Cathedral street, Baltimore, Md., U. S. A. Miss Marcia C. Noyes. 17,533.

Library of the Department of Medicine of the University of Maryland, Baltimore, Md., U. S. A. Dr. Eugene F. Cordell. 9,000.

Library of the College of Physicians and Surgeons, Calvert and Saratoga streets, Baltimore, Md., U. S. A. Miss Ethel I. Disney. 1,189.

Johns Hopkins Hospital Library, North Broadway, Baltimore, Md., U. S. A. Miss Minnie W. Blogg. 9,521.

Johns Hopkins Medical School Library, Monument and Washington streets, Baltimore, Md., U. S. A. Dr. M. L. Raney. 5,750.

BEIRUT—Medical Library of the Syrian Protestant College, Beirut, Syria. Rev. Harvey Porter. 1,859.

BELFAST—Library of the Ulster Medical Society, College Square North, Belfast, Ireland. Dr. W. L. Storey. 2,000.

BERLIN—Library of the Kaiser Wilhelm Academy, Friedrichstrasse, 140, Berlin, N. W., Germany. Dr. A. Hiller. 67,000.

Library of the Berlin Medical Society, Ziegelstrasse, 10-11, Berlin, N. W., Germany. Dr. Ewald. 50,000.

Library of the Society of Internal Medicine, Schoeneberger Ufer 11, Berlin, Germany. Dr. Max Ph. Meyer. 9,000.

Library of the German Surgical Society, Ziegelstrasse 10-11, Berlin, N. W., Germany. Dr. Fischer. 24,860.

Library of the National Health Office, Klopstockstrasse, 18, Berlin, N. W., Germany. Dr. Wurzburg. 57,000.

BIRMINGHAM—Library of the Birmingham Medical Institute. Edmund street, Birmingham, England. Mr. T. G. Johnson. 14,300.

BOSTON—Boston Medical Library, 8 The Fenway, Boston, Mass., U. S. A. Dr. John W. Farlow. 66,000.

Treadwell Library of the Massachusetts General Hospital, Boston, Mass., U. S. A. Dr. James J. Minot. 7,355.

Library of City Hospital, 878 Harrison avenue, Boston, Mass., U. S. A. Dr. George H. Rowe. 3,605

Library of Tufts College Medical School, 416 Huntington avenue, Boston, Mass., U. S. A. Dr. Robert W. Hastings. 1,800.

Library of the Harvard Medical School, Longwood avenue, Boston, Mass., U. S. A. Miss Ida F. Underhill. 15,000.

BOURNEMOUTH—Library of the Bournemouth Medical Society, Old Christchurch Road, Bournemouth, England. Dr. Frank Belben.

BRIGHTON—Library of the Brighton and Sussex Medico-Chirurgical Society, Brighthelmstone Dispensary, Queen's Road, Brighton, Eng. Mr. Brill. 4,000.

BRISTOL—Bristol Medical Library, University College, Bristol, Eng. Mr. C. King Rudge. 21,000.

BROOKLYN—Library of the Medical Society of the County of Kings, 1313 Bedford avenue, Brooklyn, N. Y., U. S. A. Mr. Alfred T. Huntington. 65,000.

BRUNSWICK—Library of the Medical School of Maine, Brunswick, Maine, U. S. A. Mr. George T. Little 5,005.

BRUSSELS—Library of the Academy of Medicine of Belgium, Palais des Academies, Brussels, Belgium. Mr. Henry Beckers. 100,000.

BUDAPEST—Library of the Royal Society of Physicians of Budapest, VII. Sventkiralyi-utcza. 21, Budapest, Hungary. Dr. Rudolphe Temesvary. 20,528.

BUFFALO—Medical Library of the University of Buffalo, 24 High street, Buffalo, N. Y., U. S. A. Dr. Irving P. Lyon. 8,650.

BURLINGTON—Library of the College of Medicine, University of Vermont, Burlington, Vt, U. S. A. Dr. H. C. Tinkham. 3,000.

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Northwestern University Medical School Library, 2431 Dearborn street, Chicago, Ill., U. S. A. Dr. Walter H. Buhlig. 5,020.

Quine Library, College of Physicians and Surgeons, University of Illinois, Congress and Honore streets, Chicago, Ill., U. S. A. Miss Metta M. Loomis. 12,512.

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Library of the Ear and Throat Clinic, Kommunehospitalet, Copenhagen, Denmark. Dr. Blegvad. 2,500.

Library of the General Hospital, Kommunehospitalet, Copenhagen, Denmark. Dr. Joergen Moeller. 4,500.

DENVER—Library of the Denver Academy of Medicine, 1434 Glenarm street, Denver, Col., U. S. A. Dr. F. W. Kenney. 3,200.

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FLORENCE—Medical Library of the Scientific School, 33 Alfani street, Florence, Italy. Luigi Nobile-Lojacono. 30,000.

FRANKFORT—Senckenberg Library, Viktoria Allee 9, Frankfurt a Main, Germany. Dr. G. Wahl. 70,000.

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Library of the Manchester Medical Society, University of Manchester, Manchester, England. Dr. Cuthbert E. A. Clayton. 39,012.

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SPRAINS AND ALLIED INJURIES OF JOINTS. By R. H. ANGLIN WHITELOCKE, M.D., M.C. (Edin.), F.R.C.S. (Eng.). 8vo; cloth; illustrated; 241 pages. Oxford Univ. Press, Amer. Branch, New York.

TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY, for Students of Medicine. By JOHN H. LONG, M.S., Sc.D. 8vo, cloth; 306 pages; illustrated; $2.50 net. P. Blakiston's Son & Co., Philadelphia, Pa.

NÄHRUNGSMITTELTABELLE ZUR AUFSTELLUNG UND BERECHNUNG VON DIÄTVERORDNUNGEN. Von Dr. HERMAN SCHALL und Dr. AUGUST HEISLER. 8vo; paper; 42 pages. Curt Kabitzsch, Würzburg, Germany.

OPERATIVE SURGERY, Vol. I. SIR FREDERICK TREVES, Bart., G.C.V.O., C.B., LL.D., F.R.C.S., and JONATHAN HUTCHINSON, F.R.C.S. 8vo; cloth; 775 pages; illustrated. Lea & Febiger, New York.

Book Reviews.

The Thirteenth Greatest of Centuries. By James J. Walsh, M.D., Ph.D., LL.D.; Dean and Professor of the History of Medicine and of Nervous Diseases at Fordham University School of Medicine; Professor of Physiological Psychology at Cathedral College, New York; Life Member of the New York Historical Society; Member of the National Geographic Society; Fellow of the New York Academy of Medicine, etc. Second Edition. With Emendations and an Appendix. Cloth, pp. v-458. New York: Catholic Summer School Press, 1909.

Inasmuch as this book is a digest of Summer School lectures, all explanatory notes and marginal references were rigorously excluded from the first edition. In this second edition, however, it seemed advisable to adduce some authoritative opinions in support of many seeming paradoxes of statement. Accordingly, two appendixes have been added, the first containing so-called history of the period, covering rules and events; the second citing criticisms, comments, and documents. The author has read widely and deeply, and seems to have a happy faculty of putting his finger on the fact or illustration needed for his purpose. In writing a work of this kind there is no question of the immense amount of detail which must be examined and weeded out; and Dr. Walsh has done well in marshalling the data of his subject so as to make a harmonious whole, as well as in the clearness and keenness of his logic. Scholarly contributions to other subjects than medicine written by physicians are rare enough, and we are glad to see that popular opinion of this work has justified a second edition.

Bier's Hyperemic Treatment in Surgery, Medicine, and the Specialties. A Manual of Its Practical Application. By Willy Meyer, M.D., Professor of Surgery at the New York Post-Graduate Medical School and Hospital; Attending Surgeon to the German Hospital; Consulting Surgeon to the New York Skin and Cancer Hospital, and to the New York Infirmary, and Prof. Dr. Victor Schmieden, Assistant to Prof. Bier, University of Berlin, Germany. Second Revised Edition, Enlarged. Illustrated. Philadelphia and London: W. B. Saunders Company, 1909.

That a second revised edition of this work has appeared so soon after the first seemingly shows that many share the enthusiasm of the authors regarding this method of treatment. Although we read in the preface that the "physician who has given the treatment a fair and careful test, no matter in what specialty, and has thus had an opportunity of observing the often remarkable successes that can be obtained, will be so much pleased that he will be eager to give the method a permanent place in his therapeutic armamentarium," we believe few, even of those easily carried away by novelties, will accept without trial the assertion that Bier's treatment is useful in abscesses, arthritis, scoliosis, flat-foot, frost-bite, seasickness, fractures, gonorrhea, headache, dysmenorrhea, cancer, burns, pulmonary tuberculosis, diphtheria, meningitis, and certain diseases of the skin, the eye, ear, nose, throat, and nerves. Making allowances for the author's enthusiasm and for the unconscious exaggeration of the partisan of any method, one can find much of value here, and if he wishes to test for himself the therapeutic efficacy of artificial hyperemia he will find all needed instruction within the covers of this book.

Exercise in Education and Medicine. By R. Tait McKenzie, B.A., M.D.; Professor of Physical Education and Director of the Department, University of Pennsylvania; Fellow of the College of Physicians of Philadelphia and of the American Academy of Physical Education in Colleges; Sometime Lecturer in Anatomy and Medical Director of Physical Training at McGill University; Lecturer in Artistic Anatomy, Montreal Art Association, Harvard Summer School, and Olympic Lecture Course, St. Louis, 1904. With 346 illustrations. Philadelphia and London: W. B. Saunders Company, 1909.

If the author had been content to cover less ground his book on the "cinderella of the therapeutic family" would be much more valuable. Divided into two parts, exercise in education and exercise in medicine, the book starts out most entertainingly with a chapter that presages great things, but almost every chapter thereafter leaves an impression of dissatisfaction. There is too much extraneous matter and too little of the instruction that should be there. Why insert illustrations of "East Side street in New York," of "city conditions showing need of playgrounds in Philadelphia," or of "people throwing flowers to American Turners" in Frankfurt? There is too much historical in the German and Swedish systems of exercise and too little practical. The chapters on physical education of the blind, of the deaf, and of the mentally defective are most valuable and instructive, and the author is naturally at home in the chapter on athletics in college and university, and makes one wish to hear more on the subject, but there is a certain positiveness in his teaching on static deformities of which only an enthusiast would be capable. Possibly he is a trifle sanguine also in the treatment of hernia. "One man played football for years with an enormous scrotal hernia, which he did not even support. He then went to Cuba, did a great deal of horseback riding and other violent exercise, during which it disappeared, is now quite sound, with no return for five years."

Die Erkrankungen der Schilddrüse, Myxödem, und Kretinismus. Von Dr. C. A. Ewald, Prof. ordin. honor. an der Friedrich-Wilhelms-Universität, dirigierendem Arzt am Augusta-Hospital zu Berlin; LL.D. Univers. of Maryland. Zweite, völlig neu bearbeitete Auflage. Mit 26 Abbildungen und einer Karte. Wien und Leipzig: Alfred Hölder, 1909.

The second edition of this monograph on the diseases of the thyroid gland exclusive of Graves' disease has been considerably amplified and largely rewritten. The entire subject of the significance of the parathyroids, for which the author prefers the designation "epithelial bodies," is of recent development, and now finds fairly full discussion, though the work of American observers, particularly in regard to the relation of these structures to calcium metabolism, does not receive very extensive consideration (v. p. 227). The classification of the forms of goiter and of cretinism is interesting: two forms of goiter are recognized, the endemic occurring in definite localities as the result of a water-borne infection, and the sporadic, of noninfectious origin. Cretinism also may be endemic or sporadic; in the former case it is seen in the goitrous districts, is associated with disease, but not necessarily total destruction, of the thyroid gland, and is an infectious disease whose causative agent is still unknown. Sporadic cretinism or congenital myxedema is due to a congenital abnormality of the gland, while juvenile myxedema is an acquired disease, as is the myxedema of adults. Operative myxedema naturally is of definite etiology. For uncomplicated goiters Ewald recommends surgical measures only when internal treatment—chiefly with iodine—has been found ineffectual. The treatise is of much interest and value, and its usefulness is greatly enhanced by a very extensive bibliography.

Angina Pectoris. Part III of Clinical Treatises on the Symptomatology and Diagnosis of Disorders of Respiration and Circulation. By Prof. Edmund von Neusser, M.D.; Professor of the Second Medical Clinic, Vienna; Associate Editor Nothnagel's Practice of Medicine. Authorized English Translation. By Andrew McFarlane, M.D.; Professor of Medical Jurisprudence and Physical Diagnosis, Albany Medical College; Attending Physician to St. Peter's and Child's Hospital and Albany Hospital for Incurables. New York: E. B. Treat & Company, 1909.

This is a short monograph treating very closely of stenocardia in all its aspects—etiology, diagnosis, and treatment, the latter chapter, as one might expect, being the shortest in the book. Neusser favors the nerve theory of angina nectoris, regarding the vascular theory as unsatisfactory and capable of explaining the occurrence of only a small proportion of the paroxysms. The translation is in general well made, but it would have been better to translate the names of drugs, for natrium iodatum, natrium nitrosum, rhodannatrium, and other similar terms are unpleasant to meet and will not be translatable by all readers.

Obstetrics. Vol. 5 of the Practical Medicine Series. Edited by Joseph B. DeLee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School, with the Collaboration of Herbert M. Stowe, M.D. Series, 1909. Chicago: The Year Book Publishers.

The efforts to lower the material mortality, and yet improve the chances of the child, are to a great extent responsible for the operative trend of obstetrics. The literature of the foreign clinics has furnished us with a large number of valuable statistics as to the indications and relative values of premature labor, version, pubiotomy, vaginal cesarean section and the different varieties of abdominal cesarean section. Good results have been reported in the treatment of placenta prævia by cesarean section. In the absence of fever and complications, early rising in the puerperium has been encouraged in a number of the foreign clinics, and from the reports of a large number of cases the results have been very satisfactory. The book is instructive and interesting.

Society Reports.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirty-first Annual Congress, Held at the Harvard Medical School, Boston, Mass., May 31, June 1 and 2, 1909.

(Special Report to the MEDICAL RECORD.)

THE PRESIDENT, DR. A. COOLIDGE, JR., OF BOSTON, IN THE CHAIR.

Monday, May 31—First Day.

President's Address.—Dr. A. COOLIDGE, JR., of Boston delivered this address. He spoke of the new Harvard buildings in one of which the congress had assembled, as a noble gift given in trust for the benefit of the profession as a whole. He spoke of the great number of new instruments devised for work in laryngology and rhinology and said that enthusiasm sometimes carried the profession beyond the proper limits. Allusion was made to the recent death of Dr. F. I. Knight of Boston, a founder of the association, and one of the earliest and most successful teachers in America in this department. Information was given with reference to the courses of instruction in laryngology in the Harvard school, there being eight instructors engaged in the work. Dr. Coolidge thought that in connection with the more formal exercises of medical meetings much good might follow informal discussion in small groups and the explanation of favorite theories. It was recommended that the de Roaldes prize to be established by the association should take the form of a medal. Attention was called also to the work of the committee on nomenclature.

Nerve Distribution in Relation to Nerve Disturbances Simulating Local Inflammation.—Dr. A. A. BLISS of Philadelphia spoke of the complicated distribution of the nerves throughout the region of interest to the rhinologist. Pain in this region was not always due to occlusion or retained secretions. It might come from many sources and be reflected to some special area within the nasal territory. The onset of an acute rhinitis would develop a vicious circle, for sensory filaments of the ophthalmic and superior maxillary nerves reacted on the sympathetic plexuses and we had vasomotor irregularities which in themselves increased the irritability of the sensory nerves. In the majority of such attacks there was no exudation in the sinuses, but the pain there was due to involvement in some way of branches of the fifth pair. A safe guide for surgical intervention was the temperature range, duration, and continuance of pressure symptoms, and the mental state of the patient. The removal of impacted cerumen often cleared up a persistent cough. Often patients with supposed mastoid disease were operated on and no disease was found. Under such conditions we should always consider carefully the distribution of painful areas, and we were thus often brought to a discovery of some local cause which was causing a neuralgia and nothing more. Similarly was explained the so-called nasal cough. In some patients any irritation of the nasopalatine nerve, especially opposite the posterior half of the middle turbinate body, would develop this reflex coughing. Cough medicines in these cases were useless. Elongated uvulæ might cause cough by flapping against the pharyngeal walls. The same principles applied to laryngeal areas. In supposed nasal sinus cases transillumination and the *x*-ray were useful in aiding us to arrive at an accurate diagnosis, but they were far from being infallible guides. With all our modern mechanical aids we must depend largely on personal and direct observation, aided by clinical experience. Aggressive operators might be led astray by their surgical zeal and the apparent though not real reason for its exercise. Thus much unnecessary suffering might be inflicted by undue surgical intervention, the evil results of which might not be revealed to anyone unless to the conscience of the operator.

Dr. O. T. FREER of Chicago, said that there was a peculiar reflected pain in antral suppuration. It might often cause supraorbital pain when the frontal sinus was intact. Antral inflammation did not always cause a rise of temperature. Very trivial intranasal catarrhs might cause obstinate coughs. In America we said "sinusitis"; the German said "sinuitis." Which is correct?

Dr. W. L. BALLENGER of Chicago said that in a personal communication from Dr. Duane of New York the latter had informed him that sinuitis was the more correct, though the word sinusitis had been in use so long as to obtain authority as being correct.

Hemophilia, with Remarks on the Hemorrhagic Diathesis.—Dr. THOMAS HUBBARD of Toledo related histories of two cases, one of distinctly hemophilic tendency and the other showing epistaxis due to scorbutus. The first case was operated on for enlarged tonsils and adenoids. Both cases recovered. The author described the various means used to check hemorrhage, including compression forceps, Monsel's solution, adrenalin, calcium lactate per rectum, etc. Bleeding was not from any particular vessel and stitching the pillars together would not have stopped the bleeding. The author then discussed the general nature of the hemophilic diathesis, which he divided into two classes: First, the pathological, or those cases in which there were unaccountable hemorrhages into the skin, mucous membranes, joints, organs, etc., with or without peculiar inflammatory conditions, such as scurvy, purpura hæmorrhagica, and allied affections; and, second, true hemophilia, which was not a pathologic process, but a permanent condition. A differential diagnosis between the two forms was necessary for intelligent treatment. The author then passed on to the treatment of hemorrhage in general, saying that the first indication was to maintain the volume of the circulating medium by normal saline solution. For children small enemata of, say, four ounces were the best method, and such enemata might be given every two hours. If this failed, intracellular injections might be given and in emergencies intravenous injections. Continuous irrigation of the rectum with the saline had been of value. Some authorities advised the injection of fresh human or horse serum. If fresh serum was not available, diphtheria antitoxin had been given, but it was less efficacious. Transfusion of blood was perfectly practicable.

Clinical Experience with Calcium Lactate in Hemorrhages of the Upper Air Tract.—Dr. WILLIAM K. SIMPSON of New York City read this paper. (See p. 505.)

Dr. G. HUDSON MAKUEN of Philadelphia said that he had no fear of hemorrhage in ordinary cases if his patient was under general anesthesia. It was then easy to pass a ligature or suture the pillars. He had used calcium chloride with marked success in nasal hemorrhage.

Dr. GEORGE B. WOOD of Philadelphia said that he had used thyroid extract in cases in which the clotting time of the blood was abnormally long. He now gave it for a short period before all his operations.

Various gentlemen testified to the value of the lactate in their personal experience.

Dr. J. O. ROE of Rochester said that long before the calcium lactate was used he had been in the habit of giving chloride of sodium on the theory of the

lowered specific gravity of the blood. He sutured the pillars in obstinate bleeding after tonsil operations. He had never failed to stop nasal bleeding by packing.

Dr. Emil Mayer of New York called attention to the effects of tags of tissue left after operation as being a cause of bleeding. Postoperative bleeding was not necessarily secondary hemorrhage.

Dr. A. A. Bliss of Philadelphia said that in hospital patients it was very difficult to secure the admission of a hemophilic history. The poorer classes seemed to consider it a disgrace and concealed it. He had lost a case by being thus deceived.

Dr. W. E. Casselberry of Chicago felt that rather too much reliance had been placed on the calcium salts, for he had never observed any effect from the chloride. He had had no experience with the lactate. Most, if not all, hemorrhage about the nose came from some small arterial twig. We should always be prepared with every device necessary to stop arterial hemorrhage.

Dr. H. L. Swain of New Haven said he believed that every hemophiliac had a different kind of blood-vessel from the ordinary person. Consequently mere drugs of any kind were without effect.

Dr. R. C. Myles of New York said that some patients became hemophiliacs to all intents and purposes after they had lost a large amount of blood, but not till then. It was a wise plan to place some thin rubber tissue against bleeding surfaces in the nose and pack against this.

Further Report of a Case of Cancer of the Tongue.—Dr. Robert C. Myles of New York City made a further report on a case already brought before the association in 1907. About two months ago the patient consulted Dr. Myles, complaining of pain and soreness in the operation scar. There was a crater-like ulcer in the center of the cicatrix about 8 mm. in diameter, but after the extraction of an irritating tooth the ulcer healed. In the interval since the first operation two and a half years ago the left side of the tongue had atrophied and shrunk until the base dropped back against the posterior pharyngeal wall, the side being about one-third of an inch farther forward and downward than the other side at the base, while the tip of the same side, which was not removed, shriveled, curled up, and became distorted. The resulting condition had caused the patient much discomfort in speaking and eating. This annoying condition had probably resulted from the removal of longitudinal muscular fibers and by cutting off the nerves and blood-vessels at the base of the tongue. Dr. Myles thought that it would have been better to remove the entire side of the tongue.

Prolonged Styloid Process.—Dr. Charles W. Richardson of Washington, D. C., gave the history of one case and referred to other published cases and reported one case of complete ossification of the stylohyoid ligament and discussed some of the anomalies of this region. His own patient was a woman of twenty-five years of age, who had had for some years irritation referable to the left tonsillar region, from which a long piece of bone had been removed some years previously. A recurrence of symptoms led her to seek further relief and it appeared that just within the anterior tonsillar fold and parallel to its course there was a narrow, slightly movable bony ridge. Under cocaine the anterior fold was opened up its full length and the bony process exposed. The latter was removed by successive bites with bone forceps. Recovery was without incident.

Several of the members related similar cases from their own experience.

Etiology and Treatment of Dentigenous Cysts.—Dr. D. Crosby Greene, Jr., of Boston said that it had been shown that it was possible to make an artificial epithelial cyst by transplanting a bit of skin epithelium with its supporting cutis into the deeper tissues, as into the abdominal cavity. The epithelium, growing in its new location, spreads over the space into which it had been placed, for which it made a lining with a small cavity within. Such an artificial cyst would continue to grow indefinitely. On the currently accepted theory of pathologists in regard to the growth of tumors, the formation of an artificial epithelial tumor within the jawbone could be accounted for rationally. The teeth were essentially epithelial structures, developed by invagination of the jaw epithelium into the body of the jaw. Other elements entered into the final tooth structure, but the origin of the tooth was this ingrowth of the jaw epithelium. Now, doubtless a bit of this ingrowing epithelium was pinched off as an island of isolated epithelial tissue, and such an island pinched off from a tooth root grew in an atypical way, with the resulting formation of a cyst. In order to cure thoroughly such growths every bit of the epithelial lining must be removed, otherwise they might recur. The cavity must be opened widely, curetted thoroughly, and drained completely. This opening might be made into the antrum instead of into the mouth, thus avoiding infection from the latter. The closure of the cavity was often extremely slow, in spite of every attention to surgical technique. The antrum method was especially applicable to large cysts. One case history was given illustrated by an *x*-ray plate.

Dr. W. E. Casselberry asked if there was any method of distinguishing between dentigenous cysts and hydrops antri. He had reported cases under the latter title, but had always felt some doubt as to the correctness of his diagnosis.

Dr. N. H. Pierce of Chicago said that there were two kinds of dental cysts, one due to the inflammation and the other due to errors in development. Cysts arising from inflammation of the peridental mucosa were often removed by the dentist, as the cyst was perched on the end of the root. This might come to occupy the entire antrum and cause what Dr. Casselberry had called hydrops. But this could not cause bulging of the antral wall. This came only from a true dentigenous cyst. The fluid in the latter contained cholesterin crystals.

Dr. J. H. Bryan of Washington believed in the existence of hydrops antri and also that it might arise from true dentigenous cysts. There was also such a thing as the hydrops of the frontal sinus.

Dr. D. Bryson Delavan of New York thought it would be interesting to know what relation, if any, these cysts bore to the expansion found in the ethmoid cells and middle turbinate body.

Dr. Greene said in closing the discussion that it would be possible to distinguish between cyst and hydrops by washing out the cyst by puncture made from the cyst to the mouth under pressure. In cyst you got no fluid from the nose through the bulging in the mouth. If necessary a puncture could be made into the antrum intranasally and then if the puncture did not result in fluid coming from the nose one could see the cavity was not the antrum. Transillumination on the side of a dentigenous cyst always gave a brilliant illumination.

Surgery of the Esophagus.—The afternoon session opened with a symposium on the surgery of the esophagus, the first paper being by Dr. S. J. Mixter of Boston (by invitation), who considered the subject from

the standpoint of the general surgeon. He did not believe that modern instrumentation did away entirely with the general surgeon in reference to esophageal lesions. He detailed his personal experience with esophageal strictures and spoke of the various means of relieving them. In the detection and removal of foreign bodies modern methods with the esophagoscope had scored many brilliant successes, but in the treatment of strictures the older surgical methods still had many advantages.

From the Standpoint of the Laryngologist.—Dr. Chevalier Jackson of Pittsburg continued the symposium, discussing the question from the laryngological point of view. He said that in all cases a body which had entered the air passages could be brought out by the same route and that surgical operations to effect this result were no longer necessary. Rest of the esophagus to reduce the ever-present inflammation was absolutely necessary and only fluids should be allowed. In case of new growths, etc., the patient should have an early gastrostomy and always before a resection of the esophagus the stomach must be emptied of food (it never could be of secretions) and the bowels emptied by enemata. Care must be taken before operation to exclude aneurysm. The blind passage of a sound in a gullet not examined by previous direct vision was a dangerous procedure. The history of stricture from accident did not exclude malignancy. In the author's experience stricture was amenable to treatment by *bonginage per tubam*, dilatation with esophagoscopically placed laminaria tents, esophagoscopic string-cutting dilatation and Abbe's retrograde string-cutting method. These methods were illustrated by the author, who also exhibited various instruments. He also referred to the operations of cervical esophagotomy, lateral cervical esophagotomy, and subhyoid pharyngotomy, gave the indications for each, and gave his experience in five cases, two of inoperable malignancy and three of stricture, in which he had inserted a tube into the stenosed lumen, which enabled the patient to swallow liquids and raw and soft-boiled eggs. He also described the operation of autoplastic repair of the esophagus. He concluded by saying that in no case of dysphagia should esophageal procedure precede esophagoscopy, and it should be used to exclude neoplasms, spasms, compressive and inflammatory stenoses, as well as ulcerations and varicosities. Resection of the upper portion of the esophagus, if it interfered with glottic closure, was so sure to be followed by septic pneumonia that it was wiser to close off the larynx or to extirpate it, bring the trachea forward and stitch it to the skin. In all these operations the strictest watch over the entire operating-room organization is necessary. Nurses and interues were apt to be led into carelessness by the fact that the field of operation could not be sterilized. They forgot that while the patient was more or less immune to the organisms he himself harbored he was not immune to organisms even of identical kinds introduced from other sources.

Esophageal Cases.—Dr. Harris P. Mosher of Boston continued the discussion giving the histories of two cases of stricture of the esophagus with dilatation and one of diverticulum, all resulting successfully. He said that the lumen of the gullet was very much larger than we were accustomed to think, both in the infant and adult. At one year of age it would pass a flat pearl button one inch in diameter. Between two and three years it would admit to its upper part the end of a Jackson spatula. The older text books stated that three-quarters of an inch was the safe limit for dilatation in stricture cases but this measurement was manifestly too small. A negative examination with a small tube under cocaine was useless and amounted to nothing. Ether was advisable. Strictures were best diagnosed and treated by means of the esophagoscope and instruments used through it. Opening of the stomach for nonmalignant strictures ought to become a rare procedure. To open the gullet from the side of the neck for the removal of smooth foreign bodies was already obsolete surgery. The ballooning of the esophagus for locating the lumen of tight strictures bids fair to be a great help to us. The direct method of carrying a capsule filled with thread through the stricture into the stomach was much better than feeding the thread to the patient. Not all strictures could be dilated. Some would have to be cut. The instruments for this were similar in principle to those used in cutting urethral strictures. For perhaps two inches in the upper part of the gullet it was safe to cut backward and risk perforating the posterior wall.

Dr. Emil Mayer of New York opened the discussion and referred to a child with congenital stricture of the esophagus whom he had seen, and whose history had been reported twenty years ago. The passage of a large bougie, under anesthesia, enabled her to swallow. Since that time she had grown up in a perfectly normal way. In a recent case of a man a bougie was arrested nine inches from the teeth and could not be passed further. A diverticulum was thought of, and a piece of rubber tubing was passed and then an *x*-ray picture taken showing a pouch. Dr. Mayer thought it was risky to fill such pouches with bismuth, as it might be difficult to get it out.

Dr. J. O. Roe of Rochester referred to two cases of internal esophagotomy he had reported, the first in this country. In one patient, a boy of eight years, with stricture, he had first passed a small bougie and then the esophageal knife. Five years later the boy was perfectly well. The second patient was a woman of thirty years of age, with stricture following the lodgment of a chicken bone in the throat. Dr. Roe said that he had now under observation a woman of sixty-five years of age with a pouch of the gullet, and that by passing a hollow bougie occasionally he was able to keep his patient in good condition. He did not think it quite safe to do any cutting operation in this case.

Dr. G. L. Richards of Fall River referred to the case of a colleague who had inserted the familiar "coin catcher," found it impossible to remove it and had to do a tracheotomy. He supposed the instrument had been caught by the cartilage, which was not pressed downward and forward, as Dr. Mosher had suggested.

Dr. D. Bryson Delavan of New York thought that the advance of surgery in this country was to-day being seriously threatened by the too general operating in cases requiring special skill by men not specially qualified for it. Such work as that described to-day should be given to those men who make a special study of it, rather than to general surgeons indiscriminately.

Dr. Jackson said that he regarded the old-fashioned "coin catcher" as a dangerous instrument, as it might get caught, tear out the inside of the larynx, and bring the patient into great danger.

Some Observations upon the Complete Extirpation of the Diseased Faucial Tonsil.—Dr. J. S. Gibb of Philadelphia spoke particularly with reference to the method followed with the boys who entered Girard College in his city. General anesthesia was used except with older boys with nonadherent tonsils. The tonsil was pulled from its bed and its attachments to the pillars broken by the Allis blunt dissector. In case the attachment was very firm, scissors or tonsil knives were used. The finger was introduced and an endeavor made to break up the deeper adhesions and leave the tonsil hanging to be removed with

the wire snare. Fragments of tissue remaining could be removed with the punch forceps. If it was necessary to remove a tonsil at all it should be done completely. The wire snare was far more efficient than the tonsillotome in bringing about the desired condition, viz., removal of all diseased crypts. In this method of finger enucleation too strenuous use of the finger should be avoided in breaking up the adhesions. It was far better to snip with a curved scissors. At times the reaction was greater than with the tonsillotome, in spite of all care. Of one hundred cases thus treated the average time in the infirmary was four days. In ninety there was a fever between 99° and 101.5°. In nine cases in which the friable nature of the tonsillar tissue was very pronounced, and in which there was much dissection and the use of punch forceps called for, the fever rose to 102° and over. In two there was regurgitation of fluids through the nose. The fauces were indurated and there was sloughing over the area of the tonsillar wound. It was rare to have any severe bleeding in this method.

Dr. E. L. Shurly of Detroit commended the views of Dr. Gibb, but said that, while we were all familiar with the immediate results of tonsillotomy, we did not know so much about the remote results. We must remember that the tonsil had an internal secretion, and we did not know the possible results on the pharynx, stomach, and contiguous or neighboring organs following the removal of all the tonsillar tissue. He said that disagreeable atrophy might ensue. We should indeed remove all diseased crypts, but have we not done enough by so doing? Should we not leave enough tissue to perform the functions of the tonsils?

Dr. W. E. Casselberry of Chicago did not agree with Dr. Shurly. We should always remove the tonsillar tissue completely. He used sharp cutting instruments in the operation. We should be sure to remove the tissue included within the velum, which he had named the "velar" lobe. He described his method of operating. He used a tonsillotome, which was a modified Mathieu instrument with the fork cut off and had a snarelike action.

Dr. O. T. Freer of Chicago used sharp instruments in freeing the tonsil from its adhesions. He separated the velar lobe last, making traction on the tonsil by means of a sickle-shaped knife. In this way the organ was turned wrong side out and cut away with a curved knife.

The method of finger dissection was commended by several members.

Dr. J. F. Barnhill of Indianapolis said that whatever function the tonsil might have, there was plenty of other tissue in the throat which would take care of that function, especially since the tonsil was diseased. The tonsil pits often filled up after removal with granulation tissue, but sometimes adhesions formed between the anterior and posterior pillars, and these might pile up on the tongue and bind it down. After-pain was less with sharp-cutting instruments. He made firm pressure with a pad soaked in hydrogen peroxide immediately after removal, and then when the pad was thoroughly dry he covered the area with Monsel's solution, but he did not believe in using this solution until the area was fully dry.

Dr. C. G. Coakley of New York said that there had been in his cases anywhere from two to four weeks after operation a small mass of granulation tissue, which he removed by either the punch or nitrate of silver. There was often left an irregularity of the lower edge of the velum on the two sides, and he wondered what effect, if any, followed in professional voice users.

Dr. G. Hudson Makuen of Philadelphia thought that one great element of value in Dr. Gibb's paper was that he had been able to watch his cases so closely and report on their condition some time after operation. He would as soon think of leaving a decayed tooth root in the mouth as to leave a portion of a tonsil.

Dr. R. C. Myles called attention to the basi-lateral tonsils he had described some fifteen years before. He had seen them extending at least three-quarters of an inch into the palate, and when the entire capsule had been removed there had been a cellulitis extending into the zygomatic fossa. Sections of the superior constrictor muscles were too often removed along with the tonsils.

Dr. J. Price-Brown of Toronto had been told by a music teacher of his city that several pupils had had their singing voices practically destroyed by the removal of the tonsils.

Dr. W. K. Simpson of New York thought that we were too apt to base our opinion on the immediate sequel following removal of the tonsils, and that we might get from the filling up of the tonsillar fossa with cicatricial and connective tissue an interference with the muscular action of the velum which would be just as harmful as the leaving behind of a small portion of the tonsil.

Dr. J. O. Roe said that patients sometimes complained more of septic trouble around the neck and of glandular swellings after the tonsil operation than before it. When a tonsil was diseased it was diseased all the way through, for the crypts went all the way to the bottom of the tonsil, and if one left a portion behind one had increased absorption of the septic material in the region.

Dr. Emil Mayer of New York deprecated the use of the finger. Modern surgery called for the use of rubber gloves. He used a blunt dissector with an edge filed so that it could be used as a knife. He thought that too much emphasis had been laid on the amount of blood in these regions.

(To be continued.)

AMERICAN ORTHOPEDIC ASSOCIATION.

Twenty-third Annual Meeting, Held at Hartford, Conn., June 14, 15, and 16, 1909.

The Place of Arthrotomy in Tuberculous Joint Disease.—Dr. V. P. Gibney said that no material advance had been made in the treatment of these joints during the past three or four decades. He thought that orthopedic surgeons should be able to do just as good work as abdominal surgeons, and that exploratory operations in the joint were no more harmful than similar operations in the abdomen. Statistics showed that no one had been able to demonstrate that tuberculous meningitis was a sequel of operative treatment, and modern aseptic surgery should make an arthrotomy perfectly safe. He also stated that there was no better way of disposing of the tuberculous lesion in the joint capsule.

Dr. Griffith wished to know whether any improvement in either the treatment or the length of time required for the cure of these cases had been made in the past three or four decades.

Dr. Gibney did not think that much headway had been made, and said that if any progress was to be made investigations would have to be started on entirely new lines. The joints should be cleaned out. He thought that orthopedic surgeons were too cautious in attempting this, for fear of stiffening the joint up more.

A Case of Myositis Ossificans Associated with Multiple Exostoses.—Dr. Gibney also showed a patient, a girl of eleven years. When six years of age she fell and injured her knee and hip. This seemed to start up a series of exostoses in various parts of the body, occurring at different times. Finally the jaw became locked, so that she could not open her mouth more than a quarter of an inch. In attempting to operate for this he broke off a couple of teeth, but could do nothing else. She could eat better after this, as food could be introduced through the opening. Though

there was slight improvement subsequently, the patient seemed to be getting steadily worse, no form of treatment having had much effect.

Dr. RIDLON said that within the last year he had seen a case in which the ossified condition was very distinct, but which afterward disappeared. He utterly failed to explain the cause of the disappearance.

Dr. W. E. BLODGETT spoke of a similar case, in which ossification had occurred in the biceps muscle after injury, disappearing entirely later.

Dr. GRIFFITH suggested changing the diet and watching the excretions, particularly the urine, as he thought that if the metabolism could be changed there would be a marked improvement in many cases.

Dr. G. G. DAVIS asked whether it were possible that thymus extract could be of benefit in cases of myositis ossificans.

Dr. E. W. RYERSON spoke of the case of Dr. Ridlon and said that the ossification seemed to be in large plaques spread over the shoulders and biceps.

Dr. GOLDTHWAIT said that he had referred to a case of progressive myositis ossificans which Dr. Painter and he had studied together. This case was studied metabolically, without any striking findings. In spite of the dietetic and other treatment, it progressed unfavorably.

Dr. MICHAEL HOKE spoke of a case of multiple exostoses, in which a spur had broken through the skin, ulcerating at the tarsus. He did not think that much good came from removal of the exostoses.

Further Observations Upon the Bismuth Paste Treatment of Tuberculous Sinuses.—Drs. JOHN RIDLON and W. BLANCHARD in this paper said that at the last meeting of the American Orthopedic Association they had reported upon six months' experience in the bismuth paste treatment of tuberculous sinuses. After a year of additional experience they felt better able to present the value, limitations, and dangers of the treatment. Their conclusions were as follows: It invariably failed in cases of marked amyloid degeneration. It failed much more frequently in new sinuses than in those that had existed several months or years. It should never be used when the *x*-ray showed a sequestrum. Its continued use was dangerous when large pus sacs became filled with residuary bismuth. It cured a majority of the cases of old tuberculous sinus. They opened, drained, and injected bismuth paste into tuberculous abscesses to their full capacity; the openings closed while the cavities remained sterile. They had not had a case of bismuth poisoning, but they recognized a danger in filling large abscess cavities.

Dr. GIBNEY referred to a case of sinus of twenty years' standing that he was sure had been cured by bismuth.

Dr. H. A. WILSON said that he had used the bismuth paste for awhile, but that he was afraid of bismuth poisoning, so had substituted for it a preparation made of the identical ingredients minus the bismuth.

Dr. ALBERT FREIBERG believed that a great part of the tuberculous sinuses that existed in joint disease were there because the tuberculosis was still active.

Dr. RYERSON considered that it was dangerous to cut into any uncontaminated tuberculous abscess that was not evidently going to burst. He thought it would be better to treat it conservatively.

Dr. A. G. GILLETTE did not think that there had been sufficient emphasis laid on the danger of the use of early injections. He mentioned a case in which he had opened a tumor and found it filled with bismuth, which had been accumulating from the repeated injections. He thought that the physician should wait a little and see whether the bismuth came out instead of following up the injections.

Dr. EMIL C. BECK explained that cases with no basis of bone in the cavity would clear up at once under influence of the paste. In them, on the third or fourth day, the secretion became serous, and the sinus opening was covered by a scale-like membrane resembling that found on the tonsil in diphtheria. He also said that the bismuth paste must reach every crevice in the sinus or the secretions would remain purulent and the result would be unsuccessful. If the members failed to get good results from this treatment, they must seek for the cause in their technique.

Dr. BLANCHARD said that they did not open old abscesses that were stationary and likely to remain so, but that if they could open and inject abscesses that were going to open spontaneously the majority of them would heal up without any trouble or any infection. The reason for some of the bad results was that cases with retained sequestra had been injected and the fistula closed up, the result being simply a corking up of a broken-down tissue.

Some Myogenous Types of Rigidity of the Spine.—Dr. GEORGE B. ELLIOTT, New York, divided these cases into two classes: (a) Chronic muscular spinal rigidity (rigiditas dorsalis myopathica), and (b) myositis ossificans. He reported a number of cases and presented casts.

Chronic Inflammation of the Lower Epiphysis of the Tibia.—Dr. CHARLES H. JAEGER of New York reported five cases in which limp was the only symptom for which the patients sought advice. Roentgenograms showed a flattening of the head, with a thickening and, in some cases, necrotic areas of the neck and femur. The clinical course of these cases was that of a chronic limp with increasing limitation of action.

Toxic Arthritis of the Hip in Children.—Dr. MICHAEL HOKE gave the details of several cases of hip-joint disease, both in the acute and chronic stage. He said that the physical signs could be stimulated by toxic inflammation of the joint.

Operative Remodeling of the Tarsus for the Immediate Correction of Severe and Relapsed Forms of Clubfoot.—Dr. BERNARD BARTOW of Buffalo explained the remodeling of the deformity of the astragalus, cuboid, and calcaneum, by which the deformed foot is replaced and maintained in an overcorrected position pending adaptive changes in those bones.

Dr. H. L. TAYLOR of New York said that Dr. Myers of New York, quite a number of years ago, had advocated excavation of the astragalus.

Suggestions as to the Improvement of the Plaster of Paris Technique.—Dr. ALBERT H. FREIBERG of Cincinnati said that up to the present time a considerable quantity of plaster has been lost in manipulating plaster-of-Paris bandages. He demonstrated a manner of overcoming this by the use of paper napkins; also an improved method of making removable plaster splints for treating the ankle, elbow, etc.

Dr. JAEGER said that he could testify to the value of Dr. Freiberg's device, which he had tried for a year or more. He, however, had used newspaper to wrap the plaster bandage in, dropping the whole thing into a pail of water, and had found that most of the bandage remained in the paper. He thought the paper napkins an improvement on the newspaper.

Dr. J. K. YOUNG of Philadelphia asked how Dr. Freiberg held the plaster in place while putting on the second circular bandage.

Dr. FREIBERG replied that he held the limb in the position in which he wished to fix it. The plaster was then applied by an assistant, after which he himself wrapped a bandage around the plaster. When the plaster had set the cast was taken off and reapplied, with a lining of cotton, if necessary.

A Preliminary Report of the Use of Animal Membrane in Producing Mobility in Ankylosed Joints.—Dr. W. S. Baer reported to the society eight cases of this procedure.

Dr. Osgood said that he had used some of this membrane, which Dr. Baer had sent to him. At the end of two weeks there was an increase of motion in the knee. There is now 80° of motion in this joint, which is painless. Dr. Osgood said that even if no better result were secured in this case the patient would be better off than before.

Dr. Jaeger had found that the pathological changes that had taken place in muscles that had been contracted for a number of years formed a serious obstacle to the treatment, the muscles having been sometimes board-like in consistency.

Dr. Baer agreed with Dr. Jaeger that the bound-down and atrophic condition of the muscles is a great hindrance to success, and said that massage should be started immediately after the insertion of the membrane, which was inserted in two pieces, one covering the front part of the tibia and going underneath the patellar ligament, and the other being laid between the patella and the top of the superior portion of the condyles.

Tendon Transplantation in Flatfoot.—Dr. E. W. Ryerson of Chicago advocated division of the peroneus longus and brevis in operations for correcting the malposition and said that there was a possibility of transplanting one or both these tendons to the inner border of the foot, thus relieving the distorting tendency, and supplying a partially corrective force.

Treatment of Talipes Valgus.—Dr. R. T. Taylor of Baltimore said that it was his aim to discard plates entirely in this condition, as their use was often abused. He also demonstrated single-brace straps for talipes equinovarus.

Dr. Cook said that anything that held up the inner posterior arch must divert the outer posterior, and when a foot was inverted the outer edge was depressed and the inner edge raised. He also remarked that Dr. Taylor had not done away with plates at all, but had merely built them in his shoes.

Etiology of Hallux Valgus.—Dr. J. K. Young of Philadelphia ascribed the deformity to the presence of a supernumerary bone between the internal cuneiform bone and the base of the first metatarsal. He gave the clinical histories of some cases and exhibited *x*-rays and specimens to verify his hypothesis.

Dr. Freiberg said that Dr. Young's hypothesis had been presented in such an incomplete manner that one would not be justified in drawing conclusions from it.

Dr. John Dane of Boston said that he had found a large number of supernumerary bones in this locality, but that in many of these cases this supernumerary bone had failed to produce hallux valgus.

Dr. Riely said that Dr. Young's *x*-ray had made him realize that he had a patient with the same condition. He had had an *x*-ray taken of his case and had found the supernumerary bone.

Dr. Young, replying to Dr. Freiberg's remarks, said that he hoped that every man in the society would begin to examine the specimens in their possession. As to Dr. Dane, he admitted that not more than one or two out of the several varieties of supernumerary bones produced this deformity; but he was inclined to think that it was his kind that produced this deformity.

A Method of Anchoring Transplanted Tendons.—Dr. S. L. McCurdy of Baltimore said that the operation consisted, where it was possible, in wrapping the tendon entirely around the bone, or passing it through the ligament, and that he preferred to secure it to some dense or firm tissue rather than simply to suture it to the periosteum, thus guaranteeing a firm anchorage after union.

Dr. Rugh said that he had not used iron wire, but had employed wooden screws for making adjustments, particularly of the tibia. He had never had any harm from silver wire, but said that he would try the iron, as it was stronger than silver and could be used in smaller size.

Dr. Wilson thought that if coin silver wire were used it would remove the objection to silver wire because of its much higher strength. Iron-wire nails always produced irritation by corroding, whereas coin silver would not corrode.

Study of Unusual Cases of Caries of the Spine in Adults, with Reference to Early Diagnosis.—Dr. E. G. Brackett said that he intended to include in his paper some of the special features of caries of the spine, and to study them, by classifying them into types and by the grouping of symptoms, with reference to a more accurate diagnosis of the part of the vertebra affected.

Dr. C. L. Starr of Toronto, Can., said that two points had been impressed upon him: First, that by continued hyperextension of these spines the fusion of the bones might be prevented; and second, that if one succeeded in getting fusion of the bones and protection of the spinal canal and its contents this must be done by a prolonged treatment with apparatus, keeping the spine in fixation long enough for the bony processes to take place.

An Operation for Infantile Cerebral Hemiplegia, with Reports of Two Cases.—Dr. John Joseph Nutt of New York had devised this operation to give prolonged rest to the lower neurons, and thereby rest the upper neurons, on the hypothesis that the destruction of cerebral tissue due directly to the original lesion was small in comparison with the total area involved. The rest and repair of certain cells directly produced by the operation should influence indirectly the rest and repair of others.

Dr. Baer said that in cases of anterior poliomyelitis in which he had tried nerve-severing his effort had been to see whether division of the sciatic nerve and the twisting of the nerve on itself would let the neurons spread out and go down the bad paths into the distal portion of the nerve, as well as the good, but that the neuron selected the path it had originally gone down.

Dr. D. R. Fisher of New York said that the condition could be relieved, but not cured. No inflammatory condition remained, but merely an overaction of the cells. By removing this sensory irritation one gave the cortex a chance to rest. For the time being the muscle was paralyzed, and this afforded an opportunity to apply treatment to the opposing muscle, which was weaker than the spastic muscle. He did not believe that a return of mental power could be expected, except in young patients.

Dr. Ryerson said that he had obtained good results by transplanting the hamstrings forward into the patella, the children learning to walk in a year and a half. He did not believe that anything could be done mentally for entirely idiotic patients, but thought that a good deal could be done in other cases.

Dr. Nutt said that the interval between the time of the operation and the return of power had been nine months in one of his cases. Sensation in the small sciatic was entirely paralyzed. A great many cases of diplegia had been reported in which more improvement had been noted than one would expect from sim-

ple tenotomy. The lesion had occurred when his patient was three years old and she was then thirteen, and the nurse had said that she had noticed some mental improvement since the operation.

A Preliminary Study of the Mechanics of the Upright Position, with Especial Reference to Backache (A Combined Orthopedic and Gynecological Study.)—Drs. R. W. Lovett and E. Reynolds of Boston described a method for automatically determining the center of gravity of the individual in the upright position. The relation of the center of gravity to the hip joint, sacro-iliac joints, feet, etc., determined, they contended, the amount and character of back-strain. They had studied and formulated the effect of corsets and high-heeled shoes upon the balance of the body, and upon the position of the center of gravity, and exhibited charts illustrating this.

Dr. Freiberg said that the only questions in his mind were what displacement of the center of gravity meant and whether the proper method had been adopted for correcting what was a pathological condition. He had heard nothing of what had put the center of gravity forward and thought that the logical thing to do would be to go at the cause and correct it. He had not yet recovered sufficiently from his astonishment to swallow with composure the high heels and the corsets that he saw pictured on the walls.

Dr. Sayre agreed with the view that many cases of backache are due to intrauterine and intrapelvic causes, and that many of the pelvic abnormalities come from abnormal positions held on account of deficient muscular force. He thought that the chief use of a corset was to keep the bands of a woman's skirts from cutting into her. He had had difficulty in getting corsets made sufficiently loose over the iliac crests not to be uncomfortable when they were tight enough over the buttocks.

The Relation of Posture to Human Efficiency and the Influence of Poise Upon the Support and Function of the Viscera.—Dr. Joel E. Goldthwait of Boston said that the human body is a delicately balanced organism and that no part can be used with undue strain without straining other parts and wasting energy. In normal balance the muscles and ligaments are used without undue strain, and the movements are made with the minimum expenditure of energy. Correct balance is important because of its effect upon the joints, bones, muscles, and ligaments, and because of the interference with visceral support that must take place when the poise is materially disturbed.

Dr. McKenzie approved of training the physical organism so that it could maintain the ideal attitude, rather than of rectifying postural defects by braces.

Dr. Riely had no doubt that it was the pressure of the muscles that caused the stagnation in the anterior and posterior vertebral columns, but thought that it was obstruction in cases of spine disease by the disease in the bodies of the vertebræ, as the veins that enter the bodies are very large.

Some Notes Concerning Congenital Deformities.—Dr. Augustus Thorndike of Boston gave a short historical sketch of theories of causation, which now seem to have narrowed down to three: heredity, mechanical influence, and maternal impressions. He said that further study was needed to reveal the true etiology and chronology of the inception of skeletal deformities, and that these studies could be made on human embryos, abortion sacs, and the embryos of certain of the lower animals.

Dr. Rugh was not yet convinced that maternal impressions played no part in the production of congenital deformities, and cited recent investigations demonstrating the presence of nerve fibers in the placenta and in the umbilical cord. This, he said, had gone a long way toward establishing the fact of a more intimate nerve relation between the mother and child than had previously been suspected. He felt that in certain cases this acted as a factor in producing congenital deformities.

Dr. McKenzie said that he had lately seen a boy whose right arm had apparently been amputated just above the elbow and who showed other congenital deformities.

Dr. Baer reported an almost identical case in which there was also complete amputation just below the elbow.

Dr. Thorndike said that he had been surprised to find so little about maternal impressions in the literature and that he was inclined to agree with Dr. Rugh regarding them. He hoped that Drs. McKenzie and Baer would report their cases, as he had found the cases of congenital amputation high up so rare.

A Case of Bilateral Congenital Dislocation of the Head of the Radius; and a Preliminary Report of a Case of Congenital Absence of the Acromion Process, Bilateral.—Dr. William G. Turner of Montreal read these two papers. The first case presented a marked increase in the length of the radius as compared with the tibia, nondevelopment of the coronoid fossa, and absence of the orbicular ligament. He exhibited photographs and radiographs of the second case, showing a condition not previously described.

Increased Growth of the Shaft of the Femur Following Fracture.—Dr. John Ridlon of Chicago described two rather unusual cases of this kind in his experience.

Dr. Galloway said that Codivilla had recommended a plan to apply traction directly to the skeleton by driving a spike through the os calcis, thus avoiding the sores that result when pressure is made by plaster dressings to maintain the correction made at the time of operation. He had used Codivillas' method in two cases and had found it of value.

In addition to these, the following papers were read but not discussed:

"A Simple Dressing for the Treatment of Tuberculous Disease of the Shoulder Joint," by Dr. Arthur J. Gillette of St. Paul; "Joint Tuberculosis, with Especial Reference to Its Pathology," by Dr. Leonard W. Ely of New York; "A Further Report of a New Operation for Osteoarthritis and Certain Other Deforming Affections of the Hip," by Dr. Fred H. Albee of New York; "The Ultimate Results in the Treatment of Congenital Dislocation of the Hip," by Dr. E. H. Bradford of Boston; "The Use of Braces in the Treatment of Congenital Luxation of the Hip," by Dr. G. G. Davis of Philadelphia; "Spina Bifida Occulta," by Dr. J. W. Sever of Boston; "Congenital Absence of Vertebræ Below the First Sacral and Malformation of the Lower Cervical and Upper Dorsal Vertebræ," by Dr. Ralph R. Fitch of Rochester. Besides these, a few selected candidates' theses were read, one or two of which were discussed. The other papers on the program were read by title.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. Augustus Thorndike of Boston; *First Vice-President*, Dr. Albert H. Freiberg of Cincinnati; *Second Vice-President*, Dr. Michael Hoke of Atlanta; *Secretary*, Dr. Robert B. Osgood of Boston; *Treasurer*, Dr. G. G. Davis of Philadelphia; *Member of Executive Committee*, Dr. John Ridlon.

The next place of meeting will be Washington, D. C., in connection with the Congress of American Physicians.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Illinois State Board of Health.

July 20-22, 1909.

ANATOMY.

1. What becomes of the umbilical vein of the fetus?
2. Where and from what do the colic arteries arise, and what are the distributions?
3. Describe the articulations of the tibia.
4. From where are the renal arteries derived and into what do the renal veins pass?
5. Where does the trigeminus or fifth pair of cranial nerves arise and what are the branches?
6. What bones compose the orbit of the eye?
7. Where and how do the cavities of the greater and lesser omenta connect?
8. In fracture of the neck of the radius, what muscle draws the upper fragment outward and what ligament limits the extent of the displacement?
9. What is the origin, insertion, nerve supply, and action of the semimembranosus muscle?
10. What are the principal venous trunks? What veins are without valves?

PHYSIOLOGY.

1. What effect would rapid heart with aortic regurgitation have on general blood pressure? Give reasons in detail.
2. Name the different pulse waves usually recorded by the sphygmograph.
3. Explain difference between clonic and tonic contraction as applied to muscle fiber.
4. Discuss the relation of the ovaries to menstruation.
5. What are proteids? How are they digested?
6. What are the functions of the saliva? What glands secrete it?
7. What kinds of food would you recommend in cases of obesity?

NEUROLOGY.

1. Name three frequent causes of abscess of the brain.
2. Define and give the symptoms of congenital hydrocephalus.
3. Give etiology, symptoms, and treatment of facial paralysis.

MATERIA MEDICA AND THERAPEUTICS.

1. Outline the general management of fevers, and explain the physiological action of drugs which lower temperature.
2. Name four of the safest antipyretics, giving the dose and therapeutic indications.
3. Give the indications for use of diuretics. Name one of each of the three principal classes, and give the physiologic action of one of them.
4. Give the indications for the use of cardiac stimulants, and name three, with dose and mode of administration of each.
5. Name three of the animal extracts used in medicine, giving doses and indications for use.
6. Give the indications for the use of alteratives. Name three and give doses.
7. What are the indications for the use of expectorants? Name three and give dose of each.
8. Give the physiological action of belladonna.
9. What are the uses of the following: Male fern, ergot, antipyrine, bismuth, sulphate of magnesia, carbonate of magnesia?
10. Give the physiological action of digitalis.

CHEMISTRY.

1. Write the equation representing the action which takes place by treating potassium chlorate with sulphuric acid.
2. Of what does turpentine consist?
3. What is the general formula of the monobasic acids?
4. Complete the following equations: $HgSO_4+2NaCl=$
5. Give the formulæ of the chlorate, bromate, iodate, and sulphate of sodium.

ETIOLOGY AND HYGIENE.

1. What is the etiology of interstitial hepatitis?
2. What is the etiology of acute parenchymatous nephritis? Is only one or are both kidneys affected?
3. What is the etiology of Addison's disease (melasma suprarenale)?
4. What are the main points to be observed in a general disinfection?
5. What is the advantage in adding a small amount of sulphate of aluminum to impure water?

PATHOLOGY.

1. Describe the lesions produced in the liver by syphilis.
2. Mention the conditions of the kidneys which may be brought about by tuberculosis.
3. Describe the modes of formation and appearances of typhoid and of tubercular ulcers of the intestines.
4. In what general respects do "anaemia" and "progressive pernicious anaemia" differ?
5. Describe the formation of an acute abscess.

BACTERIOLOGY.

1. Describe methods of culture and staining of the bacillus of diphtheria.
2. Name the microorganisms most commonly found in connection with acute endocarditis.
3. What bacteria are associated with inflammation and suppuration?
4. What special culture medium is required for the growth of the gonococcus?
5. Describe the specific organism of tetanus, and state its peculiar culture characteristics.

PRACTICE.

1. Give the symptoms and treatment of chronic diarrhea.
2. Give the etiology, symptoms, diagnosis, complications, and treatment of chorea.
3. Give symptoms, dangers, diagnosis, and treatment of bronchial asthma.
4. Give diagnosis, complications, dangers and treatment of chronic contracting nephritis.
5. Give diagnosis of acute endocarditis, differentiating from chronic, and outline fully the management and treatment.
6. Give the diagnosis and treatment of chronic gastritis.
7. Differentiate hemiplegia due to apoplexy from that due to thrombosis or embolism, and give the treatment and prognosis.
8. Give the etiology, symptoms, and treatment of myxedema, and distinguish from cretinism.
9. Give the diagnosis and treatment of pleurisy with effusion.
10. Give treatment of insomnia.

PHYSICAL DIAGNOSIS.

1. Give symptoms and physical signs of pericardial effusion.
2. Give symptoms and physical signs of hydrothorax.
3. Give symptoms and physical signs of pulmonary abscess.
4. Give symptoms and physical signs of aneurysm of the arch of the aorta.
5. Give symptoms and physical signs of cirrhosis of the liver (atrophic form).

OPHTHALMOLOGY AND OTOLOGY.

1. Give etiology, symptoms, and treatment of iritis.
2. Give etiology, symptoms, and treatment of corneal ulcer.
3. Outline your treatment in a case of chronic otitis media (suppurative).

PEDIATRICS.

1. Give etiology, symptoms, and treatment of enterocolitis.
2. Give your treatment in a case of marasmus.

SURGERY.

1. What are the dangers to the patient during and after thyroidectomy?
2. Differentiate appendicitis from distended gall bladder.
3. Define the following terms: Nephrolith, nephrolithotomy, nephrorrhagia, and nephrorraphy.
4. Differentiate hip-joint disease from congenital dislocation of the hip.
5. Outline surgical treatment of varicocele.
6. Describe the varieties of fracture of the scapula, and give the treatment of each.
7. Name the structures which are severed in an amputation at the lower third of the leg.
8. Classify tumors and state in what tissues of the body each is found.
9. Outline proper surgical treatment of aneurysm of the brachial artery.
10. Name the different varieties of wounds, and give treatment of each.

OBSTETRICS.

1. Describe segmentation. Where and at what period does it occur?
2. Describe the changes occurring in the mucous membrane of the uterus during uterogestation.
3. Enumerate and classify the signs of pregnancy.
4. What are the mental disturbances that may occur during pregnancy?
5. Describe hour-glass contraction, and give treatment of same.
6. Describe an embryo at two months.
7. Enumerate the congenital malformations of the head and face of a child, and state at what period of uterogestation the arrested development occurs.
8. In an ordinary accouchement, what precautions should be observed to prevent infection?
9. Under what conditions is obstetric anesthesia to be employed? What anesthetic do you prefer, and how should it be administered?
10. Discuss the indications for forceps delivery and the application and manipulation of forceps.

GYNECOLOGY.

1. Differentiate a fibroid tumor from a pelvic inflammatory deposit.
2. Give methods of treatment of carcinoma of the uterus when a radical operation is not indicated.
3. Give the etiology, symptoms, and treatment of stenosis of the cervix.
4. Give the causes and treatment of pelvic peritonitis.
5. Give the etiology, symptoms, and treatment of anteflexion of the uterus.
6. Give the causes, diagnosis, and treatment of inversion of the uterus.

LARYNGOLOGY AND RHINOLOGY.

1. Name the causes and give the appearances of edema of the larynx.
2. Give the symptoms and results of adenoid vegetations if untreated.

MEDICAL JURISPRUDENCE.

1. Describe rigor mortis, and mention some of the conditions which promote its early appearance.
2. Differentiate a burn inflicted before death from one made after death.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

ILLINOIS STATE BOARD OF HEALTH.

July 20-22, 1909.

ANATOMY.

1. The umbilical vein of the fetus dwindles and becomes the round ligament of the liver.

2.

	ARISE FROM	DISTRIBUTION
Ileo-colic.....	Superior Mesenteric.	Ileum, cecum, ileo-cecal valve, vermiform appendix.
Right colic....	Superior Mesenteric.	Ascending colon.
Middle colic..	Superior Mesenteric.	Transverse colon.
Left colic....	Inferior Mesenteric.	Descending colon.

3. *The Tibia articulates: Above,* with the femur and fibula; *below,* with the fibula and astragalus.

4. The renal arteries are derived from the abdominal aorta. The renal veins pass into the inferior vena cava.

5. TRIGEMINUS, OR FIFTH PAIR OF CRANIAL NERVES. *Origin:* (1) *Superficial,* from the side of the pons varolii; (2) *Deep* (sensory roots) from the medulla and upper part of cord; (motor root) from floor of fourth ventricle and side of the aqueduct of Sylvius.

Branches: (1) *Ophthalmic,* giving off the: Lacrymal, Frontal, and Nasal. (2) *Superior Maxillary,* giving off the: Meningeal, Orbital, Spheno-palatine, Posterior superior dental, Middle superior dental, Anterior superior dental, Infraorbital, Palpebral, Nasal, and Labial. (3) *Inferior Maxillary,* giving off the Recurrent, Internal pterygoid, Masseteric, Deep temporal, Buccal, External pterygoid, Auriculotemporal, Inferior dental, and Lingual.

6. The bones which enter into the formation of the orbit are: The frontal, sphenoid, ethmoid, superior maxillary, malar, lacrymal, and palate.

7. The greater and lesser peritoneal cavities connect by means of the foramen of Winslow.

8. In fracture of the neck of the radius the upper fragment is drawn outward by the Supinator brevis; the orbicular ligament limits the extent of the displacement.

9. SEMIMEMBRANOSUS. *Origin:* Tuberosity of ischium. *Insertion:* Inner tuberosity of the tibia, posterior ligament of the knee, and popliteal fascia. *Nerve supply:* Great sciatic. *Action:* To flex the leg upon the thigh; then inward rotation; also extension of the thigh.

10. *The veins without valves* are: The venæ cavæ, hepatic veins, portal vein and its branches, renal, uterine, ovarian, pulmonary, cerebral, spinal, and umbilical veins. The sinuses of the skull and very small veins are also without valves.

PHYSIOLOGY.

1. Rapid heart would tend to raise the general blood pressure; in aortic regurgitation the blood pressure would tend to be lowered. Hence in the combined condition suggested in the question the effect on the blood pressure would depend upon the *relative effect* of the two conditions. The one might neutralize the other and the blood pressure be unaltered; or, either might predominate, with corresponding effect on the blood pressure.

2. *The pulse waves usually recorded by the sphygmograph* are: Cataerotic, predicrotic or tidal, dicrotic or recoil, and postdicrotic.

3. In *tonic* muscular contraction the muscle remains for some time in a state of rigid contraction. In *clonic* contraction the muscle alternately contracts and relaxes.

4. *Relation of the ovaries to menstruation:* "It appears to be clearly demonstrated that the phenomenon of menstruation is dependent upon a periodical activity in the ovaries. When the ovaries are completely removed menstruation ceases (artificial menopause), and the uterus undergoes atrophy. When the ovaries are congenitally lacking, or rudimentary, a condition of amenorrhea also exists. These facts and the connection of the ovaries with menstruation are further corroborated in a striking way by experiments upon transplantation or grafting of the ovary. This experiment has been performed upon lower animals (apes) as well as upon human beings. Removal of both ovaries is followed by a cessation of menstruation. Transplantation of an ovary under the skin serves to maintain menstruation, but if subsequently removed this function disappears. An ovary or a piece of an ovary transplanted into the uterus itself or the broad ligament caused a return of the menstrual periods, which had ceased after surgical removal of the glands, or brought on free menstruation in conditions of amenorrhea or dysmenorrhea."—(Howell's *Physiology.*)

5. *Proteid foods* are foods containing proteids. They contain nitrogen, and have a composition similar to that of albumin; other elements contained in them are carbon, hydrogen, oxygen, and sometimes sulphur. Proteids are digested (1) in the stomach, where the pepsin of the gastric juice splits them into proteoses and peptones; and (2) in the small intestine, where they are similarly treated by the trypsin of the pancreatic juice.

6. *The functions of the saliva* are: (1) To moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste; (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar. Saliva is secreted by the parotid, submaxillary, and sublingual glands.

7. *Foods recommended in case of obesity:* Dry foods, with diminished carbohydrates. Ebstein's diet for obesity is as follows: "Breakfast consists of a cup of black tea, without sugar or milk, and two ounces of buttered toast. Dinner, which is given at noon, comprises a meat soup or broth; four to six ounces of boiled or roasted fat beef, with meat gravy, not thickened; one or two fresh vegetables in moderation, and for dessert, salads and fresh or dried fruits. He allows a little light wine and black tea, without milk or sugar. Supper includes tea as before, a soft-cooked egg, and a moderate allowance of fish, ham, or cold fat meat, an ounce of thin, buttered bread or toast, and fresh fruit."

NEUROLOGY.

1. *Three frequent causes of abscess of the brain:* Microbic infection following (1) chronic inflammation of the middle or internal ear; (2) caries of ethmoid, nasal, or orbital bones; (3) compound fracture of the skull, with direct infection from the wound.

2. *Congenital hydrocephalus* is an abnormal accumulation of fluid in the ventricles of the brain. *Symptoms:* The head is of great size and may obstruct delivery; convulsions, drowsiness, separation of the cranial sutures, bulging of the fontanels, thinning of the bones of the head, and fluctuation may all be present. The forehead is prominent;

the child looks wasted, the head is spherical, and the eyes seem prominent.

MATERIA MEDICA AND THERAPEUTICS.

1. The *general management of fevers:* Attack the cause when possible (*e.g.* quinine in malaria); diminish heat production; increase heat loss (diaphoretics); diminish the amount of nitrogenous food; keep the bowels moderately open; keep up the heart's strength with stimulants, when necessary, and treat complications as they arise. A large, well ventilated room, with absence of unnecessary furniture, and absolute cleanliness are also necessary.

The following table (from Potter's *Materia Medica*) gives the chief temperature depressants, with their manner of action: Temperature depression may be done by five different actions working upon two principal lines, viz., by:

(*a*) *Lessening heat production by*
- (1) diminishing tissue change.
- (2) reducing the circulation.

(*b*) *Promoting heat loss by*
- (3) dilating cutaneous vessels, thus increasing heat radiation.
- (4) promoting perspiration, its evaporation lowering the temperature.
- (5) abstracting heat from the body.

The following list of antipyretics includes a few for each of the above-named actions, to which the numbers refer in each case, viz.:

Quinine, 1.	Aconite, 2.	Antipyrin, 1, 4.
Phenol, 1.	Alcohol, 1, 3.	Antimony, 2, 4.
Salicin, 1.	Nitrous ether, 3, 4.	Cold bath, 5.
Digitalis, 2.	Acetanilid, 1, 4.	Cold drinks, 5.
	Phenacetin, 1, 4.	Wet-pack, 5.

3. *Indications for the use of diuretics:* (1) To remove excess of fluid from the tissues, as in dropsy; (2) to dilute the urine; (3) to promote the elimination of waste products or poisonous material from the blood, and (4) to maintain the action of the kidneys.

(1) *Hydragogue diuretic:* Digitalis. (2) *Stimulant diuretic: Juniper.* (3) *Refrigerant diuretic:* Potassium acetate.

6. *Indications for the use of alteratives:* Conditions of faulty nutrition; perversions of metabolism; chronic disease or poisoning; cachexias and dyscrasias.

Three alternatives: Mercury, dose of calomel, gr. j; arsenic, dose of Fowler's solution, ♏iij; iodine, dose of Potassium iodide, gr. vijss.

8. *Physiological action of belladonna:* Anodyne, mydriatic, inhibits secretions, depressant of terminations of nerves, accelerates the heart beat, causes rise in blood pressure, but toxic doses cause the blood pressure to fall; stimulates the respiratory center, but large doses depress the same; it may cause vertigo, restlessness, excitement, delirium, or mania.

CHEMISTRY.

1. $KClO_3 + H_2SO_4 = KHSO_4 + HClO_3$.

2. Turpentine consists of a stearoptene (such as rosin or colophony) and an eleoptene (such as oil of turpentine).

3. There is no general formula for the monobasic acids. In organic chemistry the monobasic acids all have one COOH (carboxyl) group; the acetic series has the general formula, $CnH_{2n}O_2$.

4. $HgSO_4 + 2NaCl = HgCl_2 + Na_2SO_4$.

5. The formula of Sodium chlorate is $NaClO_3$; of Sodium bromate, is $NaBrO_3$; of Sodium iodate, is $NaIO_3$; of Sodium sulphate, is Na_2SO_4.

ETIOLOGY AND HYGIENE.

1. The *etiology of interstitial hepatitis:* Alcohol, syphilis, obstruction of bile ducts, long continued malaria, stimulating and highly spiced food; infectious fevers, heart disease. It is most common in males of middle age.

2. The *etiology of acute parenchymatous nephritis:* Exposure to cold and wet, acute specific fevers (especially scarlet fever and endocarditis), irritating drugs (turpentine, cantharides, potassium chlorate), extensive burns, and pregnancy. Both kidneys are affected.

3. The *etiology of Addison's disease:* Tubercular lesions in the suprarenal bodies, strains and injuries to the back, blows upon the abdomen, hemorrhage into the suprarenal bodies. More common in men.

5. The addition of the sulphate of aluminum tends to purify the water, if calcium carbonate is also present. Calcium sulphate is thus formed, and this, with aluminium hydrate, entangles floating particles and carries them to the bottom of the vessel.

PATHOLOGY.

1. *Lesions produced in the liver by syphilis:* "In the early stage there are pale grayish nodules, varying in size from a pea to a marble. The larger present yellowish centers at first, but later there is a pale yellowish, cheese-like nodule of irregular outline, surrounded by a fibrous zone, the outer edge of which loses itself in the lobular tissue, the lobules dwindling gradually in its grasp. This fibrous zone is never very broad; the cheesy center varies in consistence from a gristle-like toughness to a pulpy softness; it is sometimes mortar-like from cretaceous change. When numerous, the most extensive deformity of the liver is produced in the gradual healing of these gummata. On the surface there are deep, scar-like depressions, and the entire organ may be divided into a cluster of irregular masses, held together by fibrous tissue."—(Osler's *Practice of Medicine.*)

2. *The condition of the kidneys which may be brought about by tuberculosis:* Tubercles first form in the medullary portion of the kidneys; these coalesce, then caseate and soften. Cavities are thus formed, separated from each other by fibrous tissue. Ultimately the whole substance of the kidney may be destroyed; the pus is discharged in the urine, causing tuberculous pyelitis, and later, perhaps, pyonephrosis.

3. In the *typhoid ulcer* (1) the main axis of the ulcer lies parallel with that of the intestine; (2) it lies opposite to the mesenteric attachment; (3) it has smooth floor and undermined edges; (4) it commonly leads to perforation.

In *tubercular ulcer* (1) the long axis of the ulcer lies at right angles to that of the intestine; (2) it is not necessarily situated opposite the mesenteric attachment; (3) its floor is not smooth nor are its edges undermined, but rather funnel-shaped and irregular; (4) it is not apt to perforate, but it does not tend to heal, rather to spread.

4. *Anemia* is a general term, including a variety of conditions, and indicating that the blood is reduced either in quantity, in coloring matter, or in number of red cells. These conditions are often more or less associated.

Progressive pernicious anemia is a definite disease, of unknown origin, in which the number of the red cells is greatly diminished, the red cells are also changed in size and shape, nucleated red cells are present, and the disease tends to a fatal termination.

BACTERIOLOGY.

1. *Methods of culture:* The bacillus of diphtheria grows upon all the ordinary culture media, and can be readily obtained in pure culture. Loeffler's blood serum, particularly with the addition of a little glucose, is an admirable medium for the rapid growth of this bacillus. The medium should be alkaline and not less than 20° C.

Method of staining: It stains with any aqueous solution of an anilin dye, and quite characteristically with Loeffler's alkaline methylene blue. Neisser's stain is also recognized. The bacilli also stain well by Gram's method.

2. The *microorganisms most commonly found in connection with endocarditis* are: *Streptococcus pyogenes, Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus,* pneumococcus, gonococcus, *Bacillus tuberculosis,* Eberth's bacillus, *Bacillus anthracis, Bacillus coli communis,* and *Micrococcus lanceolatus.*

3. The *bacteria associated with inflammation and suppuration* are: *Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus, Staphylococcus pyogenes citreus, Streptococcus pyogenes,* pneumococcus, gonococcus, *Bacillus coli communis, Bacillus pyocyaneus,* typhoid bacillus, *Micrococcus tetragenus.*

4. The special culture medium required for the growth of the gonococcus is blood serum or ascitic or pleuritic fluid.

5. The bacillus of tetanus is characterized by its peculiar spore, formed at one end of the bacillus, and giving it the appearance of a pin; it is purely anaërobic, and cannot be developed at all in the presence of oxygen. It generally comes from the soil, and is found in penetrating wounds. It appears in two forms, the spore-bearing form, as described above, and the vegetative form, which is a short bacillus with rounded ends, and which may occur singly or in pairs, or may form long filaments. It grows in gelatin stab cultures in the middle of the medium, and the colonies look something like a fir tree; its growth is slow, and a disagreeable odor is at the same time emitted. In bouillon, it grows near the bottom of the tube, and produces gases.

PRACTICE.

7. *"Cerebral Hemorrhage* occurs after the age of fifty-five, as a rule, with atheromatous arteries and an hypertrophied heart. The onset is sudden, with coma, during

exertion or excitement. The temperature falls in an hour, and then rises, sometimes to 106°. Gradual recovery of consciousness takes place in from three to five days, with permanent hemiplegia.

"*Cerebral embolism* comes at any age, with heart disease or after childbirth. There is a sudden onset, without loss of consciousness or with slight mental confusion, or with rapid return to consciousness. The temperature does not fall, but may rise as high as 102°. Improvement occurs within twenty-four hours to a marked degree, but after three or four days the symptoms return. Monoplegia, hemiplegia, or aphasia may remain. Jacksonian epilepsy may develop if the lesion is cortical, involving a special center.

"*Cerebral thrombosis* occurs at any age, but chiefly in syphilitic persons and middle-aged men. There are usually premonitions. The onset is slower, without coma, but with dullness of the mind. The temperature does not fall, but may rise to 100°. The paralysis is similar to that observed in embolism.

"The diagnosis between these three conditions is hardly ever positive."—(Caillé's *Differential Diagnosis.*)

PHYSICAL DIAGNOSIS.

1. *Pericardial effusion:* Area of cardiac dullness is increased, the heart sounds are muffled, other organs may be displaced, dyspnea is present, the apex beat may be displaced to the left, the pulse is feeble, precordial pain and palpitation are present, the precordium bulges.

2. *Hydrothorax:* Bilateral effusion, distended chest, vocal fremitus is absent, there is dullness on percussion, breath sounds and vocal resonance are absent or distant, neighboring organs may be displaced, dyspnea and cyanosis are present, Skodaic resonance is obtained above the effusion.

3. *Pulmonary abscess:* Fever, sweats, chill, leucocytosis, dyspnea, cough, purulent sputum with lung tissue, cavernous breathing, pectoriloquy.

4. *Aneurysm of arch of aorta:* Palpitation, difference in radial pulses (sometimes), dysphagia, dyspnea, cough, change in voice, pressure on nerves may cause irritation or paralysis, edema, intense pain, murmur, there may be a swelling of expansile character and with a thrill, and tracheal tugging.

5. *Atrophic cirrhosis of the liver:* Ascites, hemorrhoids, hematemesis, anorexia, nausea, gastric congestion, vomiting, constipation, muddy skin, first enlargement, later contraction of liver, jaundice is a late symptom, emaciation, pallor, enlarged spleen, distended veins on abdomen, caput medusæ.

PEDIATRICS.

2. *Treatment of marasmus:* The diet must be carefully investigated and regulated. If the child is breast-fed, the milk must be examined as to its composition, and the health and mode of life of the mother inquired into. In bottle-fed babies absolute cleanliness of bottles, nipples, and milk pans must be insisted on. If diarrhea is marked, it may be necessary to stop the use of milk for a time. Whey and barley water or peptonized milk may be used instead. After the diet has been regulated a dose of castor oil or calomel and magnesia may be given to clear away irritating substances. Or Gray powder and Dover's powder may be given. The child should be warmly clad, and should be taken in the open air as much as possible. Colon irrigations may be beneficial.

SURGERY.

1. *The dangers of thyroidectomy* are: Sudden death during the operation, suffocation, dyspnea, cardiac inhibition; tetany or acute myxedema may follow.

2. In *appendicitis:* The pain is at first diffuse, but later becomes localized over the appendix in the right iliac fossa; nausea, vomiting, and constipation may be present; tenderness over the appendix and rigidity of the right rectus abdominis muscle are present; there is generally moderate fever.

In *distended gall-bladder:* The pain is more severe and sudden, and is in the region of the liver; it radiates to the right scapula and toward the umbilicus; chills and sweats are common; also vomiting, and sometimes symptoms of collapse and jaundice; all the symptoms come on more suddenly.

3. *Nephrolith* is calculus of the kidney.

Nephrolithotomy is an operation for the removal of calculus from the kidney.

Nephrorrhagia is hemorrhage from or into the kidney.

Nephrorrhaphy is the suturing of a floating kidney (to the posterior abdominal wall).

7. *The structures severed in an amputation at the lower third of the leg* are: Skin; fascia; muscles, Peroneus longus, Peroneus brevis, tendo Achillis, tendon of Plantaris, Tibialis anticus, Tibialis posticus, Extensor longus hallucis, Extensor communis digitorum, Flexor longus hallucis, Flexor longus digitorum; Arteries, anterior tibial, posterior tibial, peroneal; Veins, anterior tibial, posterior tibial, peroneal, external saphenous, internal saphenous; Nerves, anterior tibial, posterior tibial, musculocutaneous, internal saphenous; Bones, tibia and fistula; and interosseous membrane.

OBSTETRICS.

3. *Positive signs of pregnancy:* (1) Hearing the fetal heart sound; (2) active movement of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle.

Doubtful signs of pregnancy: (1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness.

Subjective signs of pregnancy, in the order of their appearance, are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements.

Objective signs of pregnancy, in the order of their appearance, are: Softening of the cervix, changes in the mammary glands, discoloration of the vulva and vagina, pulsation in the vaginal vault, Hegar's sign, active fetal movements, ballottement, palpation of the fetus, intermittent uterine contractions, hearing the fetal heartbeat, rate of growth of the uterine tumor.

4. *The mental disturbances that may occur during pregnancy* are: Changes in temper and disposition, the moral sense may be elevated or lowered, delusions may be present.

10. *Indications for the use of forceps* are: "1. *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. 2. *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. 3. *Passenger at fault: A.* Dystocia due to (*a*) occipito-posterior, (*b*) mento-anterior face, (*c*) breech arrested in cavity. *B.* Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). 4. *Accidental complications:* Hemorrhage; prolapsus funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both."—(From Jewett's *Practice of Obstetrics.*)

Conditions necessary for the use of forceps are: (1) The rectum and bladder must be empty; (2) the os uteri must be fully dilated; (3) the membranes must be ruptured; (4) the pelvis must be of sufficient size.

LARYNGOLOGY AND RHINOLOGY.

1. EDEMA OF THE LARYNX. *Causes:* Wounds of neck or larynx, burns or scalds of larynx, quinsy, aneurysm, whooping cough, erysipelas, syphilis, tuberculosis, malignant disease, inflammations, diphtheria, Bright's disease, pneumonia.

Appearances: The epiglottis is swollen, and the affected mucous membrane is pale and semi-translucent.

2. *Symptoms of adenoids:* Mouth-breathing; snoring; open mouth; a vacant, dull expression of the face; modification of the voice (nasal twang), with inability to pronounce certain letters.

Effects: Earache and other ear affections; mental deficiency; frequent attacks of coryza; nose-bleed; stunted growth; convulsions, laryngismus stridulus, and various other neuroses may also be noticed.

MEDICAL JURISPRUDENCE.

1. *Rigor mortis* is the condition of rigidity or contraction into which the muscles of the body pass after death. It begins at a period varying from about fifteen minutes to about six hours. It usually begins in the muscles of the eye, neck, and jaw; then the muscles of the chest and upper extremity, and last of all those of the abdomen and lower extremity are affected. It passes off in the same order. It is said to be due to the coagulation of the muscle plasma.

Conditions which promote the early appearance of rigor mortis: Deaths from exhaustion, or violence, or electricity; when the muscular system is fatigued.

2. In *burns* produced *before death:* There is usually a blister, with a bright, red base, and containing a serous fluid, which is albuminous; occasionally there will be no blister if there has been excessive shock; also there will be a red line of demarcation between the injured and the

uninjured parts, and this, being a vital process, is only developed during life.

In *burns* produced *after death* there is no true blister, no red base, and gas only is present in place of the serous fluid.

BULLETIN OF APPROACHING EXAMINATIONS †

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. —
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 4
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Oct 12
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 7
Colorado	S. D. Van Meter, 1725 Tremont Street, Denver	Denver	Oct. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 9
Delaware	J. H. Wilson, Dover	Dover	Dec. 14
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	Oct. 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 10
Georgia	E. R. Anthony, Griffin	Atlanta	Oct. 12
Idaho*	W. F. Howard, Pocatello	Boise	Oct 5
Illinois	J. A. Egan, Springfield	Chicago	Oct. 20
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 11
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	F. P. Hatfield, Olathe	Kansas City	Oct. 12
Kentucky	J. N. McCormack, Bowling Green	Louisville	Dec. —
Louisiana	F. A. LaRue, 211 Camp Street New Orleans	New Orleans	Oct. 1
Maine	Wm. J. Maybury, Saco	Augusta	Nov. —
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 14
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov. 9
Michigan	D. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 12
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 5
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 12
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	
Montana*	Wm. C. Riddell, Helena	Helena	Oct 5
Nebraska	C. A. Carr, Lincoln	Lincoln	Nov. 10
Nevada	S. L. Lee, Carson City	Carson City	Nov. 1
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 4
New Jersey	E. L. B. Godfrey, Camden	Trenton	Oct. 19
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct. 11
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb. 1
N. Carolina	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Oct. 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 14
Oklahoma*	F. P. Davis, Enid	Guthrie	Oct. 12
Oregon*	B. E. Miller, Portland	Portland	Jan. 4
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. 14
Rhode Island*	G. T. Swarts, Providence	Providence	Oct. 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	Jan. 12
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Greenville	Nov. 9
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Oct. 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 11
Virginia	R. S. Martin Stuart	Lynchburg	Dec. 15
Washington*	T. C. McFadden, Seattle	Spokane	Jan. 4
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg	Nov. 9
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 11
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 20

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

New York now recognizes the license of Delaware, if earned on examination. This makes five States with which New York reciprocates, the others being Michigan, New Jersey, Ohio, and Vermont.

Texas.—At the June examination there were 182 applicants; 152 passed, 23 failed, 6 withdrew, and 1 was expelled.

Alabama.—At the latest examination 155 presented themselves, and of these 73 were successful.

Filipino Students.—The recent graduation of a class of Filipino physicians from the Philippine Medical School marks an epoch in the higher educational work of the American Government in the Philippines. Filipino women are also in hospital training as nurses.

Genital Tuberculosis in Woman.—C. Lenormant says that genital tuberculosis is rare and is almost always secondary to tuberculosis in some other part of the body, often the lungs. It may result as a primary condition from coition with a male who has genital tuberculosis, but this is exceedingly rare. In three per cent. of laparotomies for gynecological troubles there is a tuberculous lesion found. This is usually a descending affection conveyed by the blood-vessels. The vagina is only infected when there are lesions of the mucous membrane. Tuberculosis is rare where there is pavement epithelium. It is more frequent in the fundus uteri, tubes, and ovary. There may be ulcerations or infiltrations of the surface. On the cervix it forms cauliflower growths; in the fundus there is a chronic localized endometritis. When the tubes are involved the peritoneum is also attacked. Surgical interference is generally necessary to bring about a cure.—*Progrès Médical.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of September 18, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	501	132
Diphtheria	206	16
Measles	82	7
Scarlet Fever	48	4
Smallpox	—	—
Varicella	14	—
Typhoid Fever	276	24
Whooping Cough	52	17
Cerebrospinal Meningitis	7	5
Malarial Fever	—	—
Totals	1,186	205

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended September 17, 1909:

SMALLPOX—UNITED STATES

		CASES.	DEATHS.
Indiana, Fort Wayne	Aug. 21–Sept. 4	6	..
Kentucky, Lexington	Aug. 7–21	2	..
Minnesota, Duluth	Aug. 20–27	1	..
Ohio, Davton	Aug. 28–Sept. 4	2	1
Oregon (8 counties)	June 1–30	27	..

SMALLPOX—FOREIGN.

Arabia, Aden	Aug. 2–9	..	1
Brazil, Bahia	July 16–Aug. 6	15	6
Rio de Janeiro	July 11–24	9	7
	July 31–Aug. 8	8	1
Chile, Valparaiso	Aug. 7–14	..	Present
Egypt, Cairo	July 15–22	3	..
France, Paris	Aug. 3–9	1	
Germany, Konigsberg district	Aug. 7–14	3	..
India, Bombay	July 20–27	..	5
	Aug. 3–10	..	4
Madras	July 17–23	..	1
	July 31–Aug. 6	..	1
Rangoon	July 24–31	..	1
Italy, general	Aug. 8–19	26	..
Naples	Aug. 15 22	5	2
Mexico, Guadalajara	Aug. 12–19	..	1
Mexico	July 10–17	..	8
Persia, Meshed-i-Ser	June 1–30	..	Epidemic
Khorassan	June 1–30	..	Epidemic
Kurdistan	June 1–30	..	Epidemic
Portugal, Lisbon	Aug. 7–14	7	..
Russia, Moscow	July 24–Aug. 7	32	18
Riga	July 24–31	5	..
	Aug. 14–21	1	..
St. Petersburg	July 24–31	6	8
Spain, Barcelona	Aug. 14–21	..	6
Valencia	Aug. 14–21	12	..
Turkey, Smyrna	July 1–Aug. 6	..	36

YELLOW FEVER.

Barbados, St. Joseph parish	Aug. 9–14	1	1
Brazil, Bahia	July 23–Aug. 6	3	2
Manaos	July 24–Aug. 7	..	2
Para	July 31–Aug. 7	2	2
Ecuador, Guayaquil	July 23–Aug. 14	..	8
Mexico, Merida	Aug. 21–28	4	2

CHOLERA—INSULAR.

Philippine Islands, Provinces	July 18–24	295	192

CHOLERA.

China, Amoy	July 24–31	..	20
India, Bombay	July 20–27	..	25
	Aug. 3–10	..	30
Calcutta	July 24–31	..	28
Rangoon	July 24–31	..	5
Indo-China, Saigon	July 17–24	3	3
Japan, Kobe	Sept. 13—Present. 31, 1 case.	In vicinity, July	
Netherlands, Breda	Aug. 31	..	Present
Dordrecht	Aug. 31	..	Present
Gorinchem	Aug. 31	..	Present
Rotterdam	Aug. 20–30	21	8
Uithorn	Aug. 31	..	Present
Sumatra, Djambi	July 18–24	..	Present

PLAGUE.

Chile, Iquique	Aug. 10	6 in lazaretto	
China, Amoy	July 24–31	..	52
Ecuador, Guayaquil	July 24–Aug. 14	..	9
Formosa	July 17–24	..	3
India, general	July 24–31	926	709
Bombay	July 20–27	..	15
	Aug. 3–10	..	27
Calcutta	July 24–31	..	18
Indo-China, Saigon	July 17–31	37	37
Peru, general	Aug. 14–21	19	9

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Original Articles.

THE ADVERSE INFLUENCE OF DIABETES IN CERTAIN OPERATIONS ON THE EYE.*

BY CHARLES STEDMAN BULL, A.M., M.D.,

NEW YORK.

IT is known to all ophthalmologists that, in certain cases of diabetes, disastrous results have followed operations upon the eye. For a number of years the author has been led to study the varying conditions of all diabetic patients in his private practice, before as well as after operating, with a view to determine, if possible, what class of diabetic patients, if any, are not fit subjects for operative interference. I have not succeeded in making any exact discrimination of such patients, and I am still very much in doubt when to operate, if at all, in the presence of undoubted diabetes. It is a recognized fact in general surgery that certain types of diabetics stand operations badly. The wounds do not heal, but become gangrenous along the edges, and no apparent attempt at repair occurs. On the other hand, many patients, whose general condition cannot clinically be distinguished from the others, do unusually well after operations, the wounds healing promptly. How are we to decide what cases can be safely operated with a favorable prognosis as to results?

Diabetic patients are generally anemic, the hemoglobin percentage is reduced, and as a result there is a lowered power of resistance. It has been satisfactorily proved that diabetes interferes with the success of surgical operations, because the sugar circulating in the blood is hygroscopic, and draws water from all the tissues of the body and makes them dry. This arrests or retards the process of repair, by limiting the capacity of the leucocytes to furnish alexins to meet the toxins in the blood, and by preventing the proper development of new repair-cells.

Diabetes is a grave disease. Life often seems to hang by a thread, and this thread is often severed by a very trifling accident. We must consider the general condition of the patient, and learn to properly appreciate how far our treatment is successful in reducing the amount of sugar in the system, and in maintaining the nutrition at a high standard. We must learn to understand the state of the circulation as indicated by the pulse pressure and the cardiac impulse, as this will help us to recognize the presence of possible complications. If we study our cases carefully, we will learn how frequently the diabetic condition is associated with general arteriosclerosis, and with tuberculosis. These three diseases have more than an accidental inter-relationship. In the case of arteriosclerosis, nutritional changes in the pancreas, due to sclerosis of the pancreatic arteries, has been suggested as the cause of diabetes. With regard to tuberculosis, about fifty per cent of the cases of diabetes are tuberculous or there is tuberculosis in the immediate family. Clinical and experimental evidence show that the two diseases, when existing concurrently, do not necessarily influence each other for the worse; but it is possible that similar factors form the predisposing cause for each. It has been noted by more than one keen observer that an increase in the number of cases of diabetes is attended by a decrease in the number of cases of tuberculosis. Arteriosclerosis is frequently found associated with diabetes, and in many of these cases, the glycosuria is the least important feature of the case, and diminishes or disappears when the cardiac angina and other vascular symptoms yield to treatment.

Diabetes mellitus seems to be increasing in frequency, and the belief that an hereditary predisposition underlies most cases is gaining credence. It is a generally accepted statement that the later in life the disease manifests itself, the better the prognosis, but that a permanent cure is seldom if ever effected.

Almost all authors advise postponing any operation on a diabetic patient until repeated urinalyses show that the sugar has disappeared from the urine. But we now know that it is not the amount of sugar, or even its presence, which is of the greatest importance, but rather the amount of acetone, diacetic acid, and beta-oxybutyric acid present, which give us a more accurate idea of the existing condition of the patient. The urinalysis may show little or no sugar in the urine, and yet in these very patients the odor of acetone is very strong in the expired breath; an evidence of the abnormal product of decomposition of the glucose.

As is too well known, operations on the eyes of patients with advanced diabetes have been followed by fatal results, the patients dying in coma. During the coma the urine is usually free from sugar, even if it has been abundant prior to the attack. The coma may set in within twenty-four hours after the operation, or it may be postponed for several days. In some of the cases which were followed by unfortunate complications, the diabetes was accompanied by gastrointestinal symptoms and by enlargement of the liver, but the latter gradually subsided. It is probable that the pancreas was also diseased in these cases, as chronic pancreatitis is of very frequent occurrence in chronic diabetes. A prolonged and close observation of the cases under my care, which were followed by various complications, seemed to offer evidence of a greater deficiency of fermentative action than in other cases free from these complications. Whether psychic, nervous or organic influences were originally at fault in these cases, it was evident that the prognosis for operation

*Read at the meeting of the American Ophthalmological Society, July 14, 1909.

was more unfavorable, the more marked was the defective metabolism of the carbohydrates. Whether this failure of fermentative action in these cases occurs through the blood-current and tissues of the body, or in the digestive tract, we do not yet know. It is not wise to introduce a strict anti-diabetic regimen in a patient immediately before operating, especially if the patient has not been accustomed to it. On the other hand, such a regimen, to which the patient has for a considerable time become accustomed, should not be interrupted at the time of operation. In other words, any change from the general routine of nutrition should not be made in any patient immediately before the operation. The complications which have occurred in my experience after operations on diabetics, have been mainly either iritis, hemorrhages into the anterior chamber, or an infection of the wound as manifested by slow healing. In the cases of iritis there was a marked maceration of the pigment epithelium of the iris, a fact long since pointed out by Snellen. I have also noticed a rather marked tendency to infection by microorganisms after operations on diabetics, and it is known that this has been observed in other branches of surgery. In view of these facts it would seem wise to have tests made of the bactericidal power of the blood-serum in diabetes.

The relatively frequent coexistence of arteriosclerosis and diabetes needs further careful study, for this arteriosclerosis is probably the cause of the recurring intraocular hemorrhages which have been so often observed, especially if the peripheral arteries are involved in the process.

A careful analysis of the one hundred and fifteen cases, on which various operations were performed, has been made, and such conclusions as I have been able to draw are based on the results of such analysis. Of the one hundred and fifteen operations, sixty-two were cataract extractions, forty were preliminary iridectomies, nine were iridectomies for optical purposes owing to the presence of central corneal opacities, and four were iridectomies for chronic glaucoma. Of the sixty-two cataract extractions, forty were senile cataracts in diabetic patients, and all the patients were sixty-five years of age or over. These were all extractions with iridectomy, and all the patients recovered without any serious complications, though the wound healed slowly in eleven cases. There were no hemorrhages and no sign of infection in any of the cases. Many of these patients came under my care before the period of careful observation of the heart and arteries, such as is now made, and before we had the means of carefully estimating the intravascular tension. But of these forty cases I have accurate records of the condition of the heart, arteries, and intravascular tension in ten cases. These ten cases showed slow healing of the wound, and all gave evidence of arterial degeneration and a high intravascular tension. The remaining twenty-two cases were all pure diabetic cataracts; that is, they were cortical cataracts, bluish-white in color, and somewhat swollen. The patients' ages varied from thirty-six to forty years. In each case, before operation, care was taken to reduce the percentage of sugar to a minimum, and as far as possible to eliminate the abnormal products, acetone, diacetic acid and oxybutyric acid. In six of the twenty-two cases there was a somewhat profuse hemorrhage into the anterior chamber, which recurred several times. In two cases there were retinal hemorrhages, which did not recur and were slowly absorbed. In six cases the operation was followed by iritis, without much exudation, which was obstinate in resisting treatment, and a discission of the opaque capsule was necessitated in two cases. In the remaining eight cases there were no complications either at the time of the operation or following it, and the wounds healed promptly with excellent results as to vision. In fourteen of the twenty-two cases there were signs of arteriosclerosis in the conjunctival vessels, and after the extraction of the cataracts the same condition was found in the retinal arteries. In the remaining eight cases no signs of arterial degeneration were demonstrable. In the second list of operations, forty cases of preliminary iridectomy in cataract patients, twenty-two were senile cataracts in diabetic patients, whose ages varied between sixty and sixty-eight years, and eighteen were true diabetic cataracts in patients under forty years of age. In the twenty-two cases of senile cataracts no case of iritis occurred after the iridectomy, but in three cases there was an annoying hemorrhage into the anterior chamber and the external wound healed very slowly, and in these three cases the signs of general arteriosclerosis were present. In the eighteen cases of true diabetic cataract iritis occurred in four cases, but owing to prompt treatment no permanent synechiæ were formed. Two of these four cases were victims of pulmonary tuberculosis, but showed no evidence of arterial degeneration.

In the third list of operations there were nine iridectomies for optical purposes, owing to central corneal opacities. There were no anterior or posterior synechiæ and no signs of intraocular irritation. They were all young diabetics, under forty years of age, and with one exception all did well, the wounds healing promptly. The one exception was a lady, aged twenty-two, in whom the operation was followed by severe iritis with an abundant exudation, which blocked the pupil for a long period, and it was not until five months later that the pupil became free and useful vision restored to the eye. In all of the nine patients the fellow eye was normal.

In the fourth and last class of operations there were four iridectomies for chronic glaucoma performed before the field of vision was much contracted, and as soon as the diagnosis was positively made. In these cases great care was taken to choose the time for the operation when the percentage of sugar was either nil or very small, and when the urinalysis showed only a minute percentage of acetone and diacetic acid. All four cases did badly, and one patient fell into collapse and nearly died. Three were men and one was a woman. Profuse hemorrhage into the anterior chamber occurred in all four cases and recurred several times, but there were no retinal hemorrhages. In the fourth case, a lady aged fifty-nine, there was a profuse hemorrhage into the anterior chamber which recurred on the two succeeding days. At the close of the third day the patient complained of great pain and in a few hours became delirious. There was a distinct odor of acetone in her breath and I looked for the speedy onset of diabetic coma and death. Fortunately, after twenty hours of delirium, the mental excitement passed away without developing into coma and the patient temporarily recovered. The glaucomatous symptoms seemed to be arrested, the tension returned to the normal and the vision was improved. Eight months later, however, the patient succumbed to an attack of diabetic coma.

An analysis of Uhthoff's paper on Cataract Extraction in Diabetics, presented at the meeting of

the Ophthalmological Society in Heidelberg, in 1908, yields the following results: There were one hundred and fifteen cataract operations and 68 per cent. recovered vision of 1 to 1/3. Iritis occurred in 6 per cent. and glaucoma in 1 per cent. There were hemorrhages into the anterior chamber in 8.9 per cent. Hemorrhages into the retina in 4.5 per cent. Hemorrhages into the vitreous in 1.8 per cent. Retinitis occurred in 2.6 per cent. No eye was lost, but two patients had only light perception. One patient died on the fifth day after the operation in diabetic coma.

In all the statistics published on the subject, iritis seems to have been the most frequent complication. This is probably because the tissues in diabetes are more prone to inflammatory processes in consequence of diminished powers of resistance and the greater virulence of microorganisms in diabetic patients.

I believe that the retinal and vitreous hemorrhages are far more serious in their prognosis as to results than is usually appreciated. So far as it is possible to draw any conclusions from my own experience, I am induced to offer the following:

1. We must carefully differentiate those diseases which are directly due to diabetes as a cause from those which may occur independently of the disease.
2. The abnormal products of metabolism, acetone, diacetic acid and oxybutyric acid seriously complicate the prognosis, and must, as far as possible, be eliminated before any operation is undertaken.
3. Arteriosclerosis plays an important rôle in the etiology of the disease and its complications.
4. The prognosis does not depend on the percentage of glucose in the urine, but on the degree of acid intoxication.
5. The possible connection between diabetes and tuberculosis needs more searching investigation before any positive opinion can be formulated.

JOINT TUBERCULOSIS; WITH SPECIAL REFERENCE TO ITS PATHOLOGY.*

PRELIMINARY STUDY OF FORTY-FIVE CASES

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THIS paper is based upon an examination of a number of tuberculous joints in the laboratory, and upon a study of the histories of the patients from whom the specimens were taken. It is an attempt to bring together, so to speak, the study of surgery and pathology, and has been done under the auspices of the Department of Surgery at the College of Physicians and Surgeons, New York, and especially under the guidance of Dr. William C. Clarke.

The specimens assembled are forty-eight in number, from forty-five patients. Of these, forty-five are joints, one a specimen of bone alone, and two of tendon sheaths. There are sixteen knees, six hips, two shoulders, nine elbows, seven ankles and feet, four wrists and hands. Of these, thirty-four were tuberculous, and eleven showed no sign of tuberculosis. The specimen of bone alone was from tuberculous disease of the humerus which did not involve the joint. Of the tendon sheaths, both were sent in with a diagnosis of tuberculosis. One was tuberculous and the other was not.

*Read at the annual meeting of the American Orthopedic Association, Hartford, Conn., June 14, 1909.

The first fact that strikes one in a classification of the material is the large number of apparently incorrect diagnoses. The operators by whose courtesy the laboratory came into possession of the specimens are about twelve in number, some of them of great ability. Under these circumstances it seems remarkable that of the ten joints in which no tuberculosis was found nine should have been sent to the laboratory with a diagnosis of tuberculosis. On the other hand, four joints were sent in as nontuberculous, in which tuberculosis could be demonstrated by the microscope. It may be argued of the former class that tuberculosis may have been present in the specimen and may not have been discovered in the laboratory, or may have died out. This is, of course, possible, but the number of such cases must be very small, for any tuberculous process capable of giving symptoms justifying a resection or amputation would almost invariably produce changes in the joint so marked that they could be recognized by a careful pathological examination.

FIG. 1.—Tuberculosis of the elbow; synovial type, showing the tuberculous process making its way through the periosteum into the bone under the margin of the articular cartilage. Section through the coronoid process; × about 20 diameters. The articular cartilage is seen to the left; the synovial membrane above.

Here we have two practical hints. First, that no pains should be spared in arriving at a correct diagnosis before proceeding to a radical operation on a supposed tuberculous joint; and, second, that we should accept with great reserve any statistics of tuberculous joints cured by conservative means, when these statistics are based upon the unsupported clinical opinion of the man who has compiled them. If it is possible to err so frequently when the clinical diagnosis is apparently confirmed by the gross examination of the resected joint, how much more liable to error is the clinical diagnosis alone!

The next thing that strikes one's attention in a

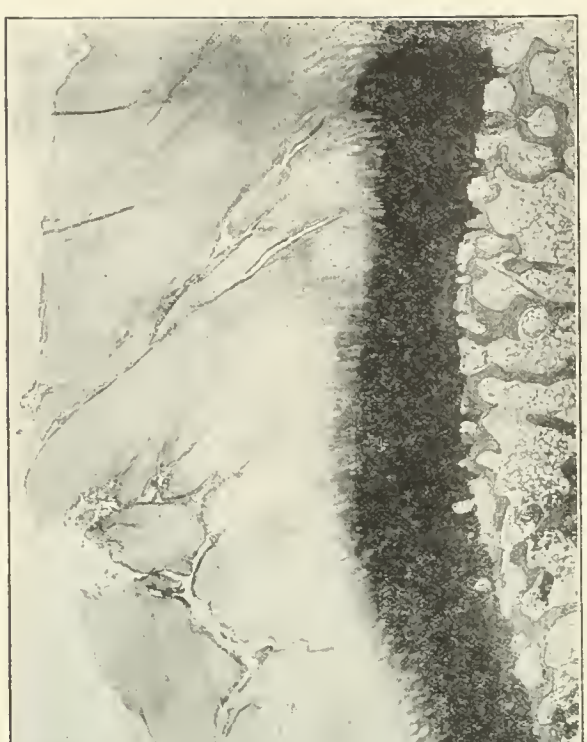

Fig. 2.—Synovial tuberculosis; section from the patella, showing fibrillation and fraying of the articular cartilage; × 20 diameters.

study of these cases is the rather large proportion which are apparently primarily synovial.

Since the paper of Dr. Nichols of Boston, in 1898, it has become the custom in America to regard all cases of joint tuberculosis as due to a bony focus. It has been said that with a growing pathological experience the cases one regards as primarily synovial become fewer in number. This possibly is true, and it is also true that unless all the bones entering into the formation of the joint have been sawn into very small pieces, the objection can plausibly be raised that a bony focus can easily have been overlooked. But, on the other hand, if all the articular ends of the bones, sawn across near the joint, present no evidence of any involvement, and if the synovial membrane in its entire extent and in its entire thickness is filled with tuberculosis, the possibility of primary synovial tuberculosis must be seriously considered. Again, it seems unlikely that a tuberculous process, starting in the bone, would make its way directly to a joint, and involve the entire synovial membrane without spreading at all in the bone. Often in the cases known to be primarily bony, the superficial layers alone of the synovial membrane have been involved, as would naturally happen if the disease broke through into the joint from outside, while in the primary synovial type the membrane is involved in its entire thickness. This rule, however, is only a general one. There is nothing improbable in a synovial origin of the disease. We have a specimen here of tuberculous tenosynovitis, which seems not to differ in any essential respect from synovial tuberculosis anywhere. This certainly appears to be a case of primary synovial involvement. One of the specimens in the collection is a knee removed from a patient who had had the other leg amputated for tuberculosis of the ankle at the Roosevelt Hospital four months before. She had had several operations performed during her previous stay in the hospital and no mention had been made of any symptoms in this knee. The entire synovial membrane in the specimen is full of tuberculosis, but the bones appear absolutely normal.

Of our thirty-four tuberculous cases, seven (aged 64, 18, 20, 12, 21, 20, and 32) are evidently primary bony tuberculosis, four (aged 50, 17, 27, and 25) primary synovial, four probably bony; and of the other nineteen cases the origin is unknown. Nothing characteristic appears from a study of the ages of these patients.

Pathology.—Primary Bony Type.—The disease begins with a tuberculous infiltration of the marrow of the epiphysis of one of the bones, in a young patient usually at or near the epiphyseal line. This makes its way towards the joint, attacking the bone on its way. In one of our cases the bone destruction was in a piece large enough to form a sequestrum easily recognizable by the naked eye; in others the bone trabeculæ were killed in small pieces, and could be felt as bone sand. Usually, the disease travels down to the cartilage and breaks through it into the joint, or spreads out in a layer under the cartilage (mushrooms, so to speak), and enters the joint at its periphery or lifts the cartilage off en masse. Sometimes it makes its way to the surface of the bone and travels under the periosteum to the joint. (Fig. 4.) It appears that when the disease breaks through into the joint, adhesions are often formed which shut off part of the joint and protect it from invasion.

The cartilage enjoys a certain amount of immunity as long as its nutrition is unimpaired, and affords considerable protection to the joint against invasion. After the joint has been entered, the tuberculosis attacks the synovial membrane, and then the other bones entering the joint, usually at their sides, where they are free from articular carti-

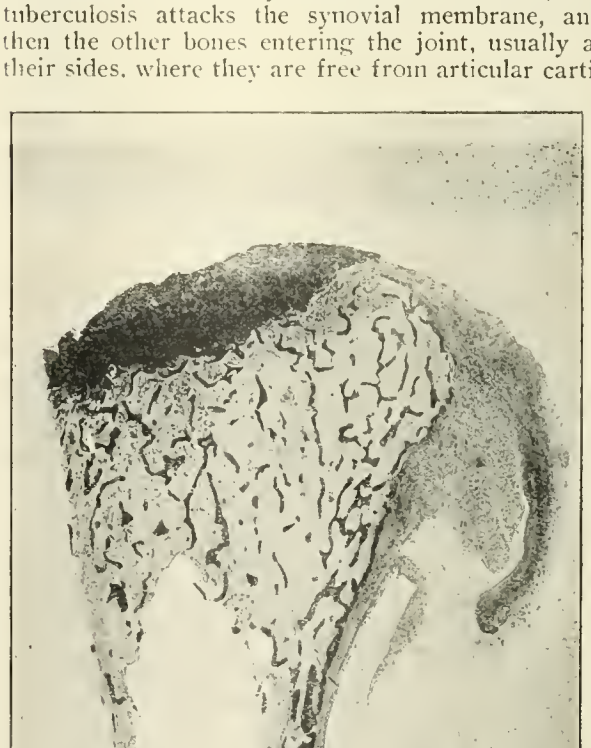

Fig. 3.—Tuberculosis of the metacarpophalangeal joint; synovial type. The tuberculosis, spreading from synovial membrane, has attacked the bone at its articular surface. Section from phalanx; × 10 diameters.

lage. It spreads under the cartilage in a layer, destroys its nutrition, and loosens it from the bone either in one piece or in small pieces. At the same time, though to a less extent, the tuberculous tissue grows in from the side over the articular surface of the cartilage, forming the so-called pannus. The joints in our collection show all stages of the process. In some the cartilage is gone over the opposing bone ends, and bare bone is apposed to bare bone. In some, the denuded areas have become firmly attached to each other in places; in some, remnants of the articular cartilage can be seen. In the knee, sometimes the cartilages over one condyle and the opposing surface of the tibia are gone, and the bones are tightly bound together by connective tissue; while on the other side of the joint the cartilages and bone ends are almost normal. In the hip the head of the femur in the early stages looks

FIG. 4.—Bone tuberculosis, showing the spread of the tuberculous process under the periosteum and cartilage; specimen from the external condyle in a 12-year-old child. The joint is not yet involved; × 8 diameters. A, articular cartilage; B, epiphysis; C, epiphyseal line; D, periosteum; E, area of tuberculosis.

worm-eaten over its entire surface. Later on, this denuded, worm-eaten head may become tightly adherent to the acetabulum. More often it is ground away, and its free end lies in a collection of fluid.

Under the microscope the tuberculosis can be seen involving the ends of the bone to a greater or less extent—typical miliary tubercles, round cell infiltration, epithelioid cells, giant cells, areas of necrosis, etc. In several a distinct sequestrum can be seen, with a wall of fibrous tissue about it, more or less complete. In some the trabeculæ, showing evidences of rarefying osteitis, lie embedded in granulation tissue or surrounded by pus cells—bone sand. The bone in the vicinity of the affected area often shows signs of rarefying osteitis, often of productive osteitis, often of both. In some specimens much fibrous tissue has been formed in and about the tuberculous area, showing nature's effort at repair, in some very little. At the joint the process often appears as a layer of tuberculous tissue under the cartilage. Sometimes the cartilage is covered with a layer of fibrin; sometimes it is fibrillated, and roughened on its free surface, detached in places from the diseased bone beneath it. Again, the bones are covered with fibrous tissue, more or less infiltrated with tuberculosis, perhaps containing islands of cartilage, perhaps undergoing necrosis at its surface. Sometimes the process is in the stage of repair, the cartilage nearly or quite gone, only a few areas of tuberculosis present, and the heads of the bones covered with fibrous tissue. Fibrous connective tissue seems continuous with the cartilage, the fibers appearing to spring from it and run into it. In one specimen a small area of calcification can be seen, surrounded by fibrous tissue, as if an original spot of necrosis had been healed in this way. Areas of active disease and of healing can often be seen in the same specimen. In many of the specimens obliterating endarteritis is a well-marked feature of the process.

Primary Synovial Type.—In these cases the synovial membrane is thickened and thrown into folds. It can be seen by the naked eye, on section, studded with tubercles, and is usually affected in its entire thickness. Sometimes it is so increased in thickness as almost to hide the articular cartilage from view. The cartilages in the earlier stages are smooth, but soon a layer of fibrin is deposited on them, and the tuberculosis, making its way into the bone at their margins, spreads out under them, destroys their nutrition, and separates them. The further course of the disease then seems to be as in the bony type, and in the majority of our cases it has involved so much of the tissues of the joints that its origin cannot be told with certainty. On the other hand, the disease can exist for years in the synovial membrane and show absolutely no tendency to involve the bone. One such case was under the writer's treatment for about five years before coming to resection. The bones in this knee were normal, and the synovial membrane had been almost replaced by fibrous tissue, but in one spot presented a small area of tuberculosis about 1 centimeter in diameter. Examination of a specimen of the synovial membrane taken out one year previously had simply shown enlarged villi.

In another case, though the joint is almost destroyed, tuberculosis can only be detected by the microscope in one slide out of a number from different parts of the joint. In one or two similar instances we think the disease was tuberculosis, though we cannot demonstrate it with the microscope.

It may seem premature from so small a number of specimens to attempt to deduce any rules of procedure in the treatment of tuberculous joints; but even a small material sometimes justifies a working hypothesis, provided one does not cling too tenaciously to the theories one draws from it.

One of the first things to attract attention in these specimens is the effort of nature, as soon as tuberculosis appears in or near a joint, whether in the bone or in the synovial membrane, to deprive it of motion, to destroy it, in other words, as a joint, and to convert it into a synostosis. When this has been accomplished the disease dies out. In a resection we can never be sure of having removed every vestige of tuberculosis; indeed, the chances are strongly against our doing it, yet if we get union of the wound by first intention, we expect to cure the disease in that locality. In other words, when

we destroy the joint, the disease dies out. In none of our specimens had a complete synovectomy been done. They, therefore, cannot indicate whether this operation will have the same effect in the synovial type. We know that the disease often spreads in under the cartilage, often ceases to be purely synovial; but nothing in this collection helps us to tell whether an early removal of the synovial membrane will cause the disease to die out in the bone, as the removal of the bones causes it to die out in the remnants of the soft parts. Possibly, hereafter, in treating tuberculous joints, less effort will be expended in preserving motion, and more in obtaining ankylosis. We shall not dread the wearing away of the joint cartilages, but shall rather encourage it. We have seen under the microscope how nature attempts to destroy the affected joint. We have thought for a long time that the crowding of the bone ends together by muscular spasm tended to the same thing, and have expended all our efforts to overcome it, instead of regarding it as one of nature's efforts at cure. Some years ago Lorenz advanced the idea that he preferred a stiff joint after tuberculosis to one with a small amount of motion, because the former was more comfortable. I agree with him, and now go a step further and suggest that the best way to cure a tuberculous joint is to deprive it of motion. There is nothing striking in this theory. We used to combat fever as a thing to be dreaded, now we regard it as a conservative process.

The conservative treatment by weight bearing and immobilization—that is, by plaster-of-paris, in disease of the knee and hip seems more in line with this theory than the older method of stilting and traction. Certainly, after one has resected a few hips that have been treated by extension up to the time of operation, and has found the head of the femur lying in a collection of pus, he cannot but think that the traction treatment can be overdone. On the other hand, it is well not to be over-zealous in removing bone, not to be too careful to go "wide of the disease." It is well not to read up beforehand a particular form of operation, and then to carry it out on the joint without regard to what is found at the time of operation. Two cases of our series, hip-joint excisions, illustrate this well. From an examination of them it appears that the removal of the head of the femur alone would have sufficed to cure the disease, and would have given a better functional result, yet in both the whole upper end of the bone was removed. In one case it is hard to see of what use the extremity can be to the patient. Head, neck, and both trochanters were removed, although the bone was involved only at the circumference of the head.

A theory that has been weakened by a study of these specimens and of the histories of the patients from whom they were taken, is in regard to the mortality. Most of the patients were adults, and a rather widespread notion exists that the expectation of life in an adult with a tuberculous joint is quite short. We have been unable to trace very many of the cases up to date, but it can be seen from our histories that those we have found have established a rather low percentage of mortality. Two of the adult cases have died. The larger number of them are in health, and are earning their living. One patient seems to have acquired a sort of constitutional immunity to the infection while exhibiting a marked local predisposition to it. He has lost, by operation for tuberculosis, his testicles, seminal vesicles, part of his sternum, and seventh rib.

A most cursory examination of these joints will convince anyone of the futility of the operation of curetting as usually practised. A tuberculous process involving a synovial membrane in its various folds and ramifications, and running up under the joint cartilage into bone, perhaps with a distinct bony focus, is not to be eradicated by blindly thrusting a sharp spoon into the joint and scraping away at random.

From a perusal of the histories it appears that after some of the operations drainage was used for a few days, and after others it was not. As a general thing it does not seem necessary.

Nothing said in this paper is to be interpreted as advising resection of a joint in a child. It is far better to take long chances of life and death than to do that.

It is difficult in a short paper such as this to do more than touch upon the various instructive points that the specimens present; and, in fact, any investigation based upon so few cases can only be a preliminary one. We hope to have the opportunity to add a great many more to the series, and to carry the work forward where it will be of real service.

The main points which we have tried to bring out are:

1. The possibility of error in diagnosis.
2. A general idea of the pathology of joint tuberculosis.
3. Nature's attempt to heal the disease by ankylosis.
4. The wisdom of imitating nature in our treatment.
5. The necessity of adapting the operation to the individual case, and of only removing enough tissue to secure ankylosis.
6. The frequency of primary synovial tuberculosis.

201 West Fifty-fifth Street.

TUBERCULIN FOR THE DIAGNOSIS AND THERAPY OF RENAL TUBERCULOSIS.*

By DR. WILHELM KARO,

BERLIN.

Gentlemen, when I was asked to address your society to-night, it was my desire to find a subject which would be of equal interest to you all, in whatever branch of medical science you may be especially interested. As such a subject I consider tuberculosis, for tuberculosis is, as you know, a universal disease, one to which any part or organ of the human body may be subject. It is, therefore, necessary for the specialist to cooperate with the general practitioner, to find out what part the tuberculosis of the organ coming under his special treatment plays, in connection with the same disease affecting the other organs. In many cases tuberculosis of the kidneys is combined with tuberculosis of the lungs or of other organs; in such a case the urologist and the general practitioner must decide together in which part of the body the tuberculosis originated. This question is, of course, of the utmost importance for the treatment of a given case. For instance, we should not venture to operate upon a case of tuberculosis of the right kidney, if it is only the conse-

*Read at the meeting of the Anglo-American Medical Association of Berlin July 3, 1909.

quence of a far-advanced state of tuberculosis of the lungs.

In order not to detain you too long with this one subject, I shall not enter into the details of the diagnosis of renal tuberculosis. I will only mention the fact that, in advanced stages of this disease, an examination of the urine will confirm or correct our diagnosis. In nearly all cases we shall find pus and tubercle bacilli in the centrifugated urine. If no bacilli are found, then we must resort to the inoculation of guinea pigs. This matter has been simplified lately by Bloch; he has taught us to inject the urine, to be examined, into the compressed inguinal glands. In this manner we can learn within ten days or two weeks whether or not the urine contains bacilli. Should this test show that no bacilli are present, it would by no means prove that the disease is not tuberculous. In such a case we must bear in mind that the diseased ureter may have been temporarily obliterated and that the urine examined was that of the healthy kidney.

On the other hand, there are cases in which in the very first stages of tuberculosis no bacilli are found, because the process is confined to a very small spot at the top of the kidney, having no connection with the glomeruli. It is, therefore, not permissible to make the diagnosis of renal tuberculosis dependent solely upon the finding of bacilli, and it would be of great advantage for us to add one factor more to our diagnostic resources.

Can tuberculin be looked upon as such a help? As you know, there are four different ways of making such a specific diagnosis: The v. Pirquet reaction, the Moro reaction, the conjunctival test and the subcutaneous injection of tuberculin. The v. Pirquet reaction is, as you know, applicable only to children; and concerning the ointment reaction of Moro, I am lacking in personal experience.

In applying the conjunctival reaction we must always bear in mind that a positive result only proves the presence of some tuberculous focus in the body, and I have already emphasized at the beginning of my lecture how frequently the urogenital tuberculosis is a secondary affection. I repeat, renal tuberculosis may be propagated by the blood or lymph from other foci in the lungs or the bronchial glands. In spite of the most exact clinical investigation we might not be able to exclude glandular tuberculosis. The following very instructive case will demonstrate clearly how deceptive the positive result of the conjunctival reaction may be in regard to the local diagnosis. At Professor Casper's clinic I observed last year a lady suffering from pyuria and pain in the right kidney. It was reported that the family physician had occasionally found some tubercle bacilli in the urine, but we were not able to confirm this. By a thorough cystoscopic and functional examination the right kidney proved to be the source of pyuria. The ophthalmoreaction was distinctly positive. As no other diseased focus could be found, we diagnosed tuberculosis of the right kidney. We were therefore highly surprised to find at the operation not a trace of tuberculosis. Instead the cause of the pyuria proved to be twelve calculi. I think, gentlemen, this case shows quite obviously how justifiable the statement is that a positive ophthalmo reaction may be rather a misleading guide, especially as similar cases have been reported by other authors.

On the other hand we observed cases showing a negative ophthalmo reaction which were nevertheless tuberculous. As an example: I observed a lady of twenty-eight years of age who had suffered from her childhood with cystitis. Some years before I saw her she had undergone a suprapubic operation for a contracted bladder. We found an intense pyuria, but no bacilli whatever. On cystoscopy and catheterization of this ureter the left kidney appeared to be healthy. The right ureter could not be found in spite of repeated cystoscopy; we only ascertained that the right half of the trigonum was strongly ulcerated and incrustated with crystals. The ophthalmo reaction was negative. In order to ascertain an exact diagnosis we exposed the right kidney and found a very small infantile kidney with an entirely obliterated ureter. The kidney itself showed a typical miliary tuberculosis.

The same failure of the ophthalmo reaction was experienced in the third case. This concerns a young boy suffering from severe pain in the left side and pyuria, and a suspicious swelling of the left knee joint. In the centrifugated urine we could not find any tubercle bacilli. By cystoscopy the bladder was found to be healthy; the function of both kidneys was practically normal. The ophthalmo reaction was also in this case negative. By an animal experiment, however, with the urine of the left kidney, tubercle bacilli were detected. Here a renal tuberculosis was present, in spite of a negative ophthalmo reaction. I think, gentlemen, these few cases, to which other personal observations and cases of other authors could be added, justify my statement that the ophthalmo reaction is no aid at all in an exact differential diagnosis.

In contradistinction to the eye test, the old subcutaneous tuberculin test seems to me indeed a very valuable diagnostic means. Above all, this test has the peculiarity of giving us a local reaction, that is to say a reaction confined to the localization of the tuberculous focus. For instance, if a tuberculous process is located in the left kidney the patient will notice some pain in this region a short time after the injection. It is obvious that such an advantage renders the method invaluable for the majority of cases. For this I am also able to give you an instructive case. A few months ago I was consulted by a young girl suffering from pyuria and pain in the right renal region. The urine was slightly turbid, and contained typical tubercle bacilli. By cystoscopy the bladder appeared healthy, only the opening of the right ureter was slightly swollen. The function of both kidneys was equally normal; the indigocarmin injection gave a prompt secretion of blue urine of equal intensity on both sides. From the right kidney purulent urine containing tubercle bacilli was secreted. The left kidney was considered normal, and therefore not examined.

After a subcutaneous injection of one-quarter mg. Alttuberkulin the patient got severe pains on both sides, but more severe in the left kidney than in the right. At the same time the urine became much more cloudy and contained considerable amounts of epithelium and tubercle bacilli. After the reactive symptoms subsided, I catheterized the left ureter, too, and found numerous tubercle bacilli here also.

This case therefore illustrates very clearly that the subcutaneous injection led us to the right diagnosis of the bilateral renal tuberculosis. We could certainly have catheterized also the left ureter at the very beginning and might have recognized the affection of both sides. As, however, this would have required several animal experiments and had taken

much more time, I chose the shorter way of the tuberculin test and then confirmed the result of the injection by a microscopical examination.

The great advantage of the subcutaneous reaction is that it allows us to draw conclusions not only as to the specific affection, but also the location of the process as well. This advantage, gentlemen, renders this test far superior to the ophthalmo reaction. Though the general reaction may sometimes be severe, permanent disorders never have been observed as a result of the injection. I shall always, therefore, prefer this test to all other diagnostic means, and wish to emphasize that in the examination of a suspicious case the subcutaneous injection should be the first step in our investigation.

Tuberculin has become of far greater importance in the conservative treatment of urogenital tuberculosis. You all know how much the failures of the first era of tuberculin-therapy disappointed the practitioners. But on the other hand the experiences of the last few years have taught that it was only a wrong method that had led to the failures, and tuberculin itself should not be held responsible for them. For we have learned that all depends upon two main factors, that is, regulating the method according to the resistance of the patient, and the most careful dosage of tuberculin. After we began to consider these two points very carefully, the results have justified the method, and again a wide field of work has been opened to the general practitioners.

Besides Lenhart and Pielicke, who have first reported very favorable results with the tuberculin treatment of renal tuberculosis, recently an English surgeon, Leedham-Green, has also advocated the conservative treatment in the early stages of the disease. I must confess that I have assumed the standpoint of an extreme radicalism; not more than one year ago I spoke here in your society in favor of this view, and in the International Congress for Tuberculosis at Washington I stated that tuberculosis of one kidney is an absolute indication for the radical interference. Personal experience has now induced me to change my standpoint. I have had to treat renal tuberculosis repeatedly with tuberculin, and as the result of this work I have been compelled to give up my former view.

I wish to give you a brief account of these cases:

In the first case, we had to deal with a girl of 8 years of age, suffering from pyuria and painful micturition; the bladder was cystoscopically intact; only at the right ureteral opening there was a small tuberculous ulcer; from the right ureter a purulent urine containing tubercle bacilli was secreted. I proposed an operation, but the parents would not consent, and suggested a tuberculin cure.

The patient got altogether 30 injections of Alttuberkulin Koch in the concentration suggested by Holdheim; that is to say, beginning with 0.0025 mg. Alttuberkulin, increasing slowly up to 10 mg. The result was excellent. The child improved and gained 18 pounds in weight within five months. Six months later I found a completely normal bladder and the urine quite clear without any tubercle bacilli. The catheterization of the right ureter gave also clear urine without any albumen or bacilli. The future will teach us whether the girl is definitely cured; at any rate we have accomplished enough to be able to say that dispensing with the operation did not do any harm to the patient.

My second case concerns a nurse 23 years of age. under my treatment for tuberculosis of the right kidney. Cystoscopic examination showed a tuberculous ulceration at the opening of the right ureter; from this kidney a purulent urine containing tubercle baccilli was secreted. As the patient did not consent to an operation, I was obliged to start a tuberculin treatment, and I was greatly surprised to notice a gradually increasing improvement both subjectively and objectively. Within six months I made 25 injections; she gained 25 pounds in weight; the tuberculous process in the bladder has entirely disappeared. The urine is still somewhat cloudy and contains a few tubercle bacilli.

As my third case I mention that of a child of about twenty months under my treatment only for the past ten weeks.

There was a slight enuresis, pyuria, and tubercle bacilli in the urine; the right renal region was tender. I started a very careful tuberculin treatment. Up to date I have given ten injections; after the third injection the enuresis ceased. The little girl is in the best state of health, has gained eight pounds in weight. Tubercle bacilli have not been found in the last two examinations. A definite conclusion about the result is not, of course, so far possible, though I do not hesitate to predict a good prognosis also in this case.

My last case is just as little conclusive as to the final result. It refers to the case mentioned in the first part of my lecture. This young girl with the bilateral renal tuberculosis has been too short a time under my treatment for me to be able to speak of it as a success. She has not received more than six injections; nevertheless, I can state that she has increased eight pounds in weight, the micturitions are less painful and not as frequent as before.

So much for my personal experience. As, however, my observations have only been extended over a period of about eight months, I would not dare to speak of a definite cure. Nevertheless, these cases prove that it is no longer justifiable to maintain the statement that it is absolutely necessary to proceed at once to an operation.

The important question is: Which cases are suitable for tuberculin treatment? I am of the opinion that with the exception of those cases in which there is a special reason for us to operate immediately, such as fever, etc., we may with perfect safety try a systematic tuberculin treatment. Operation is only necessary in cases where this treatment has proved a failure. This delay is absolutely without any danger for the patient. We are all the more justified to start a tuberculin treatment, as even the most thorough clinical investigation is unable to inform us as to how far the disease has progressed.

In a far advanced case we will probably be obliged to operate, but that does not exclude the advisability of first attempting a tuberculin treatment. The most important thing is, therefore, an early diagnosis, and it is just for this reason that I have called your attention to the accuracy of a specific diagnosis by tuberculin injection.

Even in cases requiring an operation, tuberculin is of the utmost importance for the after-treatment; above all for the complete recovery in cases showing an involvement of the bladder. We have again and again become convinced that in all cases that have been treated with tuberculin after the operation the bladder symptoms healed much quicker than in cases in which no tuberculin was applied. I am convinced that for this reason tuberculin will

prove indispensable in the treatment of all cases of tuberculosis of the urinary organs; and, in conclusion, I should be very pleased if this paper should be the means of attracting your attention to the specific, conservative treatment of renal tuberculosis.

THE TRAUMATIC NEUROSIS AND BABINSKI'S CONCEPTION OF HYSTERIA.*

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The significance of the new doctrine of hysteria in the interpretation of the mysterious traumatic neurosis has not received the attention it deserves. An editorial communication pointing out its far-reaching implications received little attention in this country until the following letter reached me; and it is to meet the objections therein brought forward against the thesis that the considerations which follow are here presented:

"The ideas expressed in your article, 'Recent Advances Regarding Hysteria in Relation to Traumatic Neurosis,' and, in fact, the whole attitude of the Babinski school, are of a novel and even of a somewhat startling character. Although you do not specifically affirm it in your paper, the implied deductions from your conclusions seem to be a denial of the very existence of the traumatic neurosis, or a denial that any necessary connection of cause and effect exists between an injury not sufficient to produce structural alteration of the nervous system and the development of the hystroneurasthenic syndrome, which has been styled the traumatic neurosis. If I understand your opinion correctly, it is that every case of traumatic neurosis arises from some suggestion either venal or ignorant upon the part of a medical atendant or other person coming in contact with the patient subsequent to the injury. There are two highly important aspects of this hypothesis to which I take the liberty of adverting. In the first place, does it change the practical aspect of the case to assume that suggestion must intervene after trauma to produce the neurosis, if the trauma must exist to establish the susceptibility to suggestion? A severe trauma, with all its attendant phenomena of horror, fear, and pain, is quite sufficient, I should suppose, to take the place of suggestion or afford the suggestion itself. It seems to me that even if the suggestion is always heterogeneous, the responsibility will not be shifted unless injury is always to be regarded as incapable of producing any effects whatever except those of a demonstrably histological or organic nature. Will those who are to mould the neurological thought of the future insist that this is the case?

"The second aspect of the question which appeals to me is its broad generality. It admits of no exceptions. The science of neurology, though it has accomplished wonders in unraveling the mystery of the nervous system, is in no position to acclaim so surprising a generalization. To be sure, there are many cases where suggestion, if it does not originate, at least accentuates the picture of the traumatic neurosis. But to say that, in every single case where the syndrome exists, it has originated in an externally imposed verbal suggestion is to totally deny and exclude the effect of shock as an element of suggestion. In your excellent paper you ascribe, as it seems to me correctly, the state of increased susceptibility upon which hysteria depends to the three great factors: faulty education, cerebral modifications, and hereditary constitution. But this does not necessarily deny to shock which may actually produce intense and characteristic functional disturbances a right to stand, directly or indirectly (and to my mind more likely directly), as a sufficient cause for the production of a state of psychic hypersusceptibility along with, or in conjunction with, the other factors mentioned by you. In other words, the traumatic neurosis develops upon the soil of traumatic hypersusceptibility, and consequent verbal suggestion is secondary and may not even exist. This brings me up to the final question as to whether or not trauma itself may act as the principal if not the unique element of suggestion in the development of a neurosis. This, it seems to me, can only be decided by the immediate isolation of the injured. If the traumatic neurosis fails under these circumstances to develop, then the position of the modern French school headed by Babinski will be more difficult to controvert."

In the first place, the fact that they are novel and even startling is no just cause to reject ideas. Secondly, the suggestions of which I spoke need by no means reach the patient subsequent to the trauma; nor does it need a trauma to establish susceptibility to suggestion; nor do horror, fear, and pain always accompany injury, and when they do so they need not necessarily afford any suggestion, and certainly cannot replace one. Of course, injury may produce emotion: but this is evanescent, unless perpetuated ideationally; for even shock does not suggest, but merely fortifies a suggestion if given; and this, as will appear, need not be "externally imposed verbal suggestion." The word "shock" is used by this writer in the psychological sense; and the psychic hypersusceptibility it connotes is a very minor matter compared with the "other factors." The suggestion must exist, is usually primitive and not secondary, and need be neither "subsequent" nor "verbal." Isolation from suggestion, including antecedent influences, does prevent traumatic neurosis.

To show the connection of cause and effect between the hysteroneurasthenic syndrome and an injury not sufficient to produce structural injury to the nervous system, the best plan is to quote and comment upon such cases as the following:

Some time ago (1889) there was a railway accident in this country[1] in which out of 265 passengers 123 were wounded. Out of this number only two sustained severe injury to the nervous system and neither of these subjects suffered from traumatic neurosis. Twenty-four persons complained of injury to the spinal cord, and their statements were affirmed by medical witnesses. Putting aside the simulators, of which there were several, the others were treated by medical men who believed their patients to be suffering from some serious but obscure injury and who did not hesitate to affirm to their patients and their friends that the malady was of a dangerous nature.

The following particular case is a good example: It is that of a man who had not been externally injured, and who undertook a journey of 200 miles immediately after the accident. The next day on arriving at his house he became stiff and complained of pains. His wife called in the doctor, who informed the patient that he was suffering from Ehrichsen's disease and that he must remain in bed

*Communication made to the Second International Congress on Industrial Accidents, at Rome, May 23-27, 1909.

for five or six weeks. He went to bed and took enormous doses of bromide and choral; applications were also made to the spinal column. The patient had been in business but had failed. The drugs and the confined life produced a loss of weight and strength, and his general health became impaired. Three months later Dr. Bevan saw him. He pretended to have lost his reason and that the lower limbs were paralyzed. But Dr. Bevan took him out of bed, and persuaded him, with his help, to walk round the room. He recommended him to get up and take exercise, assuring him at the same time that he was not injured, and that he could be cured, if he wished it, in a month. He replied: "My doctor told me I would always be an invalid and you tell me that I am not ill at all; who must I believe?" Six months after the accident the suit was brought against the railway company. The proceedings were hastened, the death of the patient being feared. The patient claimed damages on the ground of permanent injury to the spinal cord. The proofs were made before the judge by the dynamometer, the esthesiometer, electricity, etc. He was given a large sum of money as compensation. A short time after he took up his work again.

Another case is that of a man who had no external injury, but who was greatly frightened, a typical case of traumatic hysteria. He, too, called in Dr. Bevan. He complained of a severe pain in the back and claimed that the lower limbs were paralyzed. At the end of a week the doctor took him in his arms and made him stand up, assuring him at the same time that he was not injured, only frightened. He cried like a child. In ten minutes he was persuaded that he could walk. He left the hospital three weeks after the accident. Shortly after leaving he consulted a neurologist, who told him he was suffering from a "commotion" of the spinal cord. Dr. Bevan then sent him to another medical man to whom he had already written his opinion of the case. This doctor thereupon advised the patient to commence work again, and he did so. After he was cured he was very grateful for the treatment, although at the time it appeared very severe. As he admitted, he was so thoroughly frightened that if he had been told he was suffering from an injury of the spinal cord he is certain he would have become a chronic invalid.

Each of these cases shows that mere exhortation and compulsion quickly removed an inability to walk, supposedly due to some organic perturbation. Now, we have no evidence to show that either pathological exudates or abnormal arrangement of cell processes or static changes in the equilibrium of the Betz cells in the psychomotor projection area can be affected by exhortation; while we have strong evidence to show that exhortation and compulsion can induce or remove false fixed ideas as to motor and intellectual incapacity. But not only that, they can influence the emotions, which in turn, in course of time, profoundly modify nutrition; for the experiments of Pawlow[2] have shown how important is the psychic factor where the salivary and gastric secretions are concerned. Anxiety, worry, grief, are all forms of fear which inhibit these secretions. But not only are noxious substances produced in the stomach through the fermentation permitted by the delayed digestion there, but the retardation in the outflow of acid chyme interferes with the hormonic activities which are required for the outpouring of pancreatic and biliary fluids, as shown by Bayliss,[3] The effects of this malnutrition and intoxication are seen in the yellow tint, emaciation, indicanuria, and other neurasthenic symptoms which the traumatic-hysteric eventually develops.

The so-called gastric neuroses are striking examples of this fact. They are cured by the removal of the patient's idea that his food will disagree; for it is only when this is done that he will normally digest it; for when each morsel reinforces the dread and its inhibitory effect upon the gastric secretion, the food really does disagree, until from the vicious circle established, emaciation may become so profound that death may follow.

In the hit-or-miss therapy of unreasoning negation of all physical agencies employed by the Christian Scientists, these are among the patients who are cured. But though the cause of this disease is psychic, it it not necessary that it be cured by the substitution of one delusion by another. For confinement to bed, and the observation for a few weeks of his gain in weight, from which he cannot but infer that he must be digesting his food, when added to the true explanation of his condition gradually inculcated by his physician, is not only a more certain and permanent method of cure, but obviates the intellectual disorientation and disharmony with the universe connoted by a superstition. That the gastric neuroses are generally induced, or at least perpetuated, by the unskilled suggestions by medical men is clearly shown by Déjérine,[4] and Bernheim,[5] The unwary remarks doctors use before patients who consult them for indigestion, and their ignoring of the mental factor in dyspepsia, and of the laws of suggestibility, must be blamed for this.[6] The analogy with the traumatic neuroses is complete: both are hysterical symptoms in the sense of Babinski[7]; for both are "induced by suggestion and removed by suggestion-persuasion."

Trauma is quite unnecessary, as shown by such a case as that Dubois[8] reports, where a peasant boy, in the hospital for a trivial ailment, was told before the class that he would be unable to lift his right arm; and he could not do so until Dubois declared that a certain maneuver would give him the power; the boy then quickly raised his arm. Bernheim's writings swarm with such cases, in which paralysis, anesthesia, or other incapacity is merely the expectation, the fervent belief, of the patient in his own incapacity. An exactly similar fervent belief is present in the popular mind that certain traumata produce certain disabilities, which accordingly manifest themselves in hysterical individuals.

The source of the belief in Dubois' boy was easy to see, because experimental; while the source of the popular belief is buried in the traditions of "Ehricsen's disease," when it was believed to be due to spinal commotion. We now know that both spinal and cerebral commotion produce a clinical syndrome quite different from the traumatic neurosis. Concussion causes immediate symptoms, which may gradually pass off. In traumatic neuroses the symptoms rarely occur for some hours, days, or even weeks, and do not occur in all people; they require the predisposing cause, which in this case is the really efficient one. It is constituted by the suggestions of others, either already present in the patient's mind more or less consciously, or presented to him at the time of or after the accident by the injudicious solicitations of relatives, friends, or very often by the doctor who still believes in the anachronism of spinal commotion or traumatic neurosis.

The springing into consciousness of a latent suggestion by a shock is illustrated by the following

case: A girl was brought to Babinski having become monoplegic upon receiving an electric shock while crossing a tramway line.[9] This seemed like paralysis not caused by suggestion; but after the symptom had been removed by persuasion, further inquiry elicited the fact that the patient had overheard some months previously a conversation between some electricians who were speaking of the dangers arising from electric shocks of the above description. It is evident that upon experiencing the shock, there had flashed into the patient's mind a datum learnt from the conversation she had overheard and apparently forgotten; and that this memory furnished the suggestion at the base of the palsy she developed.

It is, however, not the shock itself which must be implicated here, but the ideational complex which it served to arouse. Complexes are the components of our mental life.[10] Any of the numerous branches may recall by association the whole complex, and thus the complex may then dominate the consciousness to the complete exclusion of all other ideas. The fixed idea is too common to need illustration. Now, the emotional mood is more or less *en rapport* with a person's intellectual content. Hence an idea connoting sadness is accompanid not only with the feeling of sadness, but with the physical reactions of that state, too. Normally any idea-emotion complex occupies the field of consciousness only until displaced by some other, as required by the exigencies of social adjustment. But when accompanied by powerful feeling-tone, a complex may remain or recur until that feeling-tone is satisfied dynamically, or replaced by another. A pecuniary solatium may furnish the dynamic satisfaction of the feeling-tone of injuries in traumatic neuroses.

This, however, is not the only means of doing so; for even the indemnity acts only in virtue of its effect upon the patient's *amour propre,* which may be flattered in many other ways, as by sympathy, understanding, etc., as is illustrated by the following case: A railroad brakeman was thrown by the giving way of a stirrup while his train was traveling about ten miles an hour. He fell on the small of his back against a bank of earth, rolled over two or three times, and lost consciousness for over half an hour. After crawling about half a mile he was found. He felt sick all over, and brought up blood, which also came from the bladder and bowels, only that day, however. After reaching his home town, he was assisted to his house, one and a quarter miles away. He did not sleep that night, but rested the next morning. In the afternoon he became restless, and sticking pains occurred in the back, and lasted several days. He was up and about with a crutch in fourteen days, but shortly afterwards he lost the use of his legs, having to move them with his hands, but he walked about on crutches, though he felt faint after progressing two or three squares. On account of anxiety and want of means he soon after went to live with his mother, his wife going to her father. When questioned, he replied, "Well, yes, I missed her"; but he stated that he was too much preoccupied with his health to care much. About three months later he was able to hobble with a stick only, but varied from day to day in his power to do so.

He said he felt a buzzing and a severe pain in the head as well as in the back; these did not begin until one month after the injury. He worried much over his position and circumstances, and the dependence of his wife, and in being unable to help her and his mother, who was an invalid with a younger boy to take care of. (He wept while relating this). He he never worried before his accident, but now he could not help it; for though he was owed $225 by an accident insurance company, they would not pay him anything. He did not know what to think about his health; for though the railroad doctor upon seeing him after the accident declared that he would soon recover and be able to work, he had lost over twenty pounds in weight, had become very weak, had sore throat and capricious appetite and sallow skin, and wept nearly every day. Moreover, about ten days after the injury, two other doctors, called in by his family, each said independently of the other that he had a congestion of the spine, which, though probably temporary, might last a lifetime. He had a very severe "fainting spell" one day after a cold; but when interrogated, he confessed to having eaten a large meal of sweet milk and cold slaw, and this was the only occasion since the accident upon which he had actually vomited, though he had often had a dull, sick feeling when overheated. He wished he had never seen a railroad, "meaning nothing detrimental to anyone but myself."

He had employed attorneys who were bringing a claim against the company; he had asked for two thousand five hundred dollars and employment, and had received much sympathy from his friends. When asked his object in this, he replied: "I will be frank with you and all. I was looking forward to promotion. It was no fault of mine that I was injured; if it had been, I would have said nothing. I merely ask for a sum of money and a job I could do. I could get around and do a job I could do, but I would never run railroad again; for in catching a box local, it means heavy weights all day, and I cannot gain promotion except through this." He thought he might do office work, though he dreaded it; for outdoor work suited him better than the confinement of bookkeeping; besides, a good brakeman could make a hundred dollars a month.

Upon examination, I found the tendon reflexes equal on the two sides and neither exaggerated nor unduly feeble. The cutaneous reflexes were all unusually active with the exception of the plantar, in which, however, the toes distinctly flexed upon several occasions, until inhibited volitionally. When I distracted his attention, flexation again occurred. Sensibility: A pin prick on the lower limbs is called a punch; cold steel is called warm, and the diapason is felt only when in full vibration. Cotton wool is unfelt in front as high as the groin, and behind as high as the iliac crest on the right side, at first; but after the left side had been examined and found insensitive only as far as the gluteal fold, he confessed to feeling the wool on the right buttock also. When asked to say when he did not feel the wool, he said "no" the first seven times he was touched on various parts of the lower limb, later ceasing to reply. The gluteal esthetic boundary varied by about two inches at different examinations. In the lumbar region, he was bilaterally hyperesthetic in a two-inch zone, shading off below and sometimes extending onto the buttocks. Posteriorly, the upper border of the zone corresponded to D. 12 and L. 1; laterally to D. 10-11, and anteriorly to D. 8-9.

The motor power was good. When he attempted to use the legs alone, he strongly tightened up the antagonistic muscles; but when his attention was diverted he could maintain powerful extension at

the knee, even on the left side, though he declared himself weak there from an old dog-bite. Babinski's combined flexion, and Hoover's and Zenner's tests were all negative. The pupils are equally dilated, and respond promptly and vigorously to light and accommodation, but no pain reflex could be elicited. There was no loss of memory or other intellectual defect, although the affectivity was perturbed as described.

It should be evident that the incapacity of this man arose from the fixed idea, very probably inculcated after the accident by his friends, although contributed to largely by the common belief of railroad employees, that an accident can induce serious nervous disease. The doubtful prognosis of the doctors, evidently unskilled in neurological diagnosis, strongly fortified the man's belief and consequent anxiety. The anesthesia, produced by previous medical examination, might have deceived an inexperienced observer; but the wool test, which had not previously been employed as I performed it,[11] quickly revealed not only an "uneducated" line of demarcation, but demonstrated that the man did feel by the very fact that he said he did not. Of course, even had I not succeeded in thus demonstrating the incongruity of the syndrome with the neuropathology of the spinal cord, the complete conservation of all the reflexes was sufficient to show that the anesthesia did not arise from disease of the spinal cord.

The diagnosis, then, was hysteria, the psychic elements of which were clearly revealed in the foregoing history. The prognosis given was favorable; but I first explained to the patient and doctor separately the real genesis of the disorder, showing the former the effects of worry and anxiety upon bodily nutrition and the rôle of ideas over bodily activity.

The treatment I recommended was the reestablishment of good nutrition, regular exercise, a removal of grief and worry by the assurance of a reasonable compensation for the anxiety and loss he had suffered (for though his ideas were erroneous, and he was in one sense of the word a simulator, he was so unconsciously, and because of the environmental beliefs he had acquired), and the declaration that by following my treatment he would be capable of moderate work in a few weeks, and in a short time would be entirely restored to health. Being asked for a certificate, I gave the following to both patient and doctor: "This is to certify that I find Mr. V. to be suffering from a condition of incapacity for free walking or mental or physical work from the effects of a fall from a brake car (as I am informed.) This state is induced, as a result of the aforesaid accident, by the worry, anxiety, and loss of means directly caused thereby. I believe that by appropriate treatment he could be restored to a certain extent within one month; and that within three months he could be fully capable of pursuing any laborious avocation he chose. He is, however, at present in too low a state to be capable of long, continuous labor, even though the incapacity of his limbs were immediately removed. There is, and has been, no disease of the spinal cord or peripheral nerves at play in the induction of any of the symptoms which I find. The erroneous belief that there has been such an injury powerfully contributes to the anxiety which maintains his present state."

As to the outcome, a letter from the doctor a few days ago stated in reply to my query: "We compensated V. by a sum of six hundred dollars; and he went back to work *on time* just as you predicted." *Naturam morborum curationes ostendunt.*

It is true that during shock or other emotion, intellectual control may decrease, and suggestibility be favored. Thus, Sir Arthur Mitchell[12] has demonstrated that during blushing and laughing as well as in dreams the conative element of our psychic life is in abeyance, and one is practically insane for the moment, self-control being gone. A parallel case is that of fright; but this still quickly passes away unless maintained artificially ideationally from a suggestion, not necessarily made after the event, but perhaps latent, as in the case previously reported. The suggestion need not even be explicit; but often is implicit in the whole conduct of those who surround us, and may be made by manifestly insincere attempts to minimize what it is easy to see is believed to be a grave danger. Every animal trainer knows how contagious is alarm; and similarly among primitive intelligences, suggestions of fear are quickly seized. Guy de Maupassant and Zola have vividly depicted the genesis of fear by this mechanism. But, as I insist, these states quickly pass unless they have some powerful ideational basis for their maintenance.

The evidence adduced to prove that a so-called visceral or vasomotor neurosis due to a physiological path[13] acquired in the spinal and lower neuroses is very meager. (The word *neurosis* is used by these writers in a very different sense from that given by Souques,[14] when he describes what really is a neurosis; Sherrington[15] justly employs the term psychosis to signify telencephalic reactions.) The disposition toward precurrent and consummatory reflexes organized phylogenically as instincts inheres in the neuronic arrangements very differently to the labile differentiability of psychic adaptation in the neopallium. It is to the latter that we must look in explaining the reactions of these patients; and that these are mental, not neuronic, is shown by their ready modifiability by mental means.

It is thus again to "idea" that we must resort in order to explain the perpetuation of even the motivity of this psychoneurosis. Moreover, it is a question of a notion dominating because it is unmodified by other, correcting or inhibitory ideas, *i.e.* it is a suggestion.[16] Hence, of traumatic neuroses suggestion is the sufficient cause, and none of the others alleged is even essential. The traumatic neurosis is therefore pure, unadulterated hysteria, for its primary symptoms are each "susceptible of production by suggestion and of disappearance by means of suggestion-persuasion."[7]

As to the diagnosis of susceptibility, it may be affirmed, and not merely guessed; for the method of exclusion need no longer be relied upon when differentiating psychic disorders.[17] Thesigns by which we distinguish psychic symptoms are as positive, clear, and demonstrable as any other reaction observed at the bedside.[18] For instance, a blush induced by a suggestion by the investigator is as much an observable, unmistakable, pathognomonic reaction as is the more simple extensor reaction of the great toe when the sole of the foot is lightly stroked in a patient having a disorder of the motor projection fibers in the pyramidal tract or elsewhere in their course.

The tests we employ for the estimation of attention, perception, memory, association of ideas, fatiguability,[19] differ not in kind, but only in complexity from those employed in the mensuration of motility and sensibility, including the function of the

special senses, the validity of which is disputed by no one. Even the emotions are now being studied by the exceedingly delicate galvanometric method of Féré,[20] resuscitated by Tarchanoff,[21] Veraguth,[22] and employed by Jung,[23] Petersen,[24] Sidis,[25] etc.

We are not in a position to measure the very complex reaction known as suggestibility; but it would be as absurd on this ground to forbid us to ascertain it clinically as would be the prohibition of cardiac murmurs as physical signs unless we measured their sonority instrumentally. Just as skill in an appreciation of cardiac murmurs requires a long apprenticeship in auscultation, much more does the technique for the elicitation of suggestibility require training and experience.

The outstanding corollary of these doctrines is the tremendous power of the medical attendant to impose, or not, upon his patient an idea which may create such a derivative of the imagination as a syphilophobia, astasia-abasia, a paralysis or weakness of an extremity, or any of the numerous imaginary diseases suggested by medical men by injudicious questioning or advice.[6] I need not here discuss the deliberate venality which arouses fear for its own profit; for that fear is often allayed by the ingenuity by which it has been incited. I speak only of the blunderer in whose mind the idea of organic disease permeates his conduct so as to alarm the patient. Nor need I do more than allude to a factor which has led to much confusion, viz., simulation; for it has been most luminously analyzed with rare psychological insight by Dupre.[26]

A false and exaggerated optimism is in this respect as fertile in unfortunate suggestions as is the preceding method; for the patient quickly perceives the insincerity of his attendant's remarks. Both attitudes arise from the want of precision in methods, and consequent uncertainty of diagnosis.

To the doctor's temporizing thus engendered we must attribute the birth of evolution of the so-called traumatic neurosis. Now, pathology has taught us that spinal and cerebral commotion cannot give rise to symptoms of the character and duration complained of by the victims of railway spine, and that hematomyelia and concussion are both very different clinical pictures. Chemistry has taught us that no constant change occurs in the secretions of these patients. From biology we learn that other organisms suffer from just such disabilities independent of trauma; and from ethnology that other races and peoples show a similar syndrome, though the thought of a railway train has never entered their heads. Psychology has taught us that such symptoms can arise purely from an idea, and can be removed by another idea.

We cannot then attribute this disease to trauma as such, but must do so to the expectation of medical men of the last generation that such a condition was biologically present, and to the consequent present belief in its existence by the laity, who are always laggards in science.

This popular belief is prevented from dying by the few medical men who still foster the doctrine that trauma can itself produce the neurosis in question. Whether it is done through respect for authority, by following the fashion, on account of want of information, or by reason of venality, the effect on the public mind is alike; and it is high time that we, as a profession, orientated ourselves as regards hysteria in a fashion at once precise and comprehensible, so that an end may be put to the scandal of permitting a premium to be placed through our fault upon want of hardiness, lack of self-respect, forgetfulness of obligations, even when simulation, unconscious or deliberate, is not in question.

To do this the first essential is a thorough knowledge of the organic nervous diseases, revealed by our studies in clinical neurology, and the second requisite is due, not exaggerated, appreciation of the rôle of the psyche in the production of symptoms apparently somatic.

When psychological mystification is replaced by diagnostic positiveness, such results as were shown by my own and Bevan's cases are more likely to be the rule than the exception, as at present. Only in this way will disappear the reproaches suffered by our profession for incompetence in the face of certain long-standing nervous affections of which the functional nature is later proved by a cure through Christian Science, Mental Healing, and other faith cures. Sometimes, the psychic element in the recovery is not so clear; for example, when it is disguised in such procedures as cheiropraxy, osteopathy, homeopathy, or even in some cases electrotherapy when indiscriminately applied. Any of these means, just as surely as drugs, may affect a symptomatic cure merely through the suggestion they convey. In this respect it is to be regretted that the procedure of too many practitioners is defective; for many, when uncertain or vague in their diagnosis, will run the gamut of their armamentarium on the chance of a lucky hit. Even the therapeutic blunderbuss is by no means extinct.[27]

It is to be feared that even the careful studies of the adherents of the psychoanalytic method need revision regarding the suggestions unconsciously made by the observers.[28] Until this is done this field, promising though it may appear, must be entered with due scepticism.

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THE FIRST AMERICAN HOSPITAL.*

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Medical friends who were very much interested in my sketch of The First American Medical School (*New York Medical Journal,* October 10, 1908), and who were surprised to learn that the first medical school in America had not been founded within the limits of the United States, but that the University of Pennsylvania School of Medicine which we have been accustomed to think of as the first one was anticipated by nearly two centuries by the Medical School of the University of Mexico, have wondered how any serious medical teaching could be done without a good hospital and have asked about the first hospital in America. Like the first medical school, the first hospital in America was founded in the City of Mexico now nearly four centuries ago, and it is still in existence. It was used for purposes of clinical teaching over three centuries and a half ago, and is a standing lesson of how much sooner the Spanish-Americans seriously took up the solution of social problems than the English-Americans.

The whole subject of early Spanish-American development and progress, but especially of Spanish-American education, has in recent years been attracting profound attention in this country. As a consequence there has come a knowledge of the realities of the history of education in this country that has quite revolutionized certain older ideas. Professor Bourne of Yale, in the third volume of the American Nation Series, does not hesitate to declare that "It is not too much to say that the institutions of learning founded in Mexico in the sixteenth century, in number, range of studies, and standard of attainments by the officers surpassed anything existing in English-America until the nineteenth century. Mexican scholars made distinguished achievements in *some branches of science, particularly medicine and surgery,* but preeminently linguistics, history and anthropology." As a distinguished professor of medicine in this country said not long since: "It is indeed a surprise to find that while we have been accustomed to think of the Anglo-Saxon as the prime mover in education in this country, he was long anticipated in this by the Spanish-American, though we have been rather accustomed to despise the Spaniard for his supposed neglected education."

The first universities in this country were founded by a decree of the Spanish King in 1551. They were organized in the course of the next two years, though at first only the undergraduate and the theological departments took students. In the course of the first decade, however, law schools had been organized in both the University of Lima and the University of Mexico, and before the end of the sixteenth century both of them had medical schools. During the seventeenth century the number of students at the University of Lima rose to 2,000, according to Professor Bourne of Yale, and there were probably 1,500 at the University of Mexico. Both universities were fully organized universities in which the departments of theology, law and medicine were open only to graduate students. A man had to have taken at least three years of university undergraduate work before he was allowed to enter these departments. When we recall the unfortunate state of affairs which in the United States separated these graduate departments from the universities to the serious detriment of all of them, the work of the Spaniards becomes all the more interesting.

It is not surprising that the people who took such good care of the organization of education should have very early founded hospitals. It is rather astonishing, however, to find that the first hospital still exists and, above all, to learn from the description and pictures of it what a handsome structure it was. This first American hospital, still in existence, was built by Cortez, the Conqueror of Mexico, before 1524. The site chosen for it was that whereon Cortes and his followers first met Montezuma and his Mexicans. Cortez seemed to have had some qualms of conscience as to his treatment of the natives. He feared that he would be held to responsibility for it, and so he obtained a grant of this land from the Emperor Charles V, and erected on it a hospital which he endowed out of the revenues obtained from the property conferred upon him by the Spanish Crown for his conquest of the Mexicans. The hospital was originally called by his desire the Immaculate Conception. In the church adjoining the hospital, however, there was a shrine with a famous image of Christ, called Jesus Nazareno. Because of the fame of this, both church and hospital came to be called by this title, so that this first Mexican hospital is now known as the hospital of Jesus.

Cortez declared in his will that he had established and endowed the hospital "in recognition of the graces and mercies that God had bestowed upon him in his discovery and conquest of New Spain and as an expiation or satisfaction for his sins, and especially for any of his faults that he might have forgotten, but might still be a burden on his conscience, though owing to his forgetfulness he could not make a special atonement for them." Perhaps the most interesting thing about the hospital is the fact that Cortez so arranged the endowment for it that it has continued to be paid down to the present day. It was never given over to the State, but is a special corporation under a superintendent, and so it has survived the changes of government and the revolutions in Mexico. Cortez' principal descendants are the Italian Dukes of Terranova é Montaleone, and they have still the right to name an agent to supervise the hospital. This they do regularly so that the institution has been kept to its original intention and usefulness. The whole foundation from the beautiful building, the finest of its kind on the continent, to the method of the management of the endowment, appeals to this generation of ours which is trying to accomplish just such results as Cortez, by due consideration, found it possible to secure in the first quarter of the sixteenth century.

Strictly speaking, even this was not the first hospital in America, though it is the first one of which

*A communication presented at a preliminary meeting of the Guild of St. Luke, New York City, June 23, 1909.

we have any very definite records, and of course, its existence at the present day gives added interest to it. Prescott in his History of Mexico refers to Torquamada's Monarquia Indiana as authority for the statement that there were hospitals in all the larger cities of Mexico before the coming of the Spaniards and that there was a magnificent hospital organization. Hubert Howe Bancroft in his "Native Races of the Pacific States of North America," says that among the Mexicans "for severe cases the expense of treating which could not be borne except by the wealthy classes, hospitals were established by the government in all the larger cities of the native states of Mexico before the coming of the Spaniards, and experienced doctors, surgeons and nurses well versed in all the native healing arts were provided for them." There was even clinical teaching in these hospitals, and as it was the custom for the profession of healing to descend from father to son the opportunities for a good training in medicine and surgery will be appreciated. Women occupied positions in these hospitals not alone as nurses but also as physicians, and women's diseases and obstetrics were entirely in their hands.

Some of the first books written by the Spanish physicians, and especially the professors in the Mexican medical school, were with regard to this old-time Indian medicine. There seems to have been much more of medicine known to the Indians everywhere than we are likely to think possible. Dr. Chanfa, who had been physician-in-ordinary to the King and Queen of Spain, and who joined the second expedition of Columbus, apparently still under salary from the Spanish Crown, as a scientific attaché, wrote a volume of scientific observations on the voyage, in which he dwells particularly on the medicine of the Indians, their knowledge of simples, and their habits and customs with regard to the sick, besides giving much information with regard to the botany, zoology and meteorology of the regions visited. A brief compendium of this volume was published a few years ago by Dr. Ybarra of New York in the *Journal of the American Medical Association*, and in the Smithsonian publications.

Those who are surprised that Cortez' Mexican hospital of the first quarter of the sixteenth century was so fine a building need to recall the earlier tradition of native hospitals, and also the state of hospital construction throughout the world at that time. Cortez' hospital seems to have had some of the features of the famous hospital built by the Visconti in Milan. This is probably one of the handsomest hospital structures in the world. One of the arcaded courtyards which is the subject of endless admiration, was built early in the sixteenth century, shortly before the time when this Mexican hospital was erected, and the plans for it are said to have been made by Michael Angelo. In certain ways the Ospedale degli Innocenti at Florence, which was more a foundling asylum than a hospital in our modern sense, is also another striking example of the beautiful hospitals of the early period. The Hospital of Siena should also be cited in this list, for it confirms the idea that men were deeply occupied with the thought of making their public hospitals as beautiful as possible, as well as useful. We have only come back in recent years to the idea that public institutions for the poor must uphold the dignity of the municipality, and though they are to harbor the poorest of the citizens, must carry no hint of poverty, but must represent the beneficent expression of the city's feelings toward its citizens.

The Mexican hospital, with its arcades and courtyard, is built after the model of many of the hospitals of Europe erected in the preceding centuries. Some of the finest hospitals in the world were planned and built during the thirteenth, fourteenth and fifteenth centuries. There is a hospital at Tanierre, in France, erected about the beginning of the fourteenth century, that is a model of its kind. Many of the features of it show how earnestly these people of the old time had studied the problems of hospital construction. In describing this hospital at Tanierre, Mr. Arthur Dillon, a New York architest, said:

"It was an admirable hospital in every way, and it is doubtful if we to-day surpass it. It was isolated, the ward was separated from the other buildings, it had the advantage we so often lose of being but one story high, and more space was given to each patient than we can now afford. The ventilation by the great windows and ventilators in the ceiling was excellent; it was cheerfully lighted, and the arrangement of the gallery shielded the patients from dazzling light and from draughts from the windows, and afforded an easy means of supervision, while the division by the roofless, low partitions isolated the sick and obviated the depression that comes from the sight of others in pain.

"It was, moreover, a great contrast to the cheerless white wards of to-day. The vaulted ceiling was very beautiful; the woodwork was richly carved, and the great windows over the altars were filled with colored glass. Altogether, it was one of the best examples of the best period of Gothic architecture."

This tradition of building fine hospitals continued in Europe until the beginning of the sixteenth century. The first American hospital, as erected in Mexico, was due to a direct continuation of this old tradition carried over by the Spaniards from the mother country where, during the preceding century, some magnificent hospitals had been erected. Unfortunately an end of the great hospital movement of the Middle Ages was reached just at this time, and the development that had been secured in hospital organization did not maintain itself. The history of hospitals for the next three centuries nearly everywhere throughout the world is a sad commentary on the supposed constant evolution of man from a lower to a higher state. Ordinarily it is supposed that succeeding generations improve on what their predecessors have done. With regard to hospitals, however, just exactly the opposite followed during several centuries after this.

During the century that followed the erection of Cortez' hospital in Mexico there came a period of very serious decadence. This has been very well expressed by Miss Nutting and Miss Dock in the chapter, "The Dark Period of Nursing," in their "History of Nursing." They said: "It is commonly agreed that the darkest known period in the history of nursing was that from the latter part of the seventeenth up to the middle of the nineteenth century. During this time the condition of the nursing art, the well being of the patient, and the status of the nurse all sank to an indescribable level of degradation." Jacobsohn says (Beiträge zur Geschichte des Krankencomforts, *Deutsche Krankenpflege Zeitung*, 1898), that "it is a remarkable fact that attention to the well-being of the sick, improvements in hospitals and institutions generally, and to details of nursing care, had a period of complete and lasting stagnation after the middle of the

seventeenth century, or from the close of the Thirty Years' War. Neither physicians nor officials took any interest in the elevation of nursing or in improving the conditions of hospitals. "During the first two-thirds of the eighteenth century," he proceeds to say, "nothing was done to bring either construction or nursing to a better state. Solely among the religious orders did nursing remain an interest and some remnants of technique survive. The result was that in this period the general level of nursing fell far below that of earlier periods. The hospitals of cities were like prisons, with bare, undecorated walls, and little dark rooms, small windows, where no sun could enter, and dismal wards where fifty or one hundred patients were crowded together, deprived of all comforts and even of necessaries. In the municipal and state institutions of this period the beautiful gardens, roomy halls and springs of water of the old cloister hospital of the Middle Ages were not heard of, still less the comforts of their friendly interiors."

This first American hospital then is interesting also as a landmark in the history of hospital construction and organization. It came at the end of a great period of hospital building during which all the necessities for hospital work had been carefully thought out and details of construction planned for the benefit of the ailing. After it all over the world a period of hospital decadence began which culminated at the end of the eighteenth century. Real improvement did not come until well on into the nineteenth century. The second American hospital was built at Santa Fe in Mexico, but was not as beautiful as the one in the capital, and is not now in existence. The next American hospitals came in Canada, but while the French gave some attention to humanitarian work, the French Government was not so liberal in its support of colonial institutions, charitable and educational, as was the Spanish Government. The Hotel Dieu in Quebec is on the same spot where the original Hotel Dieu was, but the first building has long since disappeared. It has a continuous history ever since, and Miss Nutting and Miss Dock in their history of nursing already referred to, tell the wonderfully human and interesting story of its foundation and early struggles for existence.

A NOTE ON THE STAINING OF BLOOD FILMS.*

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Recognizing the desirability of an easy method for staining blood films, and that such a method needs to be rapid, easy of application and constant in its results, this slight modification of Jenner's stain is presented with the hope that it will fulfill these requirements and recall from oblivion an undeserved by neglected method. Of the original Jenner's stain, Simon[1] says, "For routine purposes I can recommend this stain without reserve."

The medical profession is coming to realize more and more the value of blood examinations in the diagnosis of disease. The stained smear is the simplest of the methods used in the study of the blood and the one which can the most readily be utilized by the busy practitioner, giving as it will a greater amount of information, if properly studied, than any other one blood examination.

*From the Laboratory of the Connecticut Hospital for the Insane.

Information Obtained from Stained Blood Smears.—A fair estimate of the percentage of hemoglobin can easily be formed by the intensity of the staining of the red cells. Alterations in their size and shape, together with nucleated forms, means pernicious anemia; stippled cells speak for lead poisoning; malarial parasities mean malaria; eosinophilia suggests trichiniasis; many myelocytes, myelogenous leukemia; lymphocytosis, lymphatic leukemia. Of course, the well known value of a differential count scarcely needs mention, and some knowledge can be obtained of the presence or absence of leucocytosis in an evenly spread blood film.

Stained blood smears are within the reach of every doctor owning a microscope, and every patient presenting fever, pallor, or obscure symptoms of any kind has a right to demand the benefit of such a simple examination, making it as much a matter of routine as the examination of the urine.

There are, unfortunately, almost as many different methods of staining blood films as there are laboratory workers, hence it is hard for the general practitioner to select a technic giving him the best results at a minimum expenditure of time and labor. Each operator, consciously or unconsciously, modifies a given technic to suit his needs, but no one ever seems to get exactly the same results as the originator of a certain method, due probably to minor and unconscious modifications which are practically impossible to describe on paper.

Peebles and Harlow[2] have claimed that the reaction of the stain is the important point and is due to changes in the methyl alcohol. They claim that an acid stain will not stain the neutrophilic granules and nuclei sufficiently. A solution too alkaline will stain nuclei and granules, but the red cells do not stain well.

Emery R. Hayhurst[3] gives an excellent method, but one which requires the use of two solutions and the exclusion of air from the staining films which necessarily complicates the technic. Jerome E. Cook[4] describes a stain which gives admirable results, but great care must be given to the technic.

Most of the methods in use seem to require too much manipulation, consumption of time, or attention, especially for the general practitioner. We have tried many methods in this laboratory, including eosin and methylene blue, Romanowsky's, Ehrlich's stain, Leishman's, Jenner's, Wright's, Hasting's, Harlow's, etc. The most uniform results have been obtained from a slight modification of Jenner's stain which requires the use of no other apparatus than the staining solution and slide, and is prepared after the following formula.

Preparation of the Stain.—Take 200 c.c. of a 1.25 per cent. solution of yellow aqueous eosin in distilled water and mix with 200 c.c. of a 1 per cent. solution of methylene blue, medicinally pure, Grübler, in distilled water. Any of the Grübler blues work satisfactorily. Allow this mixture to stand in an uncovered shallow porcelain evaporating dish for twenty-four to thirty-six hours protected from dust. At the end of that time, filter through a fine grained filter paper. The residue on the filter is dried in the incubator or oven at 55° to 60° C. This powder is shaken up with cold distilled water, filtered through fine paper, and washed with distilled water until the washings are a thin dirty purplish color. Dry the precipitate on the paper, either in the air or in the oven not above 60° C., then scrape off the powder and store in a bottle.

This gives enough powder for about 300 to 400 c.c. of stain. Any of the commercial houses could easily prepare this stain, thus making the actual office work trifling.

Preparation of Staining Fluid.—Take the above powder, 0.2 gram, and of methyl alcohol (acetone free), 100 c.c. Rub up in a mortar, adding the alcohol to the powder, a drop at a time, allow to stand for three or four days in a bottle, then filter and add 25 c.c. of methyl alcohol. The addition of the methyl alcohol is for the purpose of thoroughly dissolving all the stain and diluting it sufficiently. The bottle should be corked tightly to avoid evaporation and consequent concentration of the stain, but the solution may be diluted later with another 25 cc. of methyl alcohol if necessary. The solution is purplish blue in color and is without sediment or precipitate. The fluid is now ready for use and will keep indefinitely. We have kept some for years in a clear glass bottle on an open shelf in the laboratory.

We generally make blood films on slides, using another slide or cigarette paper for spreaders. Smears are dried quickly in the air, then covered with a thin layer of the staining solution without previous fixation. If too much solution is used, staining is not as rapid as when there is a thin layer of the stain. The stain is allowed to remain upon the slide one to three minutes, then it is washed with some of the original solution, removing any possible precipitation and intensifying the stain. Pure methyl alcohol used for this purpose decolorizes too rapidly. The slide is next washed in running water until the film is a mahogany color. Distilled water may be used if preferred, but there is no advantage in so doing. It is finally dried with filter paper and is now ready for examination. If by chance the staining solution is allowed to dry upon the film, no harm results as would be the case if other methods were used. In this case it is only necessary to apply a fresh solution to dissolve the dried stain and proceed as before. It is impossible to overstain. There is no danger of spoiling smears, thus necessitating another visit to the patient and consequent loss of valuable time.

Microscopical Appearance of Stained Blood Smears.—The red cells are stained a terra cotta; stippled cells are easily detected by the minute bluish markings; nuclei are blue and sharply defined; blood platelet in clumps are a paler blue but quite distinct; granules of the polymorphonuclears are a dull mahogany; granules of eosinophiles, a brighter mahogany; basophilic granules are bluish violet; malarial parasites are stained a greenish blue; the pigment of the pigmented forms is unaltered, and the ordinary bacteria are stained blue. This method of staining is used in counting bacteria for vaccines and the opsonic index.

If the reaction materially alters the action of the staining solution, this laboratory has been peculiarly fortunate in the constancy of this stain, for the last in the bottle always stained as well as the first. However, it would be well before making the solution to test the methyl alcohol; if acid, it could be neutralized by sodium carbonate before making up the stain. Merck's acetone free methyl alcohol seems to be constant in reaction and gives excellent results.

Summary.—This stain can be prepared by the commercial laboratory. It will keep indefinitely. Its application is simple, requiring only the blood film and staining fluid for its consummation. It will not overstain if left until dry. Its results are constant and can always be relied upon. It stains malarial parasites and bacteria.

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STENOSIS OF THE VESICAL OUTLET FOLLOWING PROSTATECTOMY.*

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NEW YORK.

A SEARCH of the literature on prostatectomy shows but few reported cases of stenosis of the vesical outlet following operation. Some writers allude merely to the desirability of an occasional passage of a sound to guard against possible stricture of the deep urethra, and others regard this as an unnecessary precaution. Two such cases having come under my observation recently makes me feel that the subject is of more importance than has hitherto been considered, and therefore justifies this brief communication.

The first case of this character was a patient of Dr. L. Bolton Bangs. He has already reported this case in detail before the Medical Society of the State of New York, therefore I will only outline its most salient features. The patient was aged sixty-six and gave evidences of marked general sclerosis. Perineal prostatectomy was performed for, practically, total retention of urine, and the patient made a quick, uneventful recovery from the operation. At the end of eighteen days, when he left the sanatorium and returned to his home, he was voiding urine every four hours and completely emptying his bladder. A month later he began to develop increased frequency with dysuria. The stream had become dribbling and feeble. His physician found it impossible to catheterize him, and Dr. Bangs was called to his home in consultation. As I had assisted Dr. Bangs at the prostatectomy he invited me to be present at this consultation. We found it impossible to enter the bladder with any instrument, the obstruction being deep in the urethra. Suprapubic cystotomy was decided upon with the idea in view of retrograde catheterization. After the bladder was opened, the following conditions were found, the description of which I give in Dr. Bangs's graphic words: "Careful examination of the interior of the bladder, repeated both by myself and my associate, Dr. Squier, failed to find any normal internal meatus; but at the anatomical situation of the latter could be felt a shallow, funnel-shaped dimple. Inferior to this was a thickened bladder which, aided by bimanual palpation with two fingers of the other hand in the rectum, was made out to be the contracted capsule of the prostate covered by the muscular and mucous wall of the bladder. All efforts to introduce instruments of minute size into this dimple failed. Consequently, a staff was placed in the urethra and the perineum freely opened. Short, thick, interlacing fibrous bands had displaced the normal structures, and although there was a series of shallow pockets between these bands,

*Read before the American Association of Genito-Urinary Surgeons, May 31, 1909, at Mount Pocono, Pennsylvania.

forming a semblance to an irregular channel, no opening leading from this channel into the bladder could be found. A blunt-pointed instrument was then placed in the conical dimple within the bladder, and being held firmly in place by my associate, I severed the bands in the perineum until the point of the instrument was reached and an opening thus made into the bladder through which the index finger could be introduced. A sound of the size of 26 F. was then easily passed from the meatus into the bladder. Suprapubic and perineal drainage were established, which the patient bore very comfortably and convalescence from this second operation was uneventful."

The second case occurred in my service at the New York City Home. The patient was sixty-nine years of age. His urinary history dated back to November, 1906, when a benign tumor was removed from his bladder by suprapubic incision at the Metropolitan Hospital in New York City. On June 9, 1908, at a second New York City hospital, he was given suprapubic drainage of the bladder for the relief of retention of urine. He left this hospital before the wound had healed and was lost sight of until October, 1908, when he appeared at another New York City Hospital and a suprapubic prostatectomy was performed by a surgeon well skilled in such work. Following this operation a ventral hernia developed, and three months later he went under a secondary operation for repair of the rupture. He came under my care on February 9, 1909, when he was suffering from dribbling of urine, tenesmus, dysuria, and abdominal pain. I found on examination a bladder distended almost to the ensiform cartilage and the patient's general condition was very grave. Repeated attempts to enter the bladder by way of the urethra demonstrated an impassable obstruction to the entrance of any instrument, even a filiform bougie. Suprapubic cystotomy was at once performed under local anesthesia, and a condition was found similar to that in the case previously related. The situation of the internal meatus was located by a dimple in the center of which was an opening through which it was barely possible to pass the finest filiform. This opening was enlarged by making stellate incisions through a dense cicatrix which had formed around the vesical neck at this point. A sound No. 30 F. was passed through the penile urethra into the bladder after I had demonstrated by the bougie à boule that there was no stricture formation at any other point in the urethra. The bladder was drained only suprapubically. The consequent course of the convalescence was uneventful. A sound was passed every three days for three weeks. The suprapubic wound healed kindly, and now, three months after operation, the patient empties his bladder completely and the occasional passage of a sound has kept the urethra patent.

These two cases demonstrate that cicatricial stenosis of the vesical outlet may occur after either perineal or suprapubic operation. The prostatectomy in each instance had been performed by a surgeon with wide knowledge of the surgery of this region, and therefore the element of error in technic can be practically eliminated.

Possibly the complete removal of the prostatic urethra at time of operation may be responsible for the condition described, but as so many cases have been reported in which such removal apparently had no dire after-effects, this supposition is theoretical. It may be important to note that the cicatrix following the perineal operation extended along the site of the prostatic urethra for some distance, whereas the cicatrix resulting from the suprapubic operation formed only an essential collar around the vesical outlet, and did not appreciably invade the deep urethra.

Electricity in the Diagnosis and Treatment of Infantile Paralysis.—H. Marques divides the treatment of infantile paralysis and its symptoms into three stages. The first is the acute stage, when measures to lessen irritation and infection are in order. Next comes a stage of regression and paralysis. Beginning from the early days of the disease, paralysis is marked, and the muscles degenerate and atrophy. The electrical applications are now of great value in two ways: in diagnosis of the possibility of recovery in the paralyzed muscles, and for treatment of these muscles to keep up their tone until the greatest possible amount of repair has occurred in the spinal cord. The Faradic reaction is entirely absent from early in the disease in the paralyzed muscles, and the reaction of degeneration is shown by applications of galvanism to these muscles. Upon the character of the degeneration reaction depends the prognosis for recovery of the various muscles. The use of galvanism is invaluable; in fact, is the only means of treatment of any value in exercising the muscles and preventing atrophy. It is given at first in continuous application, followed by an interrupted current, the pole being used over the muscles that give the best contraction. The sittings should be short and only the amount of current strength that is needed to cause contraction should be used. The final stage of the disease is that of deformity. All possible repair has already taken place, and the time has come for keeping the joints in position by braces, to prevent changes in the joint structures, and for transplanting by surgical measures healthy muscles onto paralyzed tendons. The use of electricity to facilitate the action of the transplanted muscles, in cases of this nature, is of great value.—*Annales de Médecine et de Chirurgie Infantiles.*

Infantile Paralysis of the Muscles of the Foot.—Ch. Ducroquet and Paul Launay describe the operation of partial arthrodesis, devised by them to obviate the false position of the foot created by attempts to replace the paralyzed muscle by grafting onto the tendons slips of healthy muscles. It is impossible to tell how much effect the new muscle is going to have on the articulations of the foot. The great difficulty is that often the foot is thrown into the position of valgus or varus, and the sole of the foot cannot be placed firmly upon the ground in walking. The movements of the ankle joint that are most important are flexion and extension. The rotatory movements of the foot are less important and can be suppressed without great loss of function. The authors propose to suppress these movements in the calcaneo-astragaloid and mediotarsal joints and allow only extension and flexion. To this end they open these articulations and remove the articular surfaces of the cartilage, and cause ankylosis of these joints. They give the histories of such cases operated on with excellent results, and minutely describe the operation. —*La Presse Médicale.*

The Exudative Diathesis.—Claudio Ventura denotes by the name of exudative diathesis a condition obtaining in infants under two years of age, consisting of a transitory and repeated congestion, and turgescence of the skin and mucous membranes throughout the body. The special characteristic of this congestion is its evanescence. It occurs in children of debilitated parents, those that are of advanced age, and those that have debilitating diseases. There are congestions of the nasal and pharyngeal mucous membranes causing stopping of the nose and enlargement of the tonsils, that disappear rapidly; asthmatic dyspnea, and eruptions on the skin that simulate true eczema, urticaria, milk crusts, etc. The vesical, palpebral, and intestinal mocosa may be affected, and the liver is enlarged. After a number of such attacks a permanent hypertrophy of tissues may result. Geographic tongue without loss of appetite or bad general health are manifestations of this state. The cause of these attacks of congestion is a too large amount of the fatty constituents in the diet, and the treatment consists in reducing the diet to the smallest possible amount consistent with the preservation of life, leaving out the materials that will produce fats. No medicinal treatment, Ventura says, is of curative value, and it should be resorted to only as a palliative to the local manifestations.—*Rivista di Clinica Pediatrica.*

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THE CAMPAIGN AGAINST YELLOW FEVER IN RIO.

For many years Rio de Janeiro was a close rival of Havana for the dubious honor of being the chief yellow fever center in the world, and for the last third of the nineteenth century it was easily in the lead, notwithstanding the armies of nonimmunes that Spain was constantly sending to Havana. In 1901, the year that Havana, for the first time in one hundred and forty years, had several months with no yellow fever mortality, Rio de Janeiro recorded 2,299 deaths and in the two years following had 1,568 deaths. Then the city awoke to its disgrace and the Public Health Service instituted a campaign under the able direction of Carneiro de Mendonça, who died while the struggle was most severe, but not until he had organized the Bureau of Yellow Fever Prophylaxis and had inspired his assistants with an enthusiasm which carried them on to victory after his death. Through the courtesy of the Department of Commerce and Labor we have received a copy of a report from the American Consul-General at Rio de Janeiro containing an authoritative and detailed statement of the means by which the sanitary regeneration of the city was effected. This is in the nature of a paper read by Dr. Oswaldo Cruz, chief of the Public Health Service of Brazil, before the Latin-American Medical Congress held in Rio de Janeiro, August 1 to 10.

The initiation of the campaign was beset with many difficulties, for although the health officials had the benefit of Gorgas's experience in Havana, the physical conditions in the two cities were very different. Rio de Janeiro is a city of nearly a million inhabitants, with 82,396 houses spread over an area of 430 square miles and of very irregular topography, the altitude varying from sea level to 1,600 feet. The workers had, of course, also to contend with the ignorant opposition of many of the inhabitants and were backed only by the civil authority which is never so implicitly obeyed as is the military. The campaign was begun the latter part of April, 1903, but it was not until January of the following year that a sufficient appropriation for the service was made by Congress. The army of yellow fever fighters consisted of 1 medical inspector, 10 sanitary inspectors (physicians), 1 administrator, 1 customs inspector, 1 accountant, 70 medical student assistants, 9 subchiefs, 200 overseers, 36 guards, and 1,000 laborers. With this force every house was visited, all water tanks and other places where mosquito larvæ might be found were inspected, the larvæ were destroyed, and further access of mosquitos was prevented. When a case of yellow fever was found the same routine was followed as that established in Havana, of screening the patient and destroying all mosquitos present in the house where he lived. All the persons in a district where yellow fever had occurred were kept under observation one month, during which time every inhabitant was inspected daily. In order to test the efficacy of the antimosquito measures employed, traps were set, from time to time, in the shape of uncovered vessels of water, which were examined at frequent intervals. In many cases no eggs or larvæ were found even after long exposure of the traps, proving the absence of mosquitos.

Owing to the difficulties mentioned, the results of this campaign were not immediately apparent, there being 289 deaths from yellow fever in 1905; but from that time there was a rapid fall, 42 deaths occurring in 1906, 39 in 1907, 4 in 1908, and none in 1909. The fever season in Rio de Janeiro corresponds, of course, to our winter, and as the 4 deaths in 1908 occurred early in the year, it follows that there were none during the hot months of 1908-9, so that Cruz appears to be justified in his claim that yellow fever in Rio de Janeiro has been wiped out.

This experience of the Brazilian health officials corroborates what events in Havana and Panama have demonstrated, that it is possible to exterminate mosquitos in a city, or at least to keep them within what Gorgas regards as the safe limit of numbers. The occurrence of an epidemic of yellow fever in any city of this country will therefore no longer be excusable on the ground of ignorance or of an unavoidable condition of unpreparedness. The authorities of a city who permitted combustibles to be stored in the open where a spark might start a devastating conflagration would be no more culpable than the health authorities who permitted the continuance of breeding places of the yellow fever mosquito, and the public will be not slow to place the blame where it belongs if any city in this country is ever again visited by an epidemic of yellow fever.

TUBERCULOSIS HOUSES.

In this century we are doing a great deal in the line of prevention and cure of tuberculosis, and we are accomplishing much, but there are important lines of prevention in which we have been able as yet to make but little headway, and it is very doubtful whether tuberculosis can ever come near to being stamped out until we are able to control in a sanitary way the abodes of the poor. An example of the near-sightedness of the municipality in this respect was failure of the endeavor made some years ago to have the so-called "lung block" razed and replaced by a beautiful, rest-giving park. Many of these rookeries cannot be made fit for residence

and should be demolished, since they are so infected with tuberculosis that no amount of disinfection can render them safe places of abode; others must have their dark rooms made light and well ventilated, and in this line much has been done in the borough of Manhattan by the Tenement House Commission, while much remains to be done in the other boroughs, where these evils exist although possibly in a lesser degree. Each one of them is a center from which the disease reaches out long arms to seize upon the dwellers in more sanitary houses. Another almost untouched source of infection lies in the sweat shops and factories where the tuberculous operative still sits side by side with his well neighbor, neither of them taking any precautions to prevent the communication of the disease from one to the other.

The reforms contemplated in this direction by another great and crowded city, Paris, are of interest. These as projected are described in the interesting reports made to the Prefect of the Department of the Seine for 1908 and 1909. In the first of these P. Juillerat gives an account of the investigations made by him since 1904 on the conditions present in the crowded districts of Paris, the results of which lead him to assert with emphasis that very many of these houses are hotbeds of infection. The height of the houses, shutting off the light, air, and sunshine from the narrow streets, the dark rooms, and unventilated places afford the conditions favorable to the continued existence of the tubercle bacilli which infect the new comer and the weakling. Should plenty of sunshine and fresh air be let into these places the plague could be stayed. Some of them are capable of improvement, while others can only be demolished. The question is how the city may gain authority to pull down these houses and substitute for them better ones. One of the greatest sources of infection is the furnished-room houses, where one family after another uses the same furniture, which, becoming infected, remains a source of infection for years. Families that use their own furniture are much less likely to have tuberculosis, according to the statistics obtained by the author. That the frequency of tuberculosis is in proportion to the height of the houses, and that tuberculosis is more frequent in the lower stories, are two facts that the author has observed. A house where deaths from tuberculosis are frequent is never found to stand alone; always the neigboring houses are struck by the white plague. The decisive struggle against this disease must be made by the municipality against the housing conditions of the city. The author recommended the appointment by the city of a commission to investigate further the conditions and to decide on the necessary legal measures. In 1909 the commission began its work and has made a partial report. It has been ascertained that in these centers of infection are many small factories in which artificial light only is used, and places where cooking, laundry work, and other occupations are carried on in basements. The people who inhabit these houses do so not from choice but from necessity. They must live near their work. The commission recommends the demolition of these houses and the erection of better ones in their places, with better light and air, with larger courts, wider streets, and frequent parks and breathing spaces, but at the same rents.

A careful inquiry was made into the living places of all patients at dispensaries, hospitals, and charitable institutions, with the result of confirming the data previously obtained regarding the unsanitary house. This investigation is still going on. Some of the immediate results are recommendations forbidding the use as habitations of 263 rooms now occupied, the modification of 873 rooms, forbidding the use of 91 rooms too small for use as habitations, modification of 43 small rooms, and many sanitary improvements of others.

Unusual Symptoms Due to Diphtheria Antitoxin.

Some French observers have recently reported certain interesting clinical facts connected with the use of antitoxin. Ever since the introduction of this substance, the occasional urticaria and joint pains due to horse serum have been well known. In the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux*, Rocaz and Charles state that in laryngeal diphtheria, when the injections are made early enough and the patient is not too young, the evidences of laryngeal stenosis gradually disappear and the organ becomes normal; but occasionally a few days after the first injection an urticarial rash appears with a recrudescence of all the laryngeal symptoms, chest retraction, etc., in fact, all the symptoms of the primary invasion, suggesting a return of the exudate. This phenomenon was explained some years ago by Sevestrem and Martin, who maintained that the exanthem due to the serum was accompanied by an enanthem producing acute congestion and edema of the laryngeal membrane, which disappeared as the urticarial symptoms passed off. If intubation has been done and the tube removed its reintroduction may be necessary. Hence an intubation tube should not be removed when the serum rash appears. If, on the contrary, a tube has not been inserted, if the child has been doing well, the practitioner should not be in a hurry to insert one, since the threatening symptoms are only temporary. As reported in a recent issue of *The Lancet*, Rocaz and Charles give particulars of a series of cases of the following tenor: A boy, aged six years, was admitted into hospital on November 4, 1908, suffering from diphtheria with marked retraction of the chest and completely muffled cough. Twenty cubic centimeters of Roux's serum were injected and intubation was performed. On the 5th, 6th, and 7th the membrane persisted on the tonsils and the injection was repeated. On the 8th the membrane disappeared and the tube was removed. There was no retraction of the chest or dyspnea. In the afternoon an urticarial eruption appeared at 4 P.M., the retraction of the chest returned, and it increased more and more, in spite of the administration of a sedative draught. It was so intense at six o'clock that intubation was again necessary. On the 10th the eruption had disappeared and the tube was removed. In another case a boy, aged six years, was admitted on November 9 with intense retraction of the chest, but the condition was well borne and there was no cyanosis. Forty cubic centimeters of Roux's serum were injected. On the 10th the condition was unchanged and 20 cubic centi-

meters of serum were injected. On the 11th there was slight improvement, but the membrane persisted on the tonsils. Twenty cubic centimeters of serum were injected. On the 12th the retraction had disappeared but the voice was still muffled. On the 13th a serum eruption appeared and the retraction returned. On the morning of the 14th the retraction became as intense as on admission, but as it was well borne no operation was performed; sedatives were given, and the steam-kettle was used. Later in the day the whole body was covered with an urticarial eruption and the retraction was as intense as before. On the 15th the retraction and the eruption disappeared *pari passu*.

An Idiosyncrasy to Horse Serum.

Idiosyncrasies to certain odors have been reported with some frequency, the most common of them, next to the familiar hay fever, being probably that to the smell of the horse. Such cases have never attracted much attention, the most serious result being generally but a temporary coryza and the patient usually learning by himself that the only prophylaxis is the avoidance of the proximity of the horse. That such an idiosyncrasy may, however, cause dangerous symptoms is emphasized by an article in the *Berliner klinische Wochenschrift* for August 30, 1909. In this Arent de Besche reports a personal experience. As long as he could remember the author had been unable to drive behind a horse in an open carriage or to remain in a stable for more than a few minutes without experiencing an attack closely resembling hay fever. This applied to the odor of horses only, cows and donkeys not affecting him. Until he was thirty years of age this peculiarity was nothing more than distinctly disagreeable. At that age, however, it came near costing him his life. While in perfectly good health he was exposed to diphtheria, and as a result, for the first time in his life, submitted to an injection of 1,000 units of antitoxin in 2 c.c. of horse serum. Five minutes later he was affected with marked itching in the nose, running from the eyes, and almost incessant sneezing. He then began to cough and within ten minutes became markedly dyspneic and cyanotic, the attack resembling severe asthma. He felt weak and ill, had a chill, and his legs and arms were cold. His pulse was not palpable. He remained critically ill for two hours, after which the condition cleared up so rapidly that five hours from the onset the patient felt quite himself again. A point of considerable interest in this case is that this acute attack brought on by the horse serum produced a definite immunity in the patient to the milder type of attack from which he had suffered previously when exposed to the odor of horses. This lasted for three months, during which time he was able to drive behind horses or remain for long periods in stables with perfect comfort. At the end of that period the immunity gradually disappeared and the susceptibility to the odors returned. This case is of importance as showing a danger in the use of antitoxic horse serum, and suggesting the care with which it must be administered to those who suffer from idiosyncrasies to the odor of the horse.

Antituberculosis Leagues Among the Negroes.

The excellent antituberculosis work among the colored people of the South, inaugurated by Surgeon Wertenbaker of the Public Health and Marine-Hospital Service, of which we gave an account in a recent issue (Medical Record, August 14, 1909), is being continued and extended and gives promise of effecting great good. It is not only in helping the consumptive that good will be accomplished, but if the organization is successful in carrying out the work that has been outlined it should effect a hygienic regeneration of the negro which all the efforts of philanthropists in forty years have failed to accomplish. The proposed plan of organization contemplated the establishment of a State league having among its officers a vice-president in every county whose duty it would be to organize a branch league in every colored church in his county. It was soon found, however, that after such leagues were formed there was more or less difficulty in getting to work in an effective way since the organizers had had no previous experience. To remedy this, and to aid the county vice-presidents and the officers of the branch church leagues in the new undertaking, Dr. Wertenbaker has drawn up a working plan giving in all necessary detail the method of organization of these leagues, both State and branch. This plan was published in the Public Health Reports of September 3, 1909, and has now been reprinted in pamphlet form for distribution to those interested in the work. Requests for copies should be addressed to the Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C.

A Conference on Pellagra.

The sudden appearance of this disease in the United States is rather mysterious, or would be were it not explicable on the assumption that it is a sudden recognition rather than appearance. It may also be explained on the theory of contagion in which case it would be necessary to abandon the belief in damaged corn as an etiological factor. What the cause is, and indeed what the exact nature of the disease is, will not improbably be a subject of study and dispute for some time. Beriberi, a similar disease, has been studied for many years and it is even yet undecided whether it is caused by the eating of damaged or improperly cured rice or is a bacterial disease. But the sooner a systematic study of the malady is begun the sooner may we hope to discover the means of its prevention; and indeed no time should be lost, for in the few years that it has been recognized in this country it has already been found to exist in seventeen States. The State Board of Health of South Carolina is awake to the danger which threatens the country from this source, and through its secretary, Dr. C. F. Williams of Columbia, S. C., has issued an invitation for a National Conference on the subject, to be held in Columbia on November 3 and 4. The call which the Board has issued extends an invitation to physicians and sanitarians throughout the country to attend the conference. The program of the meeting will include not only addresses, papers, and discussions, but a number of clinical cases will be presented, thus affording an excellent opportunity for the study of the disease. The subject of the treatment of pellagra is discussed by Dr. C. H. Lavinder, of the Public Health and Marine Hospital Service, in "Public Health Reports" of September 10. He says that arsenic is the remedy which has thus far given the best results in the treatment, but the success has not been great, and it is evident that a further study of the etiological factors is necessary as a preliminary to any satisfactory method of prophylaxis or treatment.

News of the Week.

The Endowment of the Pasteur Institute.—The Pasteur Institute in Paris will shortly come into possession of a capital sum estimated at 30,000,000 francs ($6,000,000), the product of the estate of the late M. Osiris, which is now being realized. In 1903 M. Osiris founded a triennial prize of $20,000, to be given to "the person who had rendered the greatest service to the human race during the three preceding years." The prize was awarded to Dr. Roux, Director of the Pasteur Institute, for the discovery of the antidiphtheria serum. Instead of devoting the money to his own private purposes Dr. Roux made over the sum to the Pasteur Institute. This self-denying action so impressed the millionaire that he left the bulk of his fortune to the Institute as a token of admiration for the scientific attainments and self-abnegation of Dr. Roux. The Pasteur Institute is greatly in need of funds, and this endowment will firmly establish it as a monument worthy of the great master.

Contagious Diseases in Chicago.—During the week ending September 11 sixty-four cases of diphtheria and ninety-one cases of scarlet fever were reported—increases of fifteen cases of the former and fifty of the latter as compared with the preceding week. This increase in the number of contagious diseases cases has been particularly marked in the district, "back of the Yards" and on the West Side, and is due to unrecognized and concealed cases. The Health Department has taken the following steps to protect the children from these dangerous diseases: (1) Children from families having had a contagious disease in the house will not be allowed to return to school until two weeks after disinfection has been performed. (2) Every child admitted to school is to be rigidly examined for any symptoms of contagious disease.

Amebic Dysentery in California.—A recent report of the Public Health and Marine Hospital Service states that during the past eight months, December to July, 1909, fifty-five cases of amebic dysentery were admitted to Marine Hospital in San Francisco, sixteen of which are supposed to have originated in California.

Commission to Fight Bovine Tuberculosis.—It is announced that an international commission of twelve, seven Americans and five Canadians, has been named for the purpose of eradicating bovine tuberculosis. The members are: Chairman, Dr. J. G. Rutherford, Veterinary Director-General for Canada; Dr. M. R. Molar, Chief Pathologist of the Bureau of Animal Industry, Washington; Dr. Fred Torrence of Winnipeg, Professor in the Manitoba Agricultural College; Dr. Schroeder, Washington; Dr. Veranus Moore, Dean of the Faculty of Comparative Pathology, Cornell; Senator W. C. Edwards, Ottawa; ex-Governor Huard, Wisconsin; Louis Swift, Chicago, packer; J. W. Flavelle, Toronto, packer; Dr. Charles Hodgetts, Toronto, Chief of the Ontario Board of Health, and Dr. M. H. Reynolds, Professor of Veterinary Science in the University of Minnesota. Dr. Leonard Pearson of Pennsylvania was named, but he has died since the list was made out and his place is to be filled.

New Agricultural Law.—Beginning October 1, 1909, in Section 99 of the agricultural law of New York State, the words "equine" and "bovine" are added, and provision is made for the payment for diseased animals directed by the State's veterinarians to be slaughtered. For bovine animals the sum is not to exceed $75 each, and for equine animals not to exceed $120 each. This provision is added to the law: "If the meat of the slaughtered bovine animal shall be passed for use as food, under official regulations, the Commissioner of Agriculture is hereby authorized to sell the same, and the proceeds from the sale of the meat, hide, and other marketable parts of the said animal shall be paid into the State Treasury."

Hog Cholera in Utah.—A mild epidemic of hog cholera is reported to be existing in the neighborhood of Ogden, Utah. The city sanitary inspector and the butchers are cooperating to prevent the spread of the disease.

Opium Famine in San Francisco.—San Francisco's Chinatown for the first time in its history is threatened with an opium famine. Two important factors have contributed to bring about this condition. The United States Government, by absolutely prohibiting the importation of opium in a crude form, has sent the price soaring from $16 to $40 for a half pound tin, while the State Board of Pharmacy, by strict supervision of all drug stores and prompt punishment of all offenders caught selling opium in any form, has made it impossible to obtain morphine in any place in San Francisco except on a doctor's certificate. This has resulted in a great hardship to the slaves of the drug, many of whom have applied for admission to insane asylums where they may be cured of the habit.

Radium in Colorado.—Reports from Colorado Springs state that valuable deposits of uranium, the mother substance of radium, have been discovered at Woodland Park, a few miles west of Manitou, Col.

The Yawl "Andrew J. McCosh" Wrecked.—Early in September the yawl presented to Dr. Grenfell of Labrador by the alumni of Princeton as a memorial to the New York surgeon was wrecked in the Straits of Belle Isle. The yawl was manned at the time by Dr. John Mason Little, a graduate of the Harvard Medical School in 1901, and three Yale undergraduates. Her mast was carried away in a storm and fog, and the boat was sinking rapidly when Dr. Grenfell, in the *Strathcona*, chanced upon it, rescued the crew, and towed the *McCosh* to Cape Charles.

Bequests to the Blind.—Among many bequests to charitable institutions Miss Edith Rebecca Lord has left large sums in aid of the blind of England. Her entire residuary estate has been devoted to this purpose. She has placed it in the hands of trustees with instructions to found the "Edith and Norman Lord Pensions." These will amount to ten shillings a week and are to be paid to as many blind men and women in England as the income will allow. It is, however, laid down that the recipients must have become blind after their twentieth year, must be over thirty-five years old, and of good character, and must never have begged in the streets or other public places. Several blind men and women are also remembered by name and receive bequests running from $50 to $500. To Miss Beatrice Taylor is left $2,500, to be used in her discretion for the blind branch of the Sunbeam Mission, and the Trustees of the Gardiner Trust for the Blind in London receive $5,000, the income of which is to provide annually a concert and dinner for 200 blind persons, which is to be known as "The Norman Lord Dinner."

Benefactions in New York.—By the will of Mrs. Emma A. Tillotson of New York $126,000 is to be distributed among various charitable institutions of New York City. Among the beneficiaries are the Home for Incurables, New York Institution for the Blind, Home for Old Men and Aged Couples, St. Mary's Free Hospital, St. Luke's Hospital, and the Skin and Cancer Hospital.

Allegany Penitentiary Unsanitary.—An agent of the Federal Department of Prisons and Prisoners has reported to the Attorney-General that the Western Penitentiary of Pennsylvania is in a most unsanitary condition. The report says that "the population on the first of this month was 1,301. Of this number more than half are at all times idle, and more than half are confined two in a cell. The cells are unusually small, and the cots take up almost the entire length of each, the room for moving about being a space eight feet long and eighteen inches wide. There are more than 300 prisoners suffering from tuberculosis, and 79 cells are now occupied by those showing advanced stages of this disease. The prison is filled with vermin of all kinds, although the officials are making an effort to eradicate them. An unusually large number of the prisoners are of the lowest possible character, mentally and morally, and there is but one general mess provided for all. Almost universal complaint is made about the quality of food served, especially the meats." The conditions are so bad as to require the immediate removal of all Federal prisoners.

Essex Market Court.—A committee of the Grand Jury in New York has recently investigated the condition of the Essex Market Court and has reported that they found distressingly unsanitary conditions practically throughout the building. They found the detention pen in the police court an excellent breeding place for germs of tuberculosis and other diseases. They found that magistrates, complainants, prisoners, and court attendants all are exposed to serious disease through the necessity of holding court in this building. The committee subscribed to and desired to intensify the presentment made by the Grand Jury and recommended that the conditions be brought to the attention of the Commissioners of the Sinking Fund as a basis for a demand for a new building. They recommended also that the conditions be brought at once before the Board of Health for summary action and that copies of their report be sent to various officials, including the Police Commissioner.

Philadelphia Jewish Sanatorium for Consumptives.—A new sanatorium for tuberculous patients has just been opened at Eaglesville, Pa., about two and a half miles above Norristown. It comprises seventy acres of land overlooking Valley Forge. On this tract is a large farmhouse and a new barn. The former has been remodeled into an administration building, and four sheds accommodating eight persons each have been built, together with an infirmary with a capacity for ten persons. In addition, a central structure containing a dining-room, kitchen, laundry, and disinfecting room, and connected with the infirmary by a covered porch has been erected. An engine and power house is in process of construction. The farm can furnish the needed vegetables, fruit, and grain, and the sanatorium has its own cows, horses, and chickens. It can almost support itself from the products of the farm. Each of the sheds is divided into two compartments and has a sun parlor. They rest on cement piers ten inches from the ground. Ventilation from above is provided by means of a space between the roof and a stretch of canvas that forms the ceiling of the compartment. Further, options have been obtained on a ninety-acre farm in the neighborhood, and it is planned to divide this into small farms and encourage patients that have recovered to make their homes here and take up agriculture. The institution is nonsectarian and will receive only free patients. The visiting physicians are Drs. W. B. Stanton, Ward Brinton, M. Solis-Cohen, and A. J. Cohen.

The College of Physicians and Surgeons of Columbia University has begun its one hundred and first year with a total enrollment of 279 students, including eighty-five new members of the first-year class. The exercises were held in the main assembly room. President Nicholas Murray Butler delivered the address of welcome and Dr. Christian A. Herter, professor of pharmacology and therapeutics, spoke on "Imagination and Idealism in Medical Science."

New Hospital in New York City.—Plans have been filed for remodeling the old-fashioned four story and basement dwelling at 203 Second avenue for the proposed People's Hospital. The necessary improvements are to be made at a cost of $15,000 and will provide a dormitory on the main floor, wards and private rooms on the first, second, and third stories, and operating, sterilizing rooms, and laboratory on the top floor, and also a nurses' room.

The Guild Hospital of Stanford University, which was a cooperative institution run by the Stanford University student body, has passed out of existence. The equipment and patients have been taken in charge by the Peninsula Hospital Company, and will for the present semester be conducted by this concern until a new building designed for hospital purposes can be erected in Palo Alto. The new concern will take care of all students and university people, who pay the guild fee at the same rates as were charged by the old organization.

Unlicensed Dentists.—The District Attorney's office of New York City began a raid on unlicensed dentists recently, arrested two of the offenders, and issued warrants for thirty more. Investigation has led to the belief that there are over five hundred unlicensed dentists practising in Manhattan alone. A great many of these men have offices on the East Side. Some of the offenders have had elementary dental training in other States. Some of the men for whom warrants have been issued have been convicted before on similar charges.

Poisoning by Ice Cream.—A sudden epidemic of ptomaine poisoning occurred in Fulton, Ky., recently. The sufferers had all eaten ice cream at a certain restaurant and nearly all who had eaten ice cream there were affected. There were no fatalities.

Chicago Milk Supply.—During the week ending September 11 bacteriological examinations were made of 67 samples of milk taken on the streets, 32 being pasteurized and 35 raw milks. The average bacterial count of the raw milks taken on the streets was 4,870,257: of the pasteurized milks, 849,937. The pasteurized milks, therefore, showed an average of 4,029,320 fewer bacteria per cubic centimeter than the raw milks. The 12 samples of ice cream examined during the week averaged 41,024,167 bacteria per cubic centimeter.

Hospital Burned.—St. Caroline's Hospital, a two-story frame building in Redding, Cal., was burned recently. Seven patients were rescued in safety, but a nurse, Mrs. J. H. Hardinge, perished. Miss Constance Rainsberry, matron, saved herself by jumping from an upper porch. She was burned about the hands and feet, but not severely. When the fire was discovered it was burning through the roof. A patient aroused everybody in the building and Miss Rainsberry and Miss Bertha Lampkin, a nurse, saved the patients.

The Sea Breeze Fresh Air Home maintained by the Association for improving the Condition of the Poor, at Coney Island, closed for the season on October 1. In the last summer 22,687 women and children have been taken to Sea Breeze for one-day stays, and 4,171 for stays averaging between eight and ten days.

The Physician's Legislative League of New York was incorporated recently. The objects of the organization is to promote and stimulate a higher standard of professional ethics among members of the medical profession, to recommend the enactment and enforcement of laws tending to elevate the practice of medicine and surgery, and to oppose the passage of laws detrimental to the profession; also to arouse among physicians a regard for their rights in the profession and as citizens of the community.

The Tri-Professional Medical Society of New York, at its annual meeting, held September 21, 1909, elected the following officers: *President*, Dr. G. Morgan Muren; *Vice-Presidents*, Dr. A. H. Goelet and Dr. G. K. Dickinson; *Secretary*, Dr. W. T. Dannreuther, and *Treasurer*, Dr. E. D. Franklin.

The Dallas County (Ark.) Medical Society was organized recently at Fordyce. The following officers were elected: *President*, Dr. C. J. Marsh; *Vice-President*, Dr. O. R. Kelley; *Secretary*, Dr. T. L. Rives, and *Treasurer*, Dr. W. L. Worthington.

The Washington County (Vt.) Medical Association, at its eighth annual meeting, held on September 14, elected the following officers: *President*, Dr. O. G. Stickney of Barre; *Vice-President*, Dr. L. W. Burbank of Cabot; *Secretary*, Dr. E. A. Colton of Montpelier; *Treasurer*, L. A. Russlow of Randolph.

The Franco-American Medical Society of Rhode Island, at its annual meeting, held at Providence, September 15, 1909, elected the following officers: *President*, Dr. J. B. N. Dubeau of Providence; *Vice-Presidents*, Dr. J. B. Morrisseau of Warren and Dr. J. Edgar Tanguay of Woonsocket; *Treasurer*, Dr. F. A. Ruest of Pawtucket; *Secretary*, Dr. Alfred Poirier of Woonsocket; *Assistant Secretary*, Dr. Arthur Trottier of Providence.

Obituary Notes.—Dr. William C. Kraus of Buffalo died at the New York Hospital, on September 21, 1909, aged 64 years. He was a graduate of the Harvard Medical School in 1886 and was a well-known authority on diseases of the nervous system. Dr. Kraus was a member of the Erie County Medical Society and the New York State and American Medical Association.

Dr. Charles T. Wilbur of Kalamazoo, Mich., died on September 15, 1909, aged 74 years. Dr. Wilbur was a graduate of the Berkshire Medical College in 1860, and was a member of the Kalamazoo County and Michigan State Medical Societies. He was a veteran of the Civil War. For many years Dr. Wilbur had been interested in the care of the feeble minded and at the time of his death was the head of the Wilbur Home for the Feeble Minded, founded by him in 1883.

Dr. Urban P. Atkinson of Fort Atkinson, Wis., died on September 6, 1909. He was a graduate of the Northwestern University Medical School in 1862 and had practised in Wisconsin for nearly fifty years. He was a member of the Jefferson County Medical Society and of the State Medical Society of Wisconsin.

Dr. John W. Mitchell of Clarksville, Ark., was shot and killed on September 11, 1909. He was a graduate of the Jefferson Medical College in 1889 and was a member of the Johnson County Medical Society and the Arkansas Medical Society.

Dr. George Lafayette Martin of Greenville, S. C., died at his home on September 16, 1909, aged 55 years. He was a graduate of the College of Physicians and Surgeons of Baltimore and a member of the Greenville County Medical Society and the South Carolina Medical Association.

Dr. Leonard Pearson, Dean of the Veterinary Department of the University of Pennsylvania, and Pennsylvania State Veterinarian, died in Newfoundland, on September 20, at the age of 41 years. Dr. Pearson was graduated from the Agricultural Department of Cornell University in 1888, and in 1890 from the Veterinary Department of the University of Pennsylvania, and in 1890-91 he attended lectures in the veterinary schools of Berlin and Dresden. In 1891 he was elected Assistant Professor of the theory and practice of veterinary surgery in the University of Pennsylvania, and three years later he was promoted to the full professorship, and he was then also made Dean of the Veterinary School.

Dr. Thomas Hovey Gage of Worcester, Mass., died September 16, 1909, at the age of 84 years. He was a graduate of the Harvard Medical School in 1852. From 1886 to 1888 he served as president of the Massachusetts Medical Society. For many years he was a member of the medical staff of the Worcester City Hospital and at the head of the board of trustees of that institution. He was also a trustee of Memorial Hospital and for years a trustee of the Worcester State Hospital.

Dr. R. S. Forsyth, formerly of Escanaba, Mich., died at La Porte, Texas, on September 11, 1909. He was a graduate of the Detroit College of Medicine in 1892, and a member of the Delta County and Michigan State Medical Societies and the American Medical Association.

Dr. Barnard D. Eastman of Topeka died on September 14, 1909, aged 73 years. Dr. Eastman was a graduate of the College of Physicians and Surgeons of New York in 1862. He had held the position of Assistant Physician at the New Hampshire State Asylum at Concord, and at the government asylum at Washington, and of Superintendent of the State Insane Asylum at Worcester, Mass. At the time of his death he was Superintendent of the Kansas Insane Asylum and held a professorship in the Kansas Medical College at Topeka.

Dr. Thrond S. Egge of Moorhead, Minn., was murdered on September 6, 1909, by an attack from a supposed maniac. He was fifty years of age and a graduate of the University of Minnesota in 1893. Dr. Egge was a member of the Clay County Medical Society and the Minnesota State and American Medical Association.

Dr. George D. Cook of Vassalboro, Me., died

suddenly, on September 15, 1909, aged 68 years. He was a graduate of the Medical Department of Bowdoin College in 1866.

Dr. G. H. Grigsby of West Baden, Ind., died at his home, September 10, 1909, aged 27 years. Dr. Grigsby graduated from the medical department of the University of Louisiana in 1908.

Dr. George C. Harlan of Philadelphia was killed on September 25, 1909, by being thrown from his horse. Dr. Harlan was 74 years old and was graduated from the University of Pennsylvania in 1858 and was well known as an ophthalmologist. He was a member of the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, and the American Medical Association.

Dr. E. Mills Baker of Jersey City died suddenly on September 26, at his home, aged 48 years. He was a graduate of the New York University in 1890. He was a member of the Hudson County Medical Society, the Medical Society of New Jersey, and the American Medical Association.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE COMING SESSION—WOMEN HEALTH VISITORS FOR LONDON—A VOLUNTARY SCHOOL CLINIC—LATENT DIPHTHERIA—PROTOZOAL TROPICAL DISEASES—A POSSIBLE ENEMY TO THE MOSQUITO—OBITUARY.

London, September 10, 1909.

The Winter Session is upon us. That is the familiar greeting just now. The prospectuses of all the schools are in free circulation and the teachers seem all in hopes of a good entry.

The Local Government Board has circularized the sanitary authorities of London, reminding them that by the Act of 1908 they are empowered to appoint "suitable women to be known as health visitors" for giving advice on the care of young children, the promotion of cleanliness, and so on. Under the authority of the Act the board has issued regulations as to qualifications, mode of appointment, duties, and salary of any health visitors. It is thought desirable as a general rule that they should devote all their time to the work, and the salary is not to be less than £100 per annum. But the sanitary authority may, with the board's consent, appoint her to hold concurrently another post under the same control. The board hopes that sanitary authorities will take advantage of these powers.

While the question of school clinics is still being discussed an experiment is going on in East London which may show that voluntary aid may supersede official action. It is financed by a Committee for the Physical Welfare of Children. The County Council accepts no responsibility for it and has only permitted the use of a small room, not well adapted but at a nominal rent, for trying the experiment. The children found to need treatment at the compulsory inspection are, if the parents are willing and declare so in a form supplied, treated at this clinic. The committee thinks this treatment better in many cases than hospitals. Besides two doctors who attend at fixed times to prescribe, a trained nurse is employed to see that the treatment ordered is actually carried out. It has been found that parents neglect to do this at home, but the nurse does it at the school and, the parents learning this, will bring the children to the nurse when they would not take them to an out-patient department, where they might have to lose three hours in waiting. The head mistress of the infant department is also warden of a settlement close by, and she and her helpers visit the parents and, knowing them as well as their children, has the opportunity of instructing them without giving offense. It is said that the improved cleanliness of the children is remarkable. Any children too ill to attend school are visited by the nurse, and the parents gladly recognize the desire of the settlement's helpers to assist them.

The County Council does not favor school clinics. As I reported, arrangements have been made with some hospitals to which the profession as a whole strongly objects. The question of expense has been mooted, but that may cut either way. Voluntary clinics such as the one I have described could very well cope with the work, and there can be no reason why better accommodations should not be granted by the County Council to any such committee ready to utilize it.

A conference took place at Belfast between the sections of hygiene and laryngology in reference to latent infections of the diphtheria bacillus. Dr. Watson Williams treated the subject from a clinical point of view and regarded the disease as latent when the organism was found without obvious illness. In practice latent diphtheria was met with affecting the nasal cavities, fauces, mouth, external auditory meatus, skin, and genitalia. Pseudomembranous lesions of the respiratory tract might be diphtheritic or not, and the difference was only determinable by bacteriology. He admitted that nurses, surgeons, and other contacts might harbor virulent organisms without any symptoms of ill-health and without conveying infection, and he thought that organisms impinging on healthy mucous membrane were speedily removed. He did not think much of local applications, and the effect of antitoxic serums was uncertain, as the proportion of active substances varied so much and could not be calculated.

Dr. R. Buchanan treated the subject from the bacteriological aspect and said routine diagnosis depended on morphological characters on account of the expedition demanded, and so loss of accuracy occurred. To determine without doubt any instance cultures and inoculation tests must be employed, and they required four to six days as a minimum. The virulence of the organisms was not much different in latent cases and in others. The bacillus was very tenacious of its virulence, and attempts to reduce it had not been very successful, though it could be easily increased. When it obtained access to a membrane it seemed to remain for a time, whether it produced illness or not. Clinical cases and contacts showed no particular difference as to the period of its remaining.

Dr. Forbes then discussed the question from an administrative aspect.

Dr. Clark gave an account of measures adopted in outbreaks at Leeds.

Dr. D. Mackenzie thought nasal swabs, as well as throat swabs, should always be taken.

Dr. E. W. Goodall said that in 1893-1894, in London, bacteriology was not resorted to, yet the epidemic gradually abated. He did not discharge his patients until after several examinations gave negative results, but he got no better results than his colleagues who did not do so. He thought return cases were a negligible quantity. He did not recommend prophylactic injections of serum. They were not devoid of danger. It was desirable to settle whether swabbing of convalescents was advisable.

Various suggestions were made by other speakers, especially as to the taking and examination of material, the best ways of dealing with contacts and with latent cases, the giving of antitoxin by the mouth, the dependence on morphological characters, the virulence of the different forms, and the relations of the organisms to hygiene and administrative work.

The most interesting discussion in the Tropical Section was that on the persistence of the tropical diseases which are due to protozoa, opened by Dr. Daniels, who said all recent advances pointed to an alternation of the processes of multiplication—sexual and asexual. The disease-causing period was when asexual reproduction was taking place. But the sexual forms were, of course, injurious, as they were the transmitting agents from host to host. Repeated asexual reproduction might be expected to lead to degeneration of strain, but so far as human parasitic protozoa were concerned there was little if any evidence of this. It rather seemed that loss of virility took place even with indefinite asexual reproduction. It was true that protozoal infections did die out in man, but that was due to changes in the host—not to the parasites losing virility. In some cases a year in a cold country would see the end of the malarial parasites, in others three years might be required. There seemed to be some essential similarity between protozoan infections multiplying asexually and bacterial infections, and this fact should not be lost sight of. In countries where reinfection was common, a resistance was developed after four years' residence, and after ten years this had become so marked that it was quite an exception for reinfection to occur. This showed that a condition

had been established inimical to the parasite, but it was not permanent, and the immunity would be lost by a residence in a nonmalignant country, as shown by liability to recurrence on removal to a malarial district. This showed that the protozoa might be regarded as on a par with bacteria and that our efforts should be directed to increase resistance in man as much as trying to destroy the parasite.

Dr. Breint hardly thought the bacteria compared so closely with protozoa, but that while asexual reproduction might go on indefinitely, resistant forms developed which, after the disappearance of the antibodies restraining their action, might resume their asexual multiplication.

The difficulty as to the question of persistence of infection was admitted by Dr. Maxwell to be largely due to asexual multiplication in malarial countries. This rendered it necessary to study the point in this country. Several members maintained that change to a cold climate was the best, if not the only way, of getting rid of malaria. But this is not to be expected in a few months, for Dr. Cantlie mentioned that after returning to London he suffered for three years in the hot months and in the fourth year had severe neuritis, which resisted all treatment until his general health was improved.

Dr. Stone remarked on the failure of quinine in some cases, especially malignant tertian, and questioned whether the drug acted directly on the parasite or in some indirect way.

Dr. McCutcheon confirmed the frequent failure of quinine in malignant cases, especially in attacks of fever at intervals of two or three weeks, and other speakers held the same opinion.

A statistical report on the ordinary expenditure of sixty-six London hospitals for 1908 has just appeared. It is thought that such reports which have been made since 1803 are of service by comparing the work cost of different institutions and so encouraging all efforts at economy. The large and small general hospitals form two groups and special hospitals a third. In each main items of cost are taken and compared with those of the group average, and another table shows the total expenditure at each hospital on all the items lumped together. The total expenditure of the larger hospitals shows considerable differences, *e.g.* Charing Cross £18,322, Guy's £65,775, the London £110,790, Middlesex £33,870.

Dr. J. Mitford Atkinson, principal civil medical officer at Hongkong, relates in the *Lancet* what may prove to be an important discovery, viz., a possible natural enemy of the mosquito. Some specimens were sent last year to the Tropical School here and recognized as *Dolichopodides,* but were too damaged on arrival to identify the species. More have since been sent and identified by Mr. Austen, of the British Museum, as belonging to the species of *Lispa Sinensis* (Schiner) of the family of flower flies—*Anthomyidæ.* They were seen greedily devouring the larvæ of mosquitos. Drawings of the fly are given in the *Lancet.* Dr. Atkinson adds that further investigation is required, but he left for England in May last.

Sir Stephen Mackenzie, consulting physician to the London Hospital, died on Friday evening, the 3d inst., aged 65. He was a student of the London Hospital and qualified in 1869, afterward going to Aberdeen, where he took M.B. 1873 and proceeded to M.D. in 1875. He obtained the registrarship of his hospital during this period, an office demanding no small work, but arduous work was the characteristic of his life. He was appointed assistant physician in 1874, and from that time onward his strenuous work carried him on to success, both as a teacher and a physician. In 1879 he was elected F.R.C.P. He held many other appointments, but his chief was physician to the London Hospital and lecturer there on medicine and clinical medicine. He delivered the Lettsonian lectures of the Medical Society in 1891 and gave the annual oration in 1902. He contributed freely to the journals and the transactions of the societies, to Quain's and Heath's dictionaries, and to Allbutt's System. He had retired for some years on account of asthma, to which he succumbed after long sufferings borne with fortitude.

Surgeon-General E. R. Butler, I.M.S., retired, died on the 6th inst. in his seventy-seventh year. He was formerly presidency surgeon at Bombay and surgeon to the European Hospital, and held other important appointments.

Dr. Maxwell Ferguson died on the 27th ult. in his ninety-second year.

Dr. T. Bridgwater, J.P., LL.D., died on the 6th inst., aged 85. He graduated at the London University in 1852. He will be remembered by generations of old Harrovians, as he was one of the medical officers of the famous school for thirty-five years.

THE SIXTEENTH INTERNATIONAL MEDICAL CONGRESS.

(From Our Vienna Correspondent.)

APPENDICOSTOMY FOR AMEBIC DYSENTERY—PATHOLOGY OF GASTRIC ULCER—THYROID EXTRACTS—TYPHOID SPINE—INFECTIVE ARTHRITIS—OPERATION FOR ARTHRITIS DEFORMANS—NERVE ANASTOMOSES—HEMATOLOGY IN SURGERY—THEORY OF VISION.

BUDAPEST, September 4, 1909.

ENGLAND and the United States were well represented at the International Congress, the delegates from the Anglo-Saxon countries presenting a number of valuable contributions.

Drs. James M. Anders and William L. Rodman said that the subject of the treatment of amebic dysentery, particularly in its bearings upon surgical procedures, assumed importance in view of the utter hopelessness of a certain proportion of chronic cases, and also because of the widespread prevalence of the disease, even in subtropical and temperate regions. The fact that an unsterilized water supply is the principal source of infection deserved especial emphasis. The danger of eating green vegetables and fruits, which had either been fertilized by the Oriental method, *i.e.* with human excrement, or cleansed with contaminated water, must be recollected. In the treatment rest was important. Magnesium sulphate was recommended to lessen the pain and tenesmus by removing the hardened fecal masses and inhibiting rather than exciting undue peristalsis. Ipecacuanha early gained popular favor only to fall from its enviable position. It was reintroduced by Sir Patrick Manson, who had expressed the belief that in this drug we had a remedy possessing specific virtues. It might be questioned whether colonic irrigation *per se, i.e.* without surgical intervention, had in its last analysis given more encouraging results than the ipecacuanha treatment properly employed. The simple fact was that not all cases of chronic amebic dysentery yielded to either rectal lavage or ipecacuanha. It was desired to place on record a case in which appendicostomy followed by irrigations with a solution of quinine resulted in a remarkable cure. They favored doing the operation in two stages, believing that it was best not to open the appendix until firm adhesions had taken place between the cecum and parietal peritoneum.

"The Etiology and Pathology of Gastric and Duodenal Round Ulcer" was the subject of a new series of experiments reported by Dr. Fenton B. Turck of Chicago. He said that positive feeding experiments with *B. coli* indicated that alterations in the toxic state of the alimentary canal with consequent changes in the blood, such as diminished activity of the antiferments, might be responsible for ulcer formation. To produce acute ulcer, from 500 to 2,000 c.c. of bouillon cultures of *B. coli* were fed to dogs daily for three or four months in connection with the usual meat diet. The colon bacillus was at no time found in the blood, and few symptoms of systematic disturbance appeared. The blood serum, on the other hand, agglutinated *Bacillus coli* in high dilutions, the coagulating time was slower and hemolysis was present. Such an ulcer terminated in the usual perforation and hemorrhage. If the feeding process was interrupted at the end of six or eight weeks, the ulcer healed. Resumption of the feeding of *B. coli* in large quantities was followed by violent reactions—diarrhea, bloody flux, and death, all of which showed that increased susceptibility was produced during the period when feeding was suspended. If the feeding was resumed in small quantities and at intervals, no anaphylaxis occurred, and the result was typical chronic deep ulcer of the stomach or duodenum. *In vitro* cultures did not furnish conditions for the study of bacteria like those associated with infections of the colon and intestines, and injections and cultures in any living animal would be just as complicated as in the dog or in the human. The fetus of an animal suggested itself as an appropriate culture chamber, and on account of the facility of procuring, the fetal pig had been used altogether in this series of experiments. It furnished one of the very best culture chambers for anaërobes, and with slight modifications was equally good for aërobes.

Drs. Reid Hunt and A. Seidel of Washington discussed pharmacopeial preparations of the thyroid gland, and said that this thyroid was included in several pharmacopeias. The United States Pharmacopeia required (1) the presence of combined iodine, and (2) the absence of certain water soluble iodine compounds. No pharmacopeia had a standard for strength for the drug, which varied greatly. The new evidence that value of thyroid depends upon the amount of iodine was given. The chemical and physiological methods for distinguishing between iodine present in thyroid and that present in other forms of combination were described. The physiological method (viz. the increased resistance of mice to acetonitrile caused by feeding thyroid, but not—or to a much less extent—by feeding other iodine compounds) was apparently more sensitive than chemical methods. This test was applicable for detecting thyroid in secret medicines and in the blood in Basedow's disease. The authors recommended that pharmacopeias require from 0.1 to 0.2 per cent. of iodine in dessicated thyroid.

Dr. J. Halpenny of Winnipeg, Canada, reported a case of typhoid spine, citing a case of typhoid fever, followed, during convalescence, by a severe spinal condition, occasioned by driving over a rough road. The temperature reached 104 degrees. There was marked pain in the lumbar region, but no deformity. The case ended in perfect recovery. He reviewed seventy-two cases reported by various authors. The following points were discussed: Age, sex, location, pain, temperature, leucocytes, local signs, sensory disturbances, reflexes, muscles, deformity, *x*-ray reports, caries, length of disablement, and treatment. The author concluded that there was a definite local pathological condition, and that it was a rare affection, with a good prognosis, particularly if treatment was instituted early.

Dr. J. B. Murphy of Chicago said that infective microorganisms admitted to joints were usually overcome if unassociated with trauma. The same microorganism admitted without trauma would cause no reaction, while that admitted with trauma would produce a fatal termination. The destruction of joints by infection depended on the virulence of the infection, diminished individual resistance, trauma associated with infection, duration and tension under which the products of infection were held in the joint, and the presence of foreign bodies. Acute, infective, purulent synovitis following punctures, bullet wounds, fractures, injuries, and hematogenous infections could practically all be cured without drainage and without ankylosis. Drainage of a joint was practically always a surgical crime. Resistance to infection in joints could be autogenetic from hemorrhage and trauma, induced by chemical irritants of definite types, or when infection was present absorption of its products could be induced by chemicals producing increase in the polymorphonuclear leucocyte. All joints to be subjected to surgical procedures should be rendered locally immune.

Dr. H. Albee of New York presented a report of an operation for advanced arthritis deformans (osteoarthritis), paralysis (dangle joint), and certain select adult cases of tuberculosis of the hip joint. Firm ankylosis was produced by the removal of a part of the superior hemisphere of the head of the femur and the transformation of the acetabulum into a flat surfaced roof. These fresh surfaces were then brought into close apposition, sometimes by the correction or over-correction of the deformity, if one existed. Twenty-two cases, twelve of which were the author's, were reported. The results had been very satisfactory. Pain had been entirely relieved in every one of the author's cases.

Mr. A. H. Tubby of London read a paper on the treatment of distal paralyses by nerve-anastomosis. The forms of distal paralysis treated were traumatic, and those due to anterior poliomyelitis. The results showed that the time taken for regeneration was very variable. But the writer's conclusion was that the longer before the operation, the slower would be the signs in appearing after it. No case could be regarded as hopeless, even if no evidence of regeneration was present three years after operation. Eight cases were quoted. Two were of traumatic origin and six were due to anterior poliomyelitis.

Dr. Frederick E. Sondern of New York read an instructive paper on the value of examination of the blood in surgery. He said that the grade of neutrophile polynucleosis was a valuable factor in the diagnosis of acute inflammatory lesions. It gave increased significance to the leucocyte count, and by a determination of the relation between the two information of greater value for diagnosis and prognosis was obtained. The neutrophilic polynucleosis was a sign of toxic absorption, while the leucocytosis measured the resistance of the organism. A knowledge of a disproportionally high neutrophilic polynucleosis in comparison to the leucocytosis was of especial value, inasmuch as it indicated the presence of a purulent exudate, and the necessity of early surgical interference on account of the low body resistance. The method, like all laboratory methods, had its limitation, but with a thorough familiarity with its limitations and the exceptions to which it was subject, the method was a diagnostic and prognostic aid of the highest value in surgery.

Dr. Edridge Green of London, in discussing the theory of vision, said that a ray of light impinging on the retina liberated the visual purple from the rods and a photograph was formed. The rods were concerned only with the formation and distribution of the visual purple, not with the conveyance of light impulses to the brain. The decomposition of the visual purple by light chemically stimulated the ends of the cones (very probably through the electricity which was produced), and a visual impulse was set up which was conveyed through the optic nerve fibers to the brain. There were cases in which the visual purple was differently constituted and was not sensitive to certain rays at one or both ends of the spectrum. The character of the impulse set up differed according to the wave length of the light causing it. Therefore in the impulse itself we had the physiological basis of the sensation of light, and in the quality of the impulse the physiological basis of the sensation of color. But though the impulses varied in character according to the wave length of the light causing them, the color perceiving center was not able to discriminate between the character of adjacent impulses, the nerve cells not being sufficiently developed for the purpose.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 16, 1909.

Fatty Infiltration of the Liver in an Infant of Three Months.—The patient of C. A. Pratt was a normally born infant, fed on artificial food after the first seventeen days. It did well for about three months, when it began to have poor appetite, and for a short time was obliged to be fed on a new food supply during extremely hot weather, when she developed evidences of extreme indigestion. Examination showed a distended abdomen and an enlarged liver. The symptoms of indigestion continued and she died in about a month. An autopsy was held and a typical fatty infiltration of the liver was revealed. The cause of the initial toxemia was undoubtedly the new food taken in the hot weather. It contained some cream, but the liver was undoubtedly enlarged before this food was begun. It does not seem to the author that this toxemia would have proven fatal had the condition of the liver been normal, so that the ordinary body metabolism could have been carried on, nor does it seem probable that if the mother had been enabled to continue the nursing that the liver lesion would have developed. He rejects the theory of a congenital condition. The child never had any jaundice. The liver seemed to fill the entire abdomen. The case is reported on account of the apparent rarity of such a large liver in such a small child.

The Relationship between True and False Angina Pectoris.—This question is discussed by G. G. Sears, who is inclined to regard the general condition as a vascular colic of reflex origin in some circumscribed area of the heart and possibly in its milder manifestation of the vasa vasorum in the ascending aorta, with resultant ischemia in the parts supplied. If this be true the mechanism by which the attacks are induced is essentially the same in all forms, and hence a distinction between the true and false must rest on the presence or absence of some pathological lesion on differing clinical symptoms, or on a combination of the two. In some fatal cases, however, no lesion has been found. Myocardial changes often escape detection, even after the most careful examination, and a spasm of sufficient extent and intensity may prove fatal in healthy vessels and in a normal heart. It is equally difficult to classify those cases occurring in middle-aged or elderly persons who are undoubtedly the possessors of some cardiac or valvular lesion and who yet lose their symptoms, which never return. There is hardly more reason to classify cases of angina according to the presence or absence of cardiac disease than there would to separate

cases of pneumonia on the same basis, though the condition of the heart may determine prognosis. Before we can make any progress in the differentiation between true and false angina, our knowledge of the essential causes of the paroxysm must become more definite. Until then our use of the terms true and false must be regarded less as an expression of our knowledge than as a useful cloak for our ignorance.

New York Medical Journal, September 18, 1909.

Recurrent Hordeolum.—A. Bray says that the ordinary herdeolum requires, if accompanied by severe pain, a small incision followed by hot fomentations. A solution of boric acid and biborate of soda in distilled water will then effect a cure. In multiple and recurrent cases the hot fomentations are followed by a mixture of arnica, laudanum, and dilute Goulard's extract in water, applied on absorbent cotton. After the disappearance of the sty he uses a weak ointment of bichloride (gr. ⅛) to 2 drams of white vaseline. This should not be merely smeared over the lids, but should be applied with gentle massage every night. Prior to the application of this antiseptic ointment hot compresses should be applied to stimulate the circulation of the margin of the lids. While an ordinary sty does not always require the correction of any errors of refraction it is always an essential procedure in the recurrent type. It is very often a contributory factor in the development of stys. Having corrected any error of refraction under a mydriatic an antiseptic nasal wash is ordered. A teaspoonful of boric acid in a glass of water to be snuffed up twice daily is a good, simple procedure. The constitutional aspect of the case must, of course, be remembered. The author usually employs compound syrup of hypophosphites with good result. In order to keep the bowels in good condition the fluid extract of cascara is added. Under the foregoing régime the most intractable cases will usually yield in a month's time.

A New Diagnostic Skin Reaction in the Acute Infections.—The method employed by L. K. Hirschberg is as follows: The hairless portion of the arm or forearm is cleaned with ether. No alcohol, soap, water, or other disinfectant is used. Five or more scarifications are made (the number is dependent on the varieties of vaccines used) with a small metal screwdriver-like lancet. The blade is 0.3 centimeter broad and half-moon shaped. This makes an ideal scarifier when given the rotary motions of a screwdriver. It is so tempered that the half-moon blade may be repeatedly sterilized in an alcohol flame without injury. The scarifications are made in two parallel columns an inch apart. Between each vaccination the scarifier is sterilized in the alcohol flame, thus preventing contaminations or mixed vaccines. The ends of the tubes containing the various vaccines are wiped with sterile gauze to clear away the spicules of glass. The usual amount of the various vaccines taken have been 2,000,000 gonococci; 40,000,000 *Staphylococcus aureus;* 4,000,000 streptococci; 8,000,000 colon bacilli, and 4,000,000 typhoid bacilli. In each case the amount corresponds to 0.1 c.c. of the stock vaccines of manufacturing laboratories. The skin is scarified with sterile water, a salt solution of physiological strength, or 50 per cent. glycerin and 1 per cent. phenol in isotonic salt solution. This is used as a control. Usually five other vaccinations are made. The types of organisms used depend upon the suspected infection. Several illustrative cases are summarized.

Treatment of Mechanical Constipation and Obstipation.—S. G. Gant writes an elaborate article on this topic, dividing the condition into chronic, habitual, spastic, and mechanical. Habitual constipation can, as a rule, be permanently relieved by rectifying errors in the patient's diet, educating him as to his manner of living, and mapping out for him a systematic course of psychotherapy, exercise, hydrotherapy, massage, mechanical vibration, and electricity, alone or in combination. Spastic constipation is most frequently induced by mucous colitis, and can be relieved only by removing the underlying condition. The most common causes of the mechanical form are congenital deformities, strictures, tumors, foreign bodies, fecal impaction, adhesions, angulations, volvulus, diverticula, enteroptosis, colonic dilatation, hypertrophy of O'Beirne's sphincter, hypertrophy of the rectal (Houston's) valves, hypertrophy of the levator ani and the sphincter ani muscles, deviated coccyx, and diseases of the rectum and anus. The removal of any of these conditions is the first step in treatment, and the various surgical procedures for the varying lesions are described in full by the author, who says that the malformations and diseases of the intestine are not always easy to discover, but when their existence has been ascertained they can usually be removed by competent surgery.

Journal of the American Medical Association, September 18, 1909.

Infant Feeding.—H. D. Chapin says the science of infant feeding consists in knowing why certain things should be done or should not be done and the effects of different procedures. The art of infant feeding comprises the methods employed. Most of the literature is related to the art, and many diverse methods have been proposed. The infant is an animal and subject to the general laws of animal nutrition and, like other young mammals, is as regards its digestion in an embryonic state for some time after its birth. The food supplied by the mother has the property of changing its physical form when it comes in contact with the gastric secretions. It assumes a more or less solid form in the stomach, and the character of this solid varies as the stomachs of the different species vary, the milk of rapidly growing animals containing more protein than that of animals of slower growth. The adaptation of milks to the infant stomach must be done according to biological laws which call for a knowledge of the structure and functions of the digestive tract, together with the peculiarities of the milk furnished. A chemical analysis of milk will show its ingredients and to a certain extent their potential food values. Farther than this, chemistry cannot go. While the fats and carbohydrates are a good deal alike in the different milks, proteins are essentially different, and we must study the reactions of the proteins to the digestive secretions and then examine these reactions in relation to the growth and development of the digestive tract—in other words, investigate the question biologically before we can understand the problem. A certain portion of the proteins of all milks coagulates on coming in contact with rennin or rennin and acid, but the manner and extent of this coagulation is in direct relation to the proper evolution of the animal. While there are many grades of coagulability in the milks of different animals, for practical purposes we may distinguish three grades and consider their significance. In the ruminant herbivora, such as the cow and goat, the protein coagulates in solid tough masses that cannot easily leave the stomach, where digestion largely occurs. In the nonruminant herbivora, such as the horse and the ass, the protein coagulates in gelatinous masses that can easily leave the stomach, and digestion is largely intestinal. In human milk the curd is thrown down in flocculent masses midway between the two just described and the digestion is largely carried on in the intestines. Biological science thus shows that the protein must curd in a specific way in each species of animal, it being the least interchangeable of the components of milk. We must also remember that the protein has a developmental as well as a nutritive function to perform, and we must not, while putting all food in a soluble form for quick absorption, neglect to give proper work for the secretions and musculature of the digestive organs. Chapin gives illustrations showing how we should adapt milk for artificial feeding. We should allow for some of the protein to be thrown down in more or less solid form to develop the motility of the digestive tract. If there is evidence of weakness there already by the appearance of curds in the stools, a substance like citrate of sodium added to the milk may be scientifically indicated for a time, though as a routine measure for normal infants it would be unscientific. Antacids are also contraindicated as routine measures, as there is little acid secreted in the infant's stomach, though they might be indicated to correct abnormal conditions of acidity.

Medical Versus Legal Responsibility.—A. Gordon criticises the legal test of responsibility, *i.e.* the knowledge of right and wrong, which is still influential in legal decisions. He goes over the various forms of insanity in which the question of responsibility may arise and shows how, with the loss of control which they involve, responsibility cannot be admitted in a scientific consideration of the subject, *i.e.* the legal test of right and wrong cannot be applied. On the other hand, in cases of voluntary intoxication the knowledge of right and wrong for the moment may be lost and yet the individual cannot be considered in the same category, and here also the legal test will not apply. The insane man may recognize the distinction perfectly, may appreciate the unlawfulness and immorality of his act, and yet be irresponsible on account of his inability to control conduct. The sane man, however, may intentionally make himself intoxicated and in this condition commit a crime, but, if he is acquitted or only slightly punished on the ground that he was unable to control himself from drink, or was too intoxicated to know right from wrong there will be a miscarriage of justice. Gordon also holds that we cannot consider a man completely normal and responsible during a lucid interval of insanity or in the

remission say of general paresis, nor would he consider the legal test of knowledge of right and wrong entirely applicable in cases of dipsomania and epilepsy.

Syphilitic Pseudoparalysis.—L. T. Royster calls attention to a manifestation of hereditary syphilis which exhibits itself during the first few months of life in a failure, disinclination, or inability to move one or all of the extremities, which is variously alluded to in the literature as syphilitic pseudoparalysis, Parrot's paralysis, or merely described under the pathological condition syphilitic epiphysitis. It belongs under the general class of osteochondritis. The gross appearances depend on the stage or degree of cartilaginous inflammation. Sometimes there may be a swelling or color at the junction of the bone or there may be complete separation and a false joint. The symptoms attracting attention are that the child does not use one or more of his limbs. Both legs or both arms may be involved, but it is not described that all four are at once affected. In other cases there is a more or less spastic condition, the joint resisting motion, and the child crying with pain when handled. The diagnosis is very important, since epiphysitis is said to be the most common manifestation of hereditary syphilis and may be the only one. There are but four conditions with which it is likely to be confused—scurvy, infantile paralysis, septic epiphysitis, and brachial birth paralysis. Scurvy is rarely seen before the fifth month, is always bilateral, and affects the shaft of the bone, while this disease appears rarely after the third month. Infantile paralysis is also later in appearing, is frequently epidemic, and the history, onset, and course are decidedly different. In septic epiphysitis the constitutional symptoms are pronounced and the temperature elevated. The diagnosis from brachial birth paralysis seems most important and difficult, especially when the arms alone are involved. There is usually, however, a history of difficult labor with heavy traction in Erb's paralysis, though it has been known to occur after normal labors. Erb's is usually unilateral, while the other is more apt to be bilateral. Either kind of paralysis may appear at the same time, but in cases with separation or if the characteristic bony ring can be felt, the diagnosis is easy. In Erb's paralysis the reaction of degeneration may be present early and there is a selection of definite groups of muscles; slight tumors are sometimes seen also at the point of the tear in the nerve fibers. Some patients with Erb's paralysis improve spontaneously, and in some cases of the other form there may be a permanent deformity if they go untreated, which in later life may not be distinguishable from the deformity from Erb's paralysis. The flaccidity may very closely resemble that of Erb's paralysis. Two typical cases are reported. The treatment should be specific, by inunction.

Nodular Opacity of the Cornea.—J. Green, Jr., reports a case of this rare affection which he thinks deserves the careful attention of ophthalmologists. It is ushered in by moderate photophobia, epiphora, and, occasionally, a foreign body sensation. There is no true pain, only an ocular discomfort accompanied by diminution of visual activity. Throughout the whole course of the disease there is a notable absence of active inflammation, and it is essentially chronic and rebellious to treatment. He points out the difference between it and a number of other conditions, such as superficial punctate keratitis, which is always inflammatory, the keratitis masculosa of von Reuss, and nummular keratitis of Stellwag, which are both of good prognosis, grill-like keratitis which is distinguished by the very definite network, syphilitic and eczematous keratitis, etc. The histological findings have been somewhat varied, though presenting some points of similarity. He is inclined to accept Wehrli's opinion that some of these cases are tuberculous, especially in the light of the case he here reports. The patient with a very clear family history of tuberculosis who himself had had a severe cutaneous tuberculous infection, had presented himself with a typical nodular opacity of both corneas. In the absence of any etiological factor aside from tuberculosis the general and local reaction to the diagnostic tuberculin test and the clearing up of the internodular opacities, softening of the nodules, and improved vision under tuberculin treatment, all lead him to the belief that the case is one of attenuated corneal tuberculosis.

The Lancet, September 11, 1909.

Malaria Treated with Injections of Quinine.—G. W. Young reports three cases of malaria occurring in young males. In all the stomach was intractable to quinine and they were given injections of ten grains inserted deep into the gluteal muscles, after which the stomach became more tolerant and they were quickly cured. The salt used was the acid hydrochloride. One of the cases was of the tertian type and the other two, quotidian.

The Use of the Ultramicroscope for the Early Diagnosis of Syphilis.—Commenting on the difficulty in finding the *Treponema pallidum* in the early stages of syphilis, H. W. Bayly advises the use of the ultramicroscope, which substitutes trans- or rather oblique illumination for direct illumination in making examinations of scrapings from suspicious sores, etc., and finds that scraping from primary or secondary sores in untreated cases generally reveals the organism. All lesions do not show them in equal numbers. They are most numerous in mucous plaques, scanty in chancres, and rare in the roseolar rashes, though frequently found in some of the papular rashes. The technical procedure is thus described. It is very simple, the chief difficulty being the adjustment of the apparatus (light, condenser, mirror, and ultramicroscope). A small drop of distilled water or normal salt solution is first placed on the slide, and then the margin of the chancre, mucous plaque, or papule is gently scraped and the serum expressed by pressure, and a small quantity of this mixed with the drop of water on the slide. The distilled water causes the organism to swell, when it can be more easily seen than in normal saline. A large cover-glass is now applied in the usual way and pressed down firmly, so that only a thin layer of fluid remains between the cover-glass and slide. A drop of immersion oil is now placed underneath the slide, which must be sufficient to fill the space between the lower surface of the slide and the upper surface of the ultramicroscope condenser, and a second drop is placed on the cover-glass in the usual way; the preparation is now ready for examination. The blood cells, bacteria, spirochætæ, etc., will be seen as glistening refractive objects on a dark background.

The Etiology of So-Called Congenital Dislocation of the Hip Joint.—R. Thompson notes the much greater frequency of this condition in girls than in boys. It is generally directly due to pressure exerted on the hip joint during the adoption of the erect attitude of such a nature as to produce displacement of the head of the normal femur from a nearly normal acetabulum. The usual history of such a case is this: The patient is a well-developed girl in whom the condition becomes more marked as she assumes the erect attitude. The child is rarely seen until the third or fourth year, when the physician has to decide between the congenital or acquired formation of the malady. He generally chooses the former, basing his opinion on the results of a few dissections, on cases seen at a very young age, and on certain pelvic conditions. The author really believes that the condition arises after birth from certain anatomical peculiarities of the female pelvis. When the erect attitude is assumed the female hip joint is not so well calculated to resist the upward thrust of the femur as is the male joint. It depends much more for its security on the rim of the acetabulum, which is cartilaginous during the first two years of life, than does the male joint. In other words, the head of the male femur is much more securely fixed in the hip bone than is the head of the female. The acetabulum lies in the male hip bone, while in the female it rather rests upon it. Moreover, the joint in the female works at a greater mechanical disadvantage. Hence the so-called congenital dislocation is really in many cases a static dislocation. The author illustrates his meaning by some well-defined diagrams. With regard to treatment, two classes of cases may be made. In the first anatomical reduction can be easily and permanently accomplished, while in the second this is impossible, even under the most skillful manipulaion. Illustrative cases are given. If the author's views are true, many other changes which have been regarded as primary and as possible causes of the dislocation are really secondary. These are enumerated as follows: Small and triangular acetabulum, small os innominatum, head of femur flattened and smaller than usual, shortening and anteversion of the femoral neck, coxa valga, hour-glass constriction of joint capsule, stretched or absent ligamentum teres, and shortening of leg below knee. These conditions are discussed seriatim by the author. He summarizes his views as follows: The history of a well-developed girl with dislocation of the hip rarely goes back before the adoption of the erect attitude. The fact that the child is well developed is a considerable factor in favor of the condition being static rather than congenital. The female hip joint is weaker and acts at a greater mechanical disadvantage than does the male. The congenital theory entirely fails to explain the greater preponderance of the lesion in females, but the preponderance is explained by a reference to the comparative anatomy of the joint in the two sexes. Moreover, the suggestion that the condition is static more easily explains the different conditions which may be met with.

British Medical Journal, September 11, 1909.

On the Value of Surface Signs in the Diagnosis of Deep-Seated Disease.—C. L. Isaac calls attention to

several typical cases of gastric ulcer and notes that when hyperesthesia is found on the abdomen a spot also exists over the spinal column in the region of the dorsal branch of the cutaneous nerve affected. In cases of duodenal ulcer definite spots of hyperesthesia may be found just above the umbilicus, and the author believes that this reaction occurs only in acute ulceration. It is found at or near the middle line, both ventrally and dorsally, that is, at the cutaneous nerve terminals corresponding to that segment of the cord which supplies the sympathetic nerve or nerves to the viscus involved. In support of this statement it may be said that in the duodenal cases the tenderness was found near the umbilicus, considerably lower than the gastric tenderness, whereas it is possible for a gastric ulcer to be anatomically lower than a duodenal one; but as the stomach is embryologically a vertical organ, the duodenum receives its nerve supply from a lower segment of the cord. In general the author contends that cutaneous hyperesthesia is of considerable value in the diagnosis of acute ulceration of the viscera; that the neuromuscular reaction is of some value in the diagnosis of inflamed viscera; that myototic irritability is by no means a negligible feature, and that the suggestion that there is a neuropigmentary sign in the skin of visceral disease proves that the superficial evidence of deep-seated disease is a far larger one than at first seems.

Oriental Sore of Northern India a Protozoal Infection.—R. M. Carter describes his experiences in the study of this malady, believing that though the common fly in the East may not be the actual invertebrate host that infects men with Oriental sores, the parasite does develop within the gut of the musca domestica. This development to the monadine form is therefore probable in other flies and the actual biting flies, ticks, or mosquitos that transmit the disease should be sought for. Furthermore, it is necessary to determine whether members of the herpetomonas and erithidia genera are able to develop monadine forms in other hosts than are at present usually accredited. The typical appearance of this sore is a small red spot appearing on some exposed surface of the body. The top of this is scratched off and a thin serum exudes, forming a yellow scab. In forty-eight hours this is fringed by a thin inflammatory line and the scab grows slowly at the expense of the surrounding tissue. If the scab is removed a shallow ulcer is revealed. Infected spots occasionally appear beyond the inflammatory line, and eventually a deep ulcer is formed, its base covered with indolent granulations, its walls eaten out and the circumference of the sore red and angry looking. After some months cicatrization sets in at the side of the ulcer. This may break down, but eventually overcomes the lesion, which heals up, leaving a dead whitish-blue scar.

The Intensive Treatment of Syphilis by Aachen Methods.—R. Hayes describes the plan followed at Aachen, dwelling upon the attention paid to details. All the organs of the body are carefully examined. The morning begins with from one to three glasses of sulphur water, followed by the bath, the temperature and time of immersion being carefully adjusted to the patient and the type of disease. This is followed by rest and breakfast in bed. Later comes the application by an expert rubber of a one-third strength mercurial ointment for twenty to forty minutes, the quantity and site of inunction being varied according to circumstances. The thighs, arms, calves, and back are treated consecutively from day to day. The groins and axillæ are avoided. Great stress is laid on oral hygiene. These measures permit mercury to be given without gingivitis or salivation up to a causation of general lassitude, drowsiness, or even intestinal cramps. All diet calculated to produce loose evacuation, such as white wine, uncooked fruit, and vegetables, etc., are forbidden. For cases within the first two years of existence about six months are required for a cure, the courses of treatment lasting from four to six weeks, with intervals of rest. During this time some tonic or preparation of iodine is used with advantage. The sulphur water of the baths obviously assists the mercury. The remedy is introduced by inunction through the lymphatic system, which is the stronghold of the treponema, and enters the system over a large area. Hence the rapidity with which the earlier symptoms vanish. In late stages, such as those with cerebrospinal lesions, the remedy is applied directly to the back and is assisted somewhat by the inhalation of the mercury volatilized by the skin.

Deutsche medizinische Wochenschrift, Aug. 19 and 26, 1909.

Cholecystectomy for Typhoid Carriers.—W. Loele discusses the frequency and the cause of typhoid carriers. Infection through nasal secretions are unknown. It is possible that a typhoid angina may be a source of contagion. Excretion of bacilli by way of the urinary tract is not rare, but the intestine is by far the most common source, while the gall-bladder is generally considered to be the primary seat of the organisms. Loele raises the question whether, this being the case, cholecystectomy might be a justifiable procedure to overcome the tendency to being a carrier, and thus a menace to humanity. He reports in full a case of a typhoid carrier who developed a cholecystitis, was operated on, died, and was carefully studied. In this case the cystic duct was completely obstructed by a gallstone, so that no fluid could pass up or down, a condition which appeared to have been of long duration. In this case it was impossible for the typhoid bacilli which were being passed from the bowel to have come from the gall-bladder. The author concludes his paper as follows: In a case of a typhoid carrier that had passed typhoid bacilli with the stools for three months following typhoid fever in whom cholilithiasis and empyema of the gall-bladder occurred (agglutination of the blood serum 1:2000) it can be stated, on the grounds of the findings at operation and at autopsy, that the excreted typhoid bacilli did not originate in the gall-bladder, but in either the gall-ducts or the intestine. Typhoid bacilli were demonstrable neither in the urine nor in the blood, nor in the organs examined (spleen and liver). Operative procedures to overcome typhoid carrying are justified only when associated with simultaneous disease of the gall-bladder, and success can be expected only when the typhoid bacilli have not taken up their habitat in the intestine.

A New Reaction for Bile Pigments in the Urine.—A. v. Torday and A. Klier in working with the stomach contents of a jaundiced patient found that the methyl-violet with which they were testing for free hydrochloric acid gave a red color instead of the usual blue. The urine of a jaundiced patient gave the same reaction. Investigating further, they found that various staining fluids gave similar reactions with the bile-stained urine. Pure bile pigments have not been studied. The method consists of adding one drop of a 1 per cent. solution of the dye to 15 c.c. of water, and to this 1 c.c. of urine. The results with various metachromatic basic and neutral stains were as follows: Methylene-blue gave a green color; Azure-blue, Giemsa's stain, methylene-green, thionin, toluidine-blue also turned green. A weak May-Grunwald solution bleached, a stronger one became greenish yellow. Dahlia-green and pyronin turned yellow, while kresyl-violet, methyl-violet, and methylene-blue-gentian-violet reacted with a violet-red color. Diazo positive urines also turn green with methylene-blue, but a much stronger solution of the stain is required than in the present case. The delicacy of these tests was found to be about twice as great as the iodine or the Gmelin test.

The Question of Lordosis and Albuminuria.—Bernard Vas replies to the monograph of Jehle, in which the latter stated that orthostatic albuminuria was always associated with lordosis. Vas studied 150 cases as to the association and found albuminuria and lordosis both occurring in fifteen cases (10 per cent.), albuminuria without lordosis in eleven cases (7.3 per cent.), and lordosis without albuminuria in nine cases (6 per cent.). From these findings he concludes that at the age of puberty orthostatic albuminuria occurred with or without lordosis with equal frequency, and that, on the contrary, lordosis could occur without albuminuria. These findings do not detract from the work of Jehle, who was the first to point out mechanical influences as the cause of albuminuria, and produced definite proof therefor. Among the various factors which may produce an albuminuria by interfering with the circulation in the kidney, lordosis plays an important part in many cases.

Treatment of Bullet Wounds of the Lungs.—Sandor discusses bullet wounds of the lungs, reports a case, and concludes that penetrating wounds of the lungs tend to heal without surgical interference, even after most threatening initial symptoms. For this reason general expectant treatment should be tried, with, however, all preparations made for operation. The dangers of wounds in the lung consist of hemorrhage and pressure from hemopneumothorax. The best and safest procedure in the treatment of either of these is to open the thorax at the proper time and stitch up the wound in the lung. In penetrating wounds surgical procedures may be carried out with impunity without any pneumatic apparatus. The indications for interference are changes for the worse in the general condition during expectant treatment.

Book Reviews.

Modern Medicine: Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by William Osler, M.D., Regius Professor of Medicine in Oxford University, England; Honorary Professor of Medicine in the Johns Hopkins University, Baltimore; formerly Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and of the Institutes of Medicine in McGill University, Montreal, Canada. Assisted by Thomas McCrae, M.D., Assistant Professor of Medicine and Clinical Therapeutics in the Johns Hopkins University, Baltimore; Fellow of the Royal College of Physicians, London. Volume VI. Diseases of the Urinary System—Diseases of the Ductless Glands—Diseases of Obscure Causation—Diseases of the Muscles—Vasomotor and Trophic Disorders—Life Insurance. Illustrated. Philadelphia and New York: Lea & Febiger, 1909.

The sixth volume of this system is in some respects at once the most interesting and the most practically useful of the series. While the diseases of the ductless glands and those that it is convenient to group under the comprehensive caption "Of Obscure Causation" are still for the most part the etiological riddles they have always been, still little by little through accumulated observations the acquisition of additional facts or the new interpretation of old ones a clearer insight into their nature is being gained, and at least some of the older theoretical misconceptions are being brushed away. The contributors to whom the various topics of this group have been allotted have shown much industry in sifting the voluminous literature concerned and equally commendable judgment in their critical discussions of the results so far available. As an example of this the article on the parathyroid glands may be cited, in which Dr. George Dock summarizes what has been learned in regard to the apparently very important functions of these structures whose significance has only lately come to be appreciated. But although these articles on the ductless glands and the maladies of uncertain etiology by Dr. George Dock, Dr. Warfield T. Longcope, Dr. Thomas McCrae, and Dr. Daniel J. McCarthy appeal to the imagination and suggest new possibilities in physiology and pathology, it is the first half of the volume that will most frequently be used by the average reader. In these three hundred and fifty pages the various diseases of the urinary system are very adequately discussed by Dr. John McCrae, Dr. A. E. Garrod, Dr. James B. Herrick, Dr. Thomas R. Brown, and Dr. Hugh Hampton Young. The diagnosis and treatment of nephritis form so important a part of the work of the general practitioner, and proper individualization in the management of the patients is so essential that these excellent presentations of modern practice can be commended most warmly to the attention of all medical men. A feature of much value is the thoroughness with which the dietetic regimen to be adopted under various conditions is discussed. The sections on diseases of the muscles are by Dr. Walter R. Steiner and Dr. Daniel J. McCarthy, and those on vasomotor and trophic disorders by Dr. William Osler and Dr. Charles P. Emerson. The volume closes with an instructive chapter on the medical aspects of life insurance by Dr. Charles Lyman Greene.

The Human Species. Considered from the standpoints of Comparative Anatomy, Physiology, Pathology, and Bacteriology. By Ludwig Hopf. Authorized English Edition. With 216 illustrations and 7 plates. New York, Bombay and Calcutta: Longmans, Green & Co., 1909.

The author of this interesting volume begins by discussing the distribution of mankind, man's ancestors, the structure and function of the different tissues; he then passes to the consideration of such questions as the origin of the mind, emotions and their expression, social customs, marriage, communism, modesty, shame, religion, etc. The diseases and parasites of man and animals are then considered; and there is an interesting chapter on self-help in animals. The volume is an attempt to show a comparison between the characteristics of man and those of the lower animals. The parallel thus drawn includes a study of comparative anatomy, physiology, psychology, and pathology. It will be found that some characters hitherto regarded as distinctively human are shared by the lower animals; and some others are proved to be peculiar to man, though he may not always be edified by his sole possession of the feature in question. The book is well written and entertaining, and is popular rather than profound

Studies on Immunity. By Robert Muir, M.A., M.D., Professor of Pathology, University of Glasgow. In collaboration with Carl H. Browning, M.D., Alexander R. Ferguson, M.D., and William B. M. Martin, M.B., Ch.B. London: Henry Frowde and Hodder & Stoughton, 1909.

This book is a record of original work on the subject of Immunity. The papers contained therein have all been published before, in the Proceedings of the Royal Society of London, and in various British medical and scientific journals. The papers thus incorporated in this volume are: On the action of hemolytic sera; on the combining properties of serum-complements and on complementoids; on chemical combination and toxic action as exemplified in hemolytic sera; on the hemolytic receptors of the red corpuscles; on the properties of anti-immune bodies and complementoids; on the action of complement as agglutinin; on the deviation of complement by a serum and its antiserum, and its relations to the precipitin test; on the combining properties of opsonins of normal serum; on the combining properties of the opsonin of an immune-serum; on the bactericidal action of normal serum; and, on the filtration of serum-complement. These have been but slightly altered from their original form, and are here arranged in such a way as to give a continuity to the whole. Workers on this subject will be glad to have these papers collected in a single volume.

Diseases of the Bones and Joints. Clinical Studies, by Joel E. Goldthwaite, M.D., Charles F. Painter, M.D., and Robert B. Osgood, M.D. Illustrated. Boston: D. C. Heath & Co., 1909.

Although the authors in their preface disclaim any intention of writing a book on orthopedic surgery, this book is written with a remarkable breadth of view, and in a most scientific manner, and sums up well the modern knowledge on this branch of medicine. There is a marked absence of "canned material" from the book, which is most refreshing, the pathology is up to date and unusually good, and the differential diagnosis of the various diseases, except that of Potts' disease, is excellent. The chapter on osteomyelitis is far better than that on the same subject in most surgical text-books, and those on tuberculosis of the smaller joints, the treatment of hip disease, and the technique of operations on tuberculous joints, are all very well done, also that on the pelvic articulations. The illustrations are numerous and clear, and made clearer by the notes that accompany them. It is evident throughout the book that the authors have studied their joints, and whenever it is possible they prove their case. The inclusion of a large number of histories is somewhat of a new departure. The faults of the work are minor ones; the English at times is involved, and at times incorrect, crinoline is called a cloth, a plaster dressing is called a cast, and the tendo Achillis is endowed with a sheath. These, however, do not affect the worth of the book. One may not agree with the authors in condemning the therapeutic test for bone syphilis, for when all is said and done, there are some cases that can be cleared up only in this way, and, in fact, while condemning it in one place, the authors recommend it in another. Too little is said of the treatment of tuberculous knee joint disease, and too little of tuberculosis of the fingers and toes, but these small faults are forgotten in admiration of the book as a whole.

Vaccine and Serum Therapy: Including also a Study of Infections, Theories of Immunity, Opsonins, and Opsonic Index. By Edwin Henry Schorer, B.S., M.D.; Assistant Professor of Parasitology and Hygiene, University of Missouri; formerly Assistant, Rockefeller Institute for Medical Research, New York City. St. Louis: C. V. Mosby Co., 1909.

An attempt is made in this work to bring up to date our knowledge concerning vaccines and immune sera. Sufficient space is given to the opsonins and opsonic index to render the exposition of this somewhat difficult subject fairly clear. The author argues wisely against indiscriminate and unscientific use of these methods of specific treatment in order that they may not unfortunately fall into the same premature disrepute which befell the application of tuberculin before its virtues, few though they be, were sufficiently exploited. The chapters of the volume deal with infections, immunity, modifications of Wright's determinations, nature of opsonins, and opsonic index in health and disease. The two final chapters discuss in detail vaccine therapy and serum therapy. It is important that every physician be well read upon this latest study of the application of the principles of immunity, even though it may yet be a long while before these principles will be usable by the general practitioner.

Society Reports.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirty-first Annual Congress, Held at the Harvard Medical School, Boston, Mass, May 31, June 1 and 2, 1909.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page 539.*)

Tuesday, June 1—Second Day.

A New Method of Packing the Naris Designed to Prevent Postoperative Hemorrhage.—Dr. W. E. CASSELBERRY of Chicago described this method, which consisted in placing a rubber tent with a slightly bulbous end in the naris, pushing it far enough back to permit the bulbous end to project into the nasopharynx, and packing the tent with gauze with any of the usual packing instruments. He also presented a new model of the "quad" self-retaining speculum.

An Embryological Study of the Metaplasia of the Epithelium of the Tonsillar Crypts: A Contribution to the Origin of Lymphocytes.—Dr. GEORGE B. WOOD of Philadelphia read this paper, illustrated by lantern slides. He noted, first, that in the adult tonsil there were certain phenomena suggestive of the idea that the epitheloid cells of the crypts underwent a metamorphosis, the result of which was the formation of cells morphologically similar to lymphoid cells; second, that in the embryo the very earliest stages showed a peculiar activity of the epithelium, characterized by the separation of basal epithelial cells, rupture of the basement membrane and the presence in the epithelium and in the neighborhood around this epithelial center of cells morphologically similar to lymphocytes; third, that the increased growth of this epithelial tissue was attended by the deposition in its immediate neighborhood of more lymphoid cells; fourth, that transition cells between the typical epithelial cells and the lymphoid cell might be found not only in the epithelium, but in its immediate neighborhood. These transition cells were more easily studied, and were in greater number in the later stages than in the very beginning; fifth, that the polymorphonuclear cells were comparatively more abundant in the early stages than in the later. The appearance of polymorphonuclear cells in the early stages of the tonsil was difficult to explain. Their presence in the neighborhood and the tissues immediately surrounding them indicated that they were derived from the circulation. On the other hand, the transition types in very early stages in the epithelium would seem to show a common origin with the lymphocytes. They gradually disappeared as the tonsil developed, and this fact would lead one to think that they were not an essential part of the adult tonsil. It might be that the early change in the epithelium acted as a chemotactic power, attracting the polymorphonuclear cells. It might be argued that these latter, coming from the blood, gave rise to the lymphoid element, were it not for the peculiar metamorphosis of the cryptal epithelium. The origin and function of the polyleucocytes in the embryonic tonsillar tissue needed further study, but their mere presence did not, to Dr. Wood's mind, interfere with the epithelial origin of lymphocytes.

The Tonsil of the Infant, the Child, and the Adult.—Dr. HARRY A. BARNES of Boston read, by invitation, a short paper on this subject, illustrating it with lantern slides. He spoke of the commencement of tonsillar growth in the embryo and at birth. At the latter time we found the tonsil had very little lymphoid tissue. The epithelium of the crypts was essentially like that of the surface, except that at this period many of the crypts were still in the formative stage and showed either as solid epithelial buds or as buds in which the central cells had formed a core which was ready to be expelled. Between the fourth and sixth month of life the follicles, with their germinal centers, began to show distinctly, and with their appearance the lymphoid tissue becomes very active. Large numbers of lymphocytes invaded the cryptal epithelium and disintegrated its lower layers, so that they appeared as ragged strands of tissue extending from the surface of the crypt into the lymphoid tissue below. This disintegration was apparently by the pressure of numbers. At the same time the cryptal walls were pressed tightly together, so that their drainage became obstructed and the large numbers of lymphocytes passing through the epithelium into the crypt cavity were there retained and formed the cheesy masses so commonly found in the tonsils of childhood. After eighteen months of life we had conditions very favorable for infection, viz., poorly draining crypts containing these masses of cellular débris and a cryptic epithelium which could make but a poor defence if the other resisting powers of the patient were lower. At about puberty retrogressive changes commenced, drainage was more free, and the lymphoid tissue receded from the epithelium. This retrogression occurred only here and there. From the point of infection the conditions resembled those of the infant tonsil.

Dr. LEONARD W. WILLIAMS of Harvard University opened a discussion and spoke of the origin of the lymph cells and channels in various lower animals. He believed that the lymphocytes of the tonsil arose, like those of the lymph glands, in the mesenchyma.

Dr. H. L. SWAIN of New Haven referred to the early observations of Stoehr in Germany, when it was supposed that the destruction of epithelium of the tonsils was a real one, and that there was an absolute erosion of the cells, as shown in Dr. Barnes' pictures. Now, Dr. Wood would have us believe that the thinning out of this epithelium was more or less due to the active processes which the epithelia are undergoing in producing leucocytes. Dr. Swain believed that the tonsil was an active part of the lymphoid structure of the body, a lymph node with just as much importance, and no more, in the economy than any other lymph node except that it was the absorbent recipient of all matters coming into our lungs.

Dr. D. BRADEN KYLE of Philadelphia said that an epithelial cell in its transition stage was very much like a plant; one could not tell just whether it would turn out a beautiful flower or not. When the embryonic cell became fully grown we had no difficulty in classifying it. We could not have epithelium without connective tissue to support it. The former was, therefore, the dependent structure and got its nourishment from the latter. No one had yet proved that an epithelial cell grew from connective tissue.

A Case of Laryngeal Carcinoma Under Observation for Thirteen Years; Ultimate Laryngectomy.—Dr. HARMON SMITH of New York reported this case, which had originally come under the care of Dr. Cleitsmann, who had then reported it to the association. The patient had originally a distinctly whitish tumor of the larynx, the indications pointing to malignancy, although the earlier microscopic findings were "papilloma durum, probably malignant, perhaps cancerous." The patient was unwilling to have anything done, and disappeared from observation until 1907, when he came to Dr. Smith's clinic. A second specimen was reported as being pachyderma laryngis. After removal of each piece for examination the patient felt very much relieved. Some few months later the microscopist reported on another specimen to the effect that the growth was now assuming a malignant histological appearance. Finally the patient was prevailed upon to enter Roosevelt Hospital, and was operated on by Dr. George F. Brewer, the entire larynx being removed. A low tracheotomy was done ten days previously. Before the patient left the table a good-sized rubber tube was inserted into the stomach through the nose and the patient was fed in

this way. Recovery was uneventful. The larynx was filled with a sessile growth springing from nearly the entire right side of the internal structure, and apparently well limited posteriorly and anteriorly by the middle line. It had a white papillary and irregular surface. Sections showed under the microscope the appearance of flat-celled epithelioma, but other sections were very different. The microscopist observed that structure was not always a satisfactory guide for prognosis. The three points of interest in the case were, according to Dr. Smith, the following: (1) The long standing, slowly advancing malignancy of the tumor; (2) the almost positive belief in malignancy and yet the presence of sufficient doubt to make one refrain from radical operative measures (the reporter believed that in the early stages the tumor might have been removed by thyrotomy with a reasonable hope of nonrecurrence), and (3) the extremely small systematic manifestations for a malignant growth of such long standing.

Dr. D. Bryson Delavan of New York commented on the unreliability of the older statistics on the results of surgery in laryngeal cancer. He advised most strongly the setting apart of special surgeons for this class of patients.

Dr. Chevalier Jackson of Pittsburg heartily supported the position of the previous speaker as to statistics. Men said, "This patient is going to die of cancer of the larynx, and we might as well remove it for experience," and these operators rushed into print with their fatal case as a contribution to statistics. It was a crime to touch a case. We had mixed up our operable with our inoperable cases.

Dr. J. W. Gleitsmann of New York said that Sir Felix Semon had had a case similar to the one seen by Dr. Smith and himself, and had advised him at the time of the probably malignant character of the growth in the case now reported. This had now been actually confirmed.

Recent Cases of Sarcoma.—Dr. J. Price-Brown of Toronto reported cases that had recently come under observation, and referred to cases previously reported to the association. He offered the following conclusions: In sarcoma of the nose the usual site of origin was in the soft tissues, and not in the bony framework which supported them. The origin was usually in the form of a pedicle which rapidly became sessile. As this sarcomatous mass enlarged and pressed upon the surrounding mucosa, abrasions took place and they quickly became transformed into adhesions. These adhesions never attained the vitality and virility possessed by the pedicle. When once destroyed they were not likely to reform again. Recrudescence might, however, take place in the region of the pedicle, and in view of this contingency the regions should be kept under regular observation and control. Owing to the fact that in many cases of nasal sarcoma the affected cavity became entirely filled by the hemorrhagic growth, that its adhesions were extensive, and that it was impossible to locate them at time of examination, attempts at removal intranasally by the ordinary knife were inadvisable, but gradual and systematic dissection out by the cautery knife in suitable cases was a method which was always available and should be encouraged.

Dr. J. E. Logan of Kansas City related his experience with nasal sarcoma, citing cases he had already reported to the association. He agreed in the value of the cautery treatment in these conditions.

Dr. H. L. Swain of New Haven said he had developed a way in which it was possible to take out the lateral side of the nose and the whole sarcoma with it, with excellent results. He was not prepared to report any case now, but believed that it was possible to lift the nose and lay it back on the cheek and make a clean and complete removal.

Dr. W. L. Ballenger of Chicago reported one successful case of removal by the knife and forceps, and his patient was still living, six years after the operation. He would be somewhat doubtful as to the true sarcomatous nature of any pedicled growth. Nasal sarcoma was not as malignant as the same disease in other regions. This point should be remembered in comparing results with those in other areas. In the nasopharynx, however, sarcoma was a very malignant process.

Dr. F. C. Cobb of Boston called attention to the difficulty in distinguishing small, round cell collections caused by any degree of traumatism from a sarcomatous mass. With the spindle-celled or the melano-forms there was no difficulty.

Dr. O. T. Freer of Chicago said there was great difference in the rate of growth of round-celled growths undoubtedly sarcomatous.

Primary Cancer of the Trachea.—Dr. T. Passmore Berens of New York reported a case, and said that he had been able to find records of but thirty authentic cases. His patient was a man of fifty-five years of age, whose first symptom was a persistent cough, followed by dyspnea. Both vocal bands were reddened and thickened; beginning at the second tracheal ring was a grayish-pink, velvety mass running way round the trachea and diminishing its caliber to about one-third of its normal size. The patient was placed in the hospital and the trachea opened from the larynx to the sternal notch. The growth extended one inch below the latter point, was not adherent to the rings, and did not extend beyond the limits of the tube. The larynx was free from all malignant deposit. Owing to the extension of the process so deep down the trachea, exsection of the latter was out of the question, and the mass was curetted away apparently successfully, for the result of the curettage left apparently normal appearing tissue. The shock of the operation was considerable, though the amount of blood lost was trifling. The temperature was 101°; the patient did badly, and died of pulmonary edema and heart failure three weeks after the operation. Microscopical diagnosis, columnar epithelioma.

Dr. E. L. Shurly had seen a similar case diagnosed by the pathologist as angioma. The man died from hemorrhage following curettage through a tracheotomy wound.

Nasal Tuberculosis, Two Cases; One Involving Right Ethmoid Bone, with Recovery After Operation.—Dr. Otto T. Freer of Chicago reported these cases and gave a general description of tuberculous processes in the nose and of their relation to lupus. We might have the ulcer, tumor, diffuse infiltration, and formation of granulation areas. The author's first case was that of a girl of twenty years of age, on whom three operations were done. In the first the entire middle turbinate was removed, and also the tissue from the posterior border of the septum, where it assumed the form of an ulcerated tumor. The microscope showed it to contain abundant giant cells imbedded in fields of epitheloid cells, but no tubercles nor bacilli. Some weeks after there were evidences of recurrence, and further eradication was done, with but temporary relief. A third operation was done under half chloroform narcosis, and the right ethmoid region was thoroughly exenterated. Examination of the tissue removed showed typical miliary tubercle and some bacilli. The patient was nervous for some months after the last operation, being markedly asthenopic, but this symptom had disappeared and she was now in blooming health, nearly two years after operation. The second patient was a woman of fifty, presenting a grave variety of the infiltrative form. There was a bulging swelling on either side of the nasal bridge and a marked thickening of the septum, with ulcerations and irregular surface. The extent of infiltration rendered complete removal impossible, and the nostrils were simply freed. Microscopical examination showed epithelioid cells, lymphoid cells, polynuclear leucocytes, and giant cells. Tuberculin injections were given, but without perceptible benefit, and the patient passed out from under observation, so that the ultimate condition could not be learned.

Another Case of Nasal Tuberculosis.—Dr. W. Scott Renner of Buffalo, N. Y., reported this case. His patient was a healthy woman of twenty-eight years of age, whose nose was completely obstructed by a pyriform tumor occupying the position of the septum. A provisional diagnosis was made of sarcoma and a bit of the mass removed for examination, which showed it to be tuberculous, containing giant cells and bacilli. The lungs were normal, the heart not very strong, and there was a history of old glandular abscesses in the neck. The growth was removed piecemeal down to the cartilage, and later the anterior portion of the inferior turbinate, which was found to be infiltrated. The wound surfaces were treated with lactic acid and the edges cauterized with the electrocautery. Iodoform gauze was used as packing until healing occurred. The reporter said that he was not sure that this was a primary infection in the nose, in view of the old scar in the neck. The septum probably became involved first, and later the turbinate.

Dr. Emil Mayer of New York called attention to the difficulty in diagnosis in the early stages of these lesions. He did not believe that the term lupus should be dropped from our nomenclature. The size of the growth in the nose was no clue to its nature. This disease might advance to a late stage in the larynx with only trifling symptoms, or none at all.

Cavernous Sinus Thrombosis.—Dr. Lewis A. Coffin of New York reported the case of a woman of fifty-nine years of age, who presented typical evidences of acute frontal sinus disease, and was operated on, the complete Killian being done. No polypi or granulation tissue were found in the sinus, although the lining membrane was very thick from congestion, as was also that of the adjacent sinuses. The eye symptoms were relieved, but there developed a marked chemosis of the lower lid. A consultation was held and it was finally decided that there had been a thrombosis of the cavernous sinus, but it was also decided that the operation had been of the greatest benefit, as by reducing the edema about the tissues of the eye the sight of the patient had been saved, if not her life. To reduce the coagulability of the blood as well as to break up any existing thrombus or clot, lemonade was given freely. Recovery was without incident.

Teratoma of the Soft Palate.—Dr. Coffin also reported this case, his patient being a woman of sixty-six years of age, complaining of cough, at first ascribed to enlarged lingual veins. A small tumor was discovered behind and above the uvula, and of the shape of the latter, hanging free in the pharynx. It was thought to be papillomatous, but proved to be a teratoma. Dr. Coffin quoted Sarapin as saying that the mixed tumors of the palate formed a group by themselves pathologically, anatomically, and chemically; that they had a common origin with teratomata and teratoid growths, and that from a clinical point of view they were benign in character, easy to enucleate and not inclined to recur.

Dr. W. L. Ballenger did not think that the history given by Dr. Coffin presented the features of a cavernous sinus thrombosis. He was unable to tell in a case of his own whether the appearance of the skiagraph indicated suppuration in the sinuses or only a catarrhal condition. A mere clouding of the *x*-ray picture did not justify operation.

Bacteriology of the Normal Nose.—Dr. Frederic C. Cobb of Boston detailed the experience of himself and of Dr. E. W. Nagel in their experimentation along this line. His conclusions were as follows: (1) The principal source of bacteria in the normal nose was the vestibule. (2) Disinfection with peroxide and bichloride sterilized the vestibule for all organisms except the staphylococcus. (3) Disinfection by Harrington's solution would sterilize the vestibule of all germs (formula: corrosive sublimate, 2 grams; hydrochloric acid, 150 c.c.; alcohol, 70 per cent., 2,500 c.c). (4) The remaining cases showing bacteria might be due to some as yet undiscovered error in technique. (5) Cultures in pathological cases should be regarded as reliable only when the cot in the vestibule was sterile, and any form of staphylococcus should be treated with suspicion as the positive factor in any disease of the nose owing to the difficulty of eliminating its presence from the normal naris.

Dr. George B. Wood said that he would like to make Dr. Cobb believe that the interior of the nose, especially the posterior portion, was sterile in the normal individual. He believed that the normal sinuses were also sterile.

The Nose and Nasopharynx in Infants and Young Children.—Dr. J. M. Ingersoll of Cleveland gave a demonstration on this subject by means of charts. Concerning the development of adenoid tissue in the nasopharynx he said that, on account of the small oral cavity and shape of the nasopharynx in infants, a curette with a straight handle and its blade set at an angle of 55° to the handle would follow the posterior wall of the nasopharynx better and remove the hypertrophied tissue more completely than it would if the blade were more nearly perpendicular to the handle, as it was in many curettes. The bayonet blade of Fein was devised to permit greater latitude in the movement of the curette and thus allow its blade to follow the conformation of the nasopharynx. The width of the blade should be determined by the width of the nasopharynx. A curette 1.3 cm. wide, with a blade 1 cm. wide, was probably small enough for all infants. The shape of the nasopharynx in infants made it practically impossible to do a complete adenectomy with forceps.

The Action of the Respiratory Muscles in the Production of Voice.—Dr. G. Hudson Makuen of Philadelphia summarized his paper by saying that "the action of the respiratory muscles in voice production differed in some important respects from their action in passive breathing; while the function of the diaphragm was inspiratory in passive breathing, it must be expiratory in active or artistic breathing. Although this muscular diaphragm was generally classed among the involuntary muscles, its action, like that of so many other so-called voluntary muscles, might be brought entirely within the domain of the will. The proper use of the respiratory muscles for singing and speaking might be acquired by practice, and should be taught by the teachers of voice culture.

Dr. J. H. Lowman of Cleveland said he would like to ask Dr. Makuen if he had observed the Litten phenomenon during the breathing act. In many people this was not observable while the diaphragm moved distinctly.

Dr. J. Payson Clark asked if Dr. Makuen had used the fluoroscope during his observations.

Dr. Makuen said that experiments in this direction with the fluoroscope had thus far been very unsatisfactory, but hoped that the moving apparatus would be so perfected that it would become possible to make accurate demonstrations for teaching purposes.

The Choice of an Operation for the Correction of Obstructive Deviations of the Nasal Septum: A Personal Point of View.—Dr. W. L. Ballenger of Chicago said that, although he was an ardent partisan of the submucous resection, the technic was often difficult, the time for the operation long, and the difficulties many. The operation should be reserved for those cases which could not be corrected by other and simpler measures. In the choice of an operation certain fundamental facts should be remembered. Cartilage had a tendency to return to its former position. Bone, when fractured and placed in a new position, had but slight tendency to return to its former position. Roe's crushing operation might therefore be chosen in those cases in which the obstructive lesion was limited to the perpendicular plate of the ethmoid bone, and the author's operation might be practised when the obstruc-

tive lesion was limited to the vomer. Nonbeveled flaps which were not self-retaining, as in Asch's operation, required the prolonged use of some form of nasal splint for a period of from four to six weeks. So also did the Kyle operation. Any procedure which required the prolonged use of splints or tubes was not, in his (Ballenger's) opinion, justifiable. Nonbeveled flaps which were partially selfretaining, as in Sluder's operation, were utilizable in extreme angular deviations of childhood. Beveled flaps which were self-retaining were rational procedures for the correction of obstructive deviations limited to the cartilaginous septum (Watson, Gleason, Price-Brown operations). The submucous operation found its special field in compound deviations involving the cartilaginous and bony portions of the septum.

Dr. O. T. Freer of Chicago said in discussing this paper that fracturing operations were always uncertain, and he regarded the return to them as a retrogression.

Dr. J. O. Roe of Rochester was a believer in fracturing operations. The submucous operation was advantageous in cases with a marked septal thickening where we could thin out the cartilage and make a more ample breathing space, instead of cutting away the turbinate. When we had a thin, bony septum, simply bent out of line, it was absurd to go in and take out the bony framework. In all operations on the septum, no matter what one, for correcting cartilaginous deviations, the fracturing forceps as a supplement was indispensable.

Dr. Ballenger said, in closing, that it often required two hours for him to do a Freer operation, whereas in the method advocated by him the operation could be completed in twenty minutes. He would admit that the Freer operation would get the most perfect results if one took time enough and the patient had the endurance. Blindness and even death have followed the submucous operation, so also sinking in of the nose. He usually did a fracturing operation in young children or else the bevelling procedures, but saw no use in doing a submucous resection, as it took too much time.

Report of Fatal Case of Status Lymphaticus Occurring in a Patient Operated on for Tonsillar Hypertrophy Under Cocaine—Adrenal Infiltration.—Dr. Thomas J. Harris of New York reported this case. His patient was a Russian Jew, aged thirty, apparently in good health. One-sixtieth of strychnine sulphate was given by mouth after a fluid lunch. One-half hour later the tonsils were injected with about 1/12 gr. cocaine in salt solution, with 8 to 10 minims of adrenalin 1/1000. Immediately following a second injection (a first having been rejected), and the above figures representing the drug amount actually retained from both injections, the patient grew pale and vomited. Deep cyanosis followed. The operation was quickly concluded, when it was discovered that he was pulseless, while respiration was continued for some time. The symptoms were those of thymic death. Autopsy showed a markedly dilated right auricle and swollen right ventricle, enlarged axillary and groin glands, and a thymus weighing 18 grams. The cause of death was in all probability an overdilated right ventricle due to an enlarged thymus gland, with the cocaine and adrenalin acting as an exciting cause.

Dr. Thomas Hubbard added the history of one fatal case from adrenalin in his own practice. This drug had been used with great recklessness, and it was time to call a halt. He thought that 2 or 3 minims retained in the circulation was the maximum dose. His own patient was a healthy young man about to be operated on for septal trouble, and he was under chloroform and ether anesthesia. Every reflex appeared normal and respiration was perfect. He was given an injection of adrenalin for hemostasis, but part of it escaped into the stomach, and he received another, so that he probably got from 15 to 20 minims. During the second injection his heart fluttered; he gave twelve or thirteen respirations, and was dead. The adrenalin doubtless escaped into the circulation and caused the death.

Dr. H. L. Swain said that he had one case of enlarged thymus, and the external application of the adrenalin caused enough shrinkage to restore comfortable breathing. There was no incompatibility between the thymus and the drug. He thought that Dr. Hubbard was correct in assuming in these cases that the drug got into the circulation and caused immediate contraction of all the blood-vessels, sending the blood directly and forcibly back upon the heart.

Dr. J. O. Roe would hesitate to ascribe all the effect in this case of Dr. Harris to the adrenalin. Many patients had, however, a peculiar sensitiveness to cocaine.

Dr. Harris could not believe that the cocaine had had any deleterious effect in his case.

Nasal and Pharyngeal Conditions as Causative Factors in Aural Disease.—This session was held in joint meeting with the American Otological Society. Dr. George A. Leland of Boston, representing the Otological Society, said that many ear conditions which eventually threaten life had their origin in the nasopharynx. The reason for this might be found in the loss of protection normally provided for the safety and integrity of the conducting apparatus of the organ of hearing. A description was given of the arrangements of the Eustachian tube with reference to both anatomy and physiology, and the effect was mentioned of the influence of normal respiration on the movements of the drum membrane. Any interference with these functions would lead to improper ventilation and imperfect drainage of the middle ear. Hence, there would result depressed ear drum, adhesive catarrh effusions, inflammations, loss of hearing, and in less sthenic conditions the otitis media catarrhalis chronica of middle and later life, always amenable to treatment, but curable only in its earlier stages. In normal nasal respiration there was a rhythmic movement of air through the Eustachian tube, and freedom of ventilation through these channels was an essential of the integral ear. Earaches ought to be attended to, even though slight. Adenoids should be removed as soon as discovered. The fossa of Rosenmueller must be cleaned out. The effect of influenza, scarlet fever, and other poisons on the ear were well known. Under the author's direction 127 cases were examined in the scarlet fever wards of the Boston City Hospital with reference to the effect of the disease in causing enlargement of the nasopharyngeal lymphoid tissue. Forty-three were found without adenoids; of the eighty-four having them, seventy-two were without aural complications either past or present; of the twelve with aural complications, acute or chronic, all had adenoids, and of these five had them generally distributed, while in seven they were confined to the fossæ of Rosenmueller. The author said that children with earaches always had adenoids. Earache, it was true, might come from many areas outside of the nasopharynx, such as teeth, diseased tonsils, pharyngitis lateralis, etc., all by reflex. An enlarged middle turbinal might cause a feeling of fullness in the ear. There might be a low-tone tinnitus due to occlusion of the fossa of Rosenmueller, and, finally, vertigo might be due to an occluded nose.

Chronic Epipharyngeal Peridenitis in Adults.—Dr. James E. Logan of Kansas City described a condition found in many cases, some six of which were described in detail. It was an inflammation of the tissue in the neighborhood of the pharyngeal bursa which might occasion symptoms analagous to those of sphenoidal sinus inflammation. The inflammation seemed to involve not only the lymphoid tissue, but also the muscles, vessels, and connective tissue. Detailed microscopical findings in such cases were given by the author. The effect of such inflammations on the organs of hearing would be evident. If re-

peated attacks occurred, they left the patients especially liable to attacks of acute rhinitis and epidemic influenza. While this lymphoid tissue atrophied as age advanced, a very little of it might be sufficient to cause trouble. Diagnosis of the condition was easy. Prognosis was usually favorable, so far as the vault was concerned. The symptoms were those of repeated attacks of influenza, senations of fullness in the vault of the pharynx, desire to hawk and expectorate, etc. Treatment was total extirpation of the diseased tissue. The author's method of operating was described in full. He said that digital examination ought always to supplement that made by the mirror. In order to avoid hemorrhage he advised the preliminary stripping of the mass from its attachments to break up the continuity of the blood-vessels, and its removal with instruments two days later. The greatest abundance of the mass would generally be found in Rosenmueller's fossa.

The Importance of the Thorough Examination of the Nasopharynx in the Treatment of Ear Diseases.—

Dr. Francis R. Packard of Philadelphia read the final paper in the symposium. His conclusions were as follows: (1) In every case of middle ear disease which presented itself for treatment one of the most important measures to be employed was to make a thorough examination of the nasopharynx. (2) This examination should be made not only with the mirror, but also with the finger, not only before, but also after cleansing the nasopharynx. Thick mucus or other discharges might obscure the tissue changes. In children the nasopharynx should be cocainized through the nares previous to the digital examination. The same thing might be done with adults who would not tolerate the mirror. The disagreeable features of the procedure were no justification for its omission. (3) Although the presence of obvious growths, such as tumors or the existence of inflammatory condition in the nasopharynx had had the importance of their presence as a source of aural disease recognized for many years, the existence of adhesions in the nasopharynx as a cause of pathological conditions within the ear had been largely overlooked, chiefly because of the difficulty attendant upon the examination of the nasopharynx, which would lead to the discovery of their presence.

Dr. D. Braden Kyle of Philadelphia said that the natural course of procedure would be first the classification of causes. He referred to the various plans according to which this might be done, as mechanical, anatomical, pathological, etc. An anatomical cause might be a narrow naris or anatomical malformation. Atrophic rhinitis certainly predisposed to ear disease. All of the specific lesions, as tubercle, syphilis, etc., might be included in any class except that they were never physiological. The ear lesions were more common at puberty, and again at the menopause. Occupation, etc., was another factor to be considered, and such factors acted through the expending of their vicious influence on the respiratory tract and thence on the ear. He had seen the familiar soap bubble blowing of children cause ear trouble. The enlarged and imbedded tonsil obstructing the Eustachian tube might become an etiological factor in ear disease. It was very true that certain inflammatory conditions of the ear might exist without any pre-existing nasal lesion, or at least any discernable lesion at the time the aural lesion was discovered. In every case the first point for the practitioner to decide was this: Could this nasal causal factor be removed, and if so, had this nasal causal factor already produced permanent pathological lesions in the ear, or would the removal of the nasal obstruction remedy the ear lesion?

Dr. E. A. Crockett of Boston said that operations done on the nose for the relief of hearing were often done unadvisably and with promises to the patient as to results which could not possibly be made good. Otosclerosis was not a disease originating in the nasopharynx. Operations in the nose for it were not going to benefit the hearing. The same thing held true of the sinuses, nasal septum, anterior turbinates, etc. Care must be taken in adenoids to clear out the fossæ of Rosenmueller.

Dr. O. T. Freer of Chicago emphasized the necessity of thoroughness in the adenoid operation, and he advocated the use of his own perinasal forceps for this purpose. He had known hearing to return after septal operations and considered them justifiable in selected cases.

Dr. W. L. Ballenger of Chicago said that it was not alone the obstruction in the nose, but also and principally the associated inflammatory conditions, which gave the trouble to the hearing. The three main conditions to look out for were ethmoiditis and sphenoiditis, enlargement of the posterior ends of the middle turbinates and adenoids. Adults with chronic ear discharges often presented the remains of adenoids, and the same principles were applicable to them as to children.

Dr. G. L. Richards of Fall River advised the use of the thin rubber cap for the finger in digital examination of the nasopharynx. A special curette had been devised for the Rosenmueller's fossa.

Dr. F. P. Emerson of Boston called attention not alone to the adhesions around the lips of the Rosenmueller fossæ, but also to the amount of degenerated tissue in their depths. In such instances we might have unilateral deafness with low-pitched tinnitus. These cases could not be detected by the mirror, and we must use the finger. The physiological respiration of the palatine muscles produced a marked change, and undoubtedly the catheter had been much abused. Cases must be followed up, or else symptoms would return even after a thorough clearing out of the fossæ.

Dr. Emil Mayer of New York commended the use of the newly devised pharyngoscope in such cases.

Dr. Percy Fridenberg of New York said that the pharyngoscope could be borne by patients for ten minutes. It enabled us to study those various changes which take place in deglutition, gagging, coughing, etc., about the orifices of the Eustachian tubes. In this way we had learned that even in the presence of adenoids there might be a practically normal contraction of the soft palate and muscles around the tubes.

Dr. G. E. Shambaugh of Chicago said that doubtless we would all agree that many forms of ear disease, such as mucus accumulation, suppuration, etc., were improved by operation on the nasapharynx. But the cases which had been neglected and came to use in middle life with drum membrane covered with scar tissue, bound down, etc., did not benefit by operation. We must distinguish between middle ear diseases and anchylosis of the stapes. Obviously, if the labyrinth was involved, treatmeent of the middle ear would not benefit the hearing.

Dr. J. F. Barnhill of Indianapolis said that the breaking up of adhesions would not always relieve the difficulty. The tube might be pervious, although hearing was still defective. The breaking up of adhesions did good by exciting a certain amount of hemorrhage, and sometimes would relieve tinnitus. Moreover, there was a certain psychical element entering into the case. The continued attacks of nasopharyngitis were distinctly disastrous.

Dr. J. Payson Makuen of Philadelphia said that he was always in the habit of clearing out the vault with his finger before removing the adenoid growth, and in this way removed the latter more thoroughly.

Dr. J. Payson Clark of Boston said he could not accept the doctrine that every case presenting adenoid tissue in the nasopharynx called for surgical operation.

Dr. B. Alex Randall of Philadelphia emphasized the importance of massage. Adenoid operations would fail of benefit if there was a stuffed nose in front. He had never seen any brilliant results from clearing out the

Rosenmueller fossæ. Shrunken adenoid masses, although no longer obstructive, might often be removed with benefit. He had seen improvement in otosclerosis by treatment of the middle ear.

Drs. LELAND, PIERCE, LOGAN, and PACKARD closed the discussion.

The following papers were read by title: "Sloughing Fibroma of the Nasopharynx," by Dr. H. L. SWAIN of New Haven; "Report of Cases Illustrating Our Progress in the Surgical Treatment of Chronic Stenosis of the Larynx and Trachea," by Dr. JOHN R. WINSLOW of Baltimore.

At the executive sessions of the congress the following were elected to membership: Honorary Fellows (transferred from Corresponding Fellowship)—Prof. Dr. B. Fraenkel, Berlin, Germany; Sir Felix Semon, London, England.

Active Fellows—Dr. Albert C. Getchell of Worcester, Mass.; thesis, "Nasopharyngeal Fibromata," Dr. Burt R. Shurly of Detroit, Mich.; thesis, "An Investigation of Post-Operative Conditions, Five to Ten Years After Intubation," and Dr. Greenfield Sluder of St. Louis, Mo.; thesis, "The Anatomical and Clinical Relations of the Sphenopalatine (or Meckel's) Ganglion to the Nose and Its Accessory Sinuses."

Officers.—The following were elected for the ensuing year: *President*, Dr. James E. Logan of Kansas City, Mo.; *First Vice-President*, Dr. Cornelius G. Coakley of New York City; *Second Vice-President*, Dr. Harris P. Mosher of Boston, Mass.; *Secretary and Treasurer*, Dr. James E. Newcomb of 118 West Sixty-ninth Street, New York City (reelected); *Librarian*, Dr. Joseph H. Bryan of Washington, D. C.; *Member of Council* to serve for four years, Dr. Algernon Coolidge, Jr., of Boston, Mass. The meeting in 1910 will be at Washington, D. C., in connection with the Triennial Congress of American Physicians and Surgeons, May 3 and 4.

MEDICAL SOCIETY OF THE MISSOURI VALLEY.

Twenty-second Annual Meeting, Held at Council Bluffs, Iowa, September 9 and 10, 1909.

THE PRESIDENT, DR. C. B. HARDIN OF KANSAS CITY, MO., IN THE CHAIR.

Diagnosis and Treatment of Gastric Ulcer, with Especial Reference to the Lenhartz Diet.—Dr. LEROY CRUMMER of Omaha said the advantages of the Lenhartz treatment were, it was more comfortable for the patient, there was less loss of weight and nutrition, the period of return to normal diet was shorter, and the tendency to relapse was less. He had had the opportunity to carry out the Lenhartz treatment in eight cases of gastric ulcer, five of which were comparatively simple cases, and the treatment was successful without modifying any of the details. One case went through the treatment with seeming complete success, and left the hospital greatly improved in weight and strength, but died suddenly one month later with some acute abdominal trouble, probably perforative peritonitis. The other two cases, in addition to the clear ulcer condition, presented severe anemia and signs of pyloric obstruction. No operation was done in chronic ulcer till the patient had had the benefit of a careful trial with the Lenhartz treatment.

Dr. JOHN P. LORD said he recalled several cases of gastric ulcer in men who did well without having undergone surgical intervention. He spoke of this to emphasize the success which attended the expectant treatment of these cases. However, when an operation was indicated in gastric ulcer it was performed.

Dr. W. B. DEFFENBAUGH said in the medical treatment of gastric ulcer it was important to prescribe a diet which was free from irritating material. He said that the average diet contained many things that were imperfectly masticated; they passed over the inflamed area, or through the pylorus, and kept up a mechanical disturbance.

Dr. R. C. MOORE of Omaha said in his experience comparatively few cases presented the classical symptoms of gastric ulcer, but when he had one of these cases diet was the main thing to consider. He did not resort to feeding by the rectum. He kept the patient as quiet as possible, maintained the action of the different secretory organs as best he could, and placed the patient upon such treatment as could be digested. Milk was the main article of diet. When the case took on a surgical aspect, operation was considered, and, if thought necessary, performed.

Dr. W. L. Ross of Omaha said gastric troubles were functional, and not organic, and we should not be in too great haste in saying that this or that patient had ulcer of the stomach simply because he or she complained of pain. The whole symptomatology should be gone over in order to determine whether the cause was really located in the stomach or not.

Unrecognized Callstone Disease.—Dr. DANIEL MORTON of St. Joseph, Mo., emphasized the necessity for early recognition of gallstone disease. Courvoisier found seventy-two cases with gallstones present out of eighty-four cases of primary gall-bladder cancer. The inaugural symptoms of gallstone disease might be possibly best brought to the attention of the great body of general practitioners, therefore, by stating that cases of "indigestion," "biliousness," "neuralgia of the stomach," "gastralgia," and "autointoxication" were, in the majority of cases, in reality cholecystitis, and should be recognized and treated as such. The diagnosis could usually be confirmed by a physical examination of the gall-bladder and a search for the pressure pain points described. The gall-bladder, as an important factor in the causation of trouble in the organs adjacent, was rapidly assuming an increasingly important rôle.

Dr. JOHN MONROE BANISTER of Omaha said he would like to relate his experience in the Philippine Islands in reference to this line of work. In the United States we did not find conditions of extreme congestion of the liver and enlargement which we did in the tropics; consequently, a diagnosis of enlarged gall-bladder was easy. While in the Philippines he did a large amount of surgical work. They had a large number of cases of liver disease to treat, and in the number of cases on which they operated they never had a single case of disease of the gall-bladder. Frequently they thought they had, but in these cases the livers would be so enlarged from passive or active congestion as to fill the abdominal cavity. They made it a rule in suspicious cases to perform laparotomy as a routine measure, going in, getting the enlarged liver out of the way, exploring and examining the gall-bladder to see if there was anything the matter with it. They found the livers of these patients very much congested and enlarged. They made it a rule to aspirate the liver, and if they could not find an abscess they would draw off a good deal of blood, but these cases invariably did beautifully. He saw men who had been lying in bed for two or three weeks before they came to the hospital, and yet after this operation they began to get well and made rapid recoveries.

Dr. A. I. MCKINNON of Lincoln, Neb., said it was possible to have biliary or gallstone colic without the presence of gallstones. Gallstones were due ordinarily to infection. Cholecystitis frequently accompanied infectious diseases, and many times the trouble began in childhood, following some infectious disease. When they got an acute cholecystitis, for instance, complicated with pneumonia, they had jaundice, and as the growth of fibrous tissue replaced the exudate contraction took place and obstruction to the bile tracts occurred.

Dr. A. B. Somers of Omaha said the removal of the gallstones did not always relieve or cure the primary condition which still existed, and the patient should be taught to go to a physician when he got through with the surgeon, unless the surgeon was a physician.

Dr. W. F. Milroy of Omaha said he wanted to go one step further than the last speaker, and said that these patients should go to see a physician before they consulted a surgeon, as he was firmly convinced that most of these cases could be cured by medical treatment and required no operation whatever.

Splenectomy.—Dr. W. B. Deffenbaugh of St. Joseph, Mo., reported a case of traumatic rupture of the spleen, in which he resorted to splenectomy, with a successful result.

Dr. I. U. Parsons of Malvern, Iowa, said that several years ago a boy, ten years of age, fell across a washtub, striking himself in the region of the spleen. Several physicians saw the boy, but were unable to make a correct diagnosis. Two months after the injury a tumor developed in that region. The abdomen was opened and a large cyst of the spleen was found and drained. The boy recovered.

Dr. A. C. Stokes of Omaha said the spleen, according to German authority, had a physiological function. It had to do with infections in the production of immunity, or the swallowing up of infections. This was illustrated by the fact that so many patients who had infectious diseases had developed enlargement of the spleen. Embryologically, and from the standpoint of comparative anatomy, the spleen was more of a remnant than anything else, for in animals it was much larger in comparison with the body weight than it was in man. The blood supply was about the same.

Renal Tuberculosis.—Dr. F. Kreissl of Chicago read a paper on this subject, in which he discussed some diagnostic and therapeutic points in the management of this disease.

President's Address.—President Hardin offered some suggestions with reference to the future conduct and improvement of the society.

Cancer: A Constitutional Disease; Its Rational Treatment.—Dr. John E. Summers of Omaha delivered the address on surgery, selecting this subject. He referred to recent investigations concerning the medical and surgical treatment in cases of cancer of the genitalia, etc. In cancer of the uterus he first curetted thoroughly and dried carefully, then poured one-half ounce of acetone through a Ferguson speculum (patient in the Trendelenburg position), leaving this in for fifteen or twenty minutes; he then let the acetone run out and packed the cavity with gauze soaked in acetone. In rectal cancer he followed a like practice, only first introducing a tampon above the growth before using the acetone. He repeated the use of acetone two or three times a week in office practice, protecting the vulva with vaseline. The oozing was checked and the wound surface was covered with a thin, white film. The odor was remarkably reduced. The discharge was at first watery and then disappeared. The wound shrank and tended to heal. The health improved. The opsonic index was raised. Acetone bisulphite, a white powder, giving off pure acetone when dissolved, might be used in place of acetone. Besides escharotics, the *x*-ray and radium, which, when the cancer or sarcoma could be reached, tended to destroy or inhibit its growth, there were certain drugs of great value in the internal treatment of cancer. They were mostly of the alterative type, and usually best given hypodermically. Certain preparations of arsenic, mercury, and iron were to be commended. Iodine the speaker had not found so useful, but it had its friends. Having noted the fact that cancer never began primarily in bone, that sarcomas in which the bone element predominated were least malignant, it occurred to him that if in any way he could increase or overload the blood with lime it would be a rational therapeutic measure in the treatment of malignant disease as a post-operative measure of prophylaxis and as a remedial agent in conjunction with the hypodermic use of alteratives. So far he had reason to believe there was value in the remedy, and he hoped others would try it. He used the lactate of calcium given, to begin with, in a hypodermoclysis, 30 grains to 1 dram, in a pint of warm sterile water; later he continued the drug in 10 to 30 grain doses given by the stomach in hot water three times a day. It might be continued indefinitely, but at the beginning was apt to cause nausea. Thirty grains of the lactate in a pint of warm water might be given directly into a vein. In a bad, hopeless case of cancer of the throat he found that the lactate materially lessened the pain.

Advantage of Cholecystotomy in Draining the Deeper Biliary Tracts.—Dr. H. G. Welpton of Des Moines said this paper was suggested by a serious and unexpected complication that attended two cases of cholecystectomy in his practice. The cases were of the simple type, without adhesions, obstruction, or destructive changes. In one of his cases a large calculus formed with the hepatic duct above an acute angulation of the common duct. The angulation was due to an adhesion to the colon. In the other an acute exacerbation of a chronic pancreatitis came on at intervals obstructing the common duct. His cases were only partially relieved by removing the stone, by releasing the adhesions, and by drainage. Since reviewing the literature he limited cholecystectomy to these cases where either the gall-bladder or cystic duct had been contracted or obstructed, or where an irreparable damage from gangrene, infection, ulceration, perforation, or malignancy had occurred. He preferred to leave the gall-bladder, when possible, since excision did not remove the infection that was in the common and biliary ducts Gall-bladder drainage offered the best means of a complete cure of the infections of the deeper tracts as well as those of liver and pancreas. It also provided for a cholecystenterostomy in case of complete obstruction, and served as a guide to the deeper structures.

Surgical Suggestions for the Treatment of Chronic Appendicitis.—Dr. A. I. McKinnon of Lincoln, Neb., recommended that the incision be made high enough for examination of the upper abdomen and treatment of those parts which might be found involved. This incision could be made about the same as a gall-bladder incision, the lower end being even with the umbilicus, or at a point where most authorized incisions begin. Through such an opening the appendix could be easily pulled up and with the aid of the proper position of the patient the whole abdomen and pelvis would be open for examination. To further facilitate this exploration he advocated the sitting posture of the patient in this class of operation. He had used this method for several years with great success in handling the abdominal viscera.

Scientific Feeding.—Dr. Minda A. McLintock of Atchison, Kan., said that he enjoyed the best health, the keenest mentality, the highest physical powers, who could select for himself those articles of diet which would most nearly supply all the constituent parts of the body in natural proportions. To do this, first, food must contain all the nutritive elements the body requires. Second, only such foods must be combined at each meal as would produce chemical harmony in the stomach. Third, the food must be proportioned so that the body would not be overfed with certain elements of nutrition and underfed with others. No less important was the observance of natural laws or idiosyncrasies, namely, age, sex, temperament, environment, together with the season of the year, occupation, exercise, etc.

The Bacteriological Diagnosis of Epidemic Cerebro-spinal Meningitis.—Dr. S. R. Hopkins of Omaha presented a method of establishing a bacteriological diagnosis in this affection. He said that a Gram negative diplococcus occurred most often in the interior of the leucocytes of the spinal fluid. There were some six species of Gram negative diplococci with which it was possible to confuse the diplococcus of Weichselbaum, and chief among these were the diplococcus of gonorrhea and the so-called pseudomeningococcus. But for practical purposes, the identification of the meningococcus in the spinal fluid withdrawn by lumbar puncture from a patient presenting phenomena suggesting meningitis was a procedure fraught with little difficulty, and it was the only means of affirming a positive diagnosis. In staining by the method of Gram it was well to finish the staining process by flooding the slide with a one-fourth of one per cent solution of eosin in water, thus giving to the Gram negative bacteria a red color. In order to establish a certain bacteriological diagnosis one should in every instance resort to cultivation of the germs on artificial media.

The Objects of Mechanical and Surgical Treatment of Infantile Paralysis.—Dr. H. Winnett Orr of Lincoln, Neb., said that while in some cases the prime object of treatment was the correction of gross deformity, there were many cases in which a return of function might be obtained in muscles apparently completely paralyzed. The mechanical and surgical procedures which afforded the greatest opportunity for restoring the function of these muscles were discussed in detail.

Does the Present Conservatism in Pelvic Surgery Serve the Best Interest of the Patient?—Dr. Bernard A. McDermott of Omaha expressed himself as being opposed to conservatism or any plastic work in certain pelvic lesions such as a partially diseased tube or ovary. In the latter condition, the resection of a cystic or partially diseased ovary, as a routine procedure, was to be mentioned only to be condemned, as the cutting and plastic work necessary to such an operation usually produced more post-operative pain, tenderness, and general bad symptoms than would the original condition. He had seen this follow so many times that he was convinced it was better either to remove the entire ovary or to leave it. In uteri containing multiple fibroids, he thought it was better to do supravaginal hysterectomy than myomectomy.

Diagnosis and Treatment of Stricture.—Dr. A. C. Stokes, of Omaha, Neb., summarized the treatment of stricture of the urethra thus: "1. Alkalies, diluents, and rest are serviceable in most cases of stricture—sometimes indispensable if there be any serious complications. 2. All uncomplicated strictures, not highly irritable or resilient, should be treated by dilatation with soft instruments up to No. 15 French, and with conical steel sounds afterwards; reintroductions being made every third or fourth day. 3. Until well acquainted with the temper of a given stricture every sounding should be preceded by urotropin, followed by nitrate of silver. 4. Dilatation need rarely be carried beyond the caliber of the normal meatus. 5. Any stricture resisting dilatation must be cut. 6. For the pendulous urethra, internal urethrotomy. For the perineal urethra external urethrotomy or the combined operation. 7. In general, anterior stricture of the urethra is curable, deep stricture of the urethra incurable. 8. Impassable stricture without retention may usually be overcome with whalebone bougies by time, patience, and skill. If they finally proved impassable, the treatment is external perineal urethrotomy. 9. Retention is treated by hot baths, ether, opium, tincture of the sequichlorid of iron; failing these, by aspiration, or by external urethrotomy without a guide. 10. Traumatic stricture may be prevented by section at the time of injury. Once having shown itself, it usually requires excision for a cure. 11. Resilient and nodular strictures are best treated by excision. 12. Irritable strictures may often be cured without cutting."

The following papers were also read: "Cataract," by Dr. Flavel B. Tiffany, of Kansas City, Mo.; "Dementia," by Dr. Gershom H. Hill, of Des Moines, Ia.; "The Neglected Anus," by Dr. D. T. Quigley, of North Platte, Neb.; "Cancer of the Breast," by Dr. B. B. Davis, of Omaha; "Diseases of Metabolism as a Group," by Dr. Alfred C. Croftan, of Chicago.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. A. B. Somers, of Omaha; *First Vice-President*, Dr. C. R. Woodson, of Saint Joseph, Mo.; *Second Vice-President*, Dr. Flavel B. Tiffany, of Kansas City, Mo.; *Secretary*, Dr. Charles Wood Fassett, of Saint Joseph, Mo., reelected; *Treasurer*, Dr. T. B. Lacey, of Council Bluffs, Iowa, reelected.

Omaha, Neb., was selected as the place for holding the semi-annual meeting in March, 1910.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Held April 20, 1909.

Dr. Joshua M. Van Cott in the Chair.

A Brief Consideration of the Subject of Internal Secretions and Animal Therapy.—Dr. William Browning of Brooklyn read this paper. He said that the field of animal-extract therapy was distinctively a modern one. The general experience of the past had not been one to inspire confidence in the general utility of animal extracts. The subject had been so deeply tainted with charlatanism as to arouse the spirit of skepticism and criticism. Brown-Sequard was among the first to introduce animal extracts to therapy, when in June, 1889, he began to use testicular extract. Others mentioned in the brief historical review were Shaw, 1896; Abeli, who isolated nephritin; Takammie, who introduced adrenalin in 1901. The work of Sajous had been an elaborate study of animal-extract therapy. The thyroid was the ductless gland whose extracts had been among the first to establish its extensive rôle in therapeutics. Athyroidism or athyreosis, which was congenital absence or operative removal of the thyroid, resulted in cretinism, or myxedema, or cachexia thyreopriva (surgical), and in these conditions the administration of thyroid extract had proved not only valuable but also indispensable. It had been noted that pituitary hypertrophy followed thyroidectomy, which indicated some intimate connection between the two glands. Insufficiency of the thyroid was known as hypothyroidea or thyreoaplasia, and by some was considered as the fundamental factor in pachydermatoses, such as ichthyosis, scleroderma, psoriasis, pityriasis, etc., in some chronic arthritides, in sluggish and sleepy conditions, in lessened irritability of the sympathetics, in forms of infantile eclampsia, in thyroiditis, dysthyroidism, and thyroidotoxin effects. In lethargic states and narcolepsy the value of thyroid had been shown. Its use in melancholia was risky. Hyperthyroidism (hyperthyreosis) reduced weight in adults by increasing the nitrogen and phosphorus metabolism. It had been recognized by many as the cause of exophthalmic goiter. Nervous over-activity (insomnia, excitement, etc.) had been attributed to this cause, but was now attributed to hyperirritability of the symphathetics. The thyroid had a close relation to the genital sphere. There was enlargement of the thyroid at puberty, during menstruation, and in pregnancy. Sexual infantilism was usual in myxedema. Suppression of the menses was often followed by goiter, which disappeared on the return of the menses. After an early thyroidectomy there was an arrest in the development of the genitalia. Precocity was noted in some cases in which there was an early hyperactivity of the thyroid. The effects of administering thyroid (opotherapy) were as follows: It acted as a general depressant to the pulse and circulation

It relieved athyroidism and hypothyroidism. It increased weight in some backward children. After pertussis it had been noted that children grew very rapidly. This was supposed to be due to the large amount of thyroid secretion liberated into the blood as the result of the paroxysmal attacks of coughing, causing pressure on the thyroid. It had also been noted that the thyroid had certain undefined immunizing qualities. The preventive value of small doses of thyroid against mosquito bites was alluded to. Thyroid was recommended for obesity, for colloid goiter, and in puerperal eclampsia. There were also a number of antithyroid preparations for hyperthyroid conditions. That the parathyroid glandules had a rôle separate from that of the thyroid was proved by the postoperative tetany resulting from operative removal of the parathyroids. It was questionable whether the absence of the parathyroids had any relation to restlessness, insomnia, flushings, and numbness. Insufficiency of the parathyroids (hypoparathyreosis) was possibly associated in some causative manner with rickets, osteomalacia, and achondroplasia. It had a doubtful relationship to paralysis agitans. For tetany the subcutaneous injection of parathyroid nucleoprotein had been used. This was useless when given by mouth. Insufficiency of the pituitary body had been observed in dwarfism if the inadequacy had been congenital, in low arterial tension and fast pulse, and in sexual retardation in the young. Enlargement of the pituitary had been noted in gigantism, and in acromegaly, which was essentially a somatic overgrowth. It was also observed in amenorrhea, in atrophy of the genitals or sexual infantilism in the young, and in impotence. In castrated animals the pituitary underwent development. Enlargement of the pituitary sometimes produced mechanical effects through pressure upon adjacent cranial nerves. Opotherapy with pituitary gland caused arterial hypertension, had an antisecretin action on the pancreas, had a marked influence on the uterus, and increased the growth of many backward children. The absence, atrophy, aplasia, or fibrosis of the thymus and parathymus was normal after infancy or at puberty. Its premature subsidence was possibly accompanied by defective nutrition, such as marasmus or rickets. Where the thymus was absent, splenectomy was promptly fatal. Hypertrophy and persistence of the thymus (status thymicus) was responsible for thymic asthma, laryngismus stridulus, and glottic spasm in children, in which its action was solely mechanical. Thymic death occurred, but mostly in operations. Status lymphaticus and lymphatism were frequently associated with hypertrophied thymus. There was also a possible relationship between the latter and leucocythemia and leukemia. Hypertrophied thymus was common in Basedow's disease (Basedow-thymus). Tumor of the thymus was responsible for many cases of myasthenia gravis. Opotherapy with thymus was suggested as of possible though questionable value in rickets and muscular dystrophy. Insufficiency and hypoplasia of the adrenals were frequently at the basis of arterial hypotony, while bronze or Addison's disease was common in bilateral affections of the adrenals. Superadrenalism followed degeneration or atrophy of the ovaries or testicles. Solutions of adrenalin acted locally as vasoconstrictor, hemostatic, astringent, and myotic. There was some possible connection between the adrenal cortex and sexual development. Opotherapy with adrenal caused a digitalis effect on the heart and circulation, it possibly induced arteriosclerosis, and had an antisecretin action on the pancreas. The sexual glands also furnished internal secretions, and differed from the former class in having ducts. They included the testicles, ovaries, mammæ, prostate, and parotids. The absence through castration of the testicles, particularly of Leydig's or the interstitial cells, was responsible for eunuchism, if these structures were lost before puberty.

Medical Items.

Diagnosis of Syphilis with the Ultramicroscope.—Léon Bizard regards the ultramicroscope as a very valuable method of diagnosis in syphilitic lesions. It permits the physician in his office to differentiate between a syphilitic chancre and other infections. The examination may be made by any physician provided with a good microscope, immersion lens, Leitz condenser, and an adequate source of light. The examination of the organisms may be made living in distilled water or peptonized bouillon within a few minutes of being obtained, or dead for four or five days after withdrawal. The lesion is to be carefully cleansed with distilled water and cotton, and all crusts removed; it is scarified with a vaccinostyle and the drop mixed with distilled water on a slide, which is sealed with paraffine. The fluids that are most valuable for examination are the fluid from the chancre and moist lesions about the genitals. The organisms are abundant in the saliva. They are exceptionally found in erythematous secondary lesions of the skin; never in tertiary lesions or in the blood or body fluids. The diagnosis for the chancre is absolute.—*Journal de Médecine de Paris.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended September 24, 1909:

		CASES.	DEATHS
SMALLPOX—UNITED STATES.			
Illinois, Peoria	Aug. 1–31	9	..
Indiana, Fort Wayne	Sept. 4–11	3	.
Louisiana, New Orleans	Aug. 28–Sept. 4	1	..
Missouri, St. Louis	Sept. 4–11	1	.
Ohio, Dayton	Sept. 4–11	5	
SMALLPOX—INSULAR.			
Philippine Islands, Manila	July 24–31	1	.
SMALLPOX—FOREIGN.			
Brazil, Pernambuco	July 1–31	..	27
Chile, Valparaiso	Aug. 14–21	..	Present
China, Amoy	July 1–31	9	Vicinity
Newchwang	July 31–Aug. 14	2	1
Shanghai	July 31–Aug. 7	..	1
Ecuador, Ensenada	Aug. 10	..	Epidemic
Guayaquil	July 1–31	4	1 in vicin'y
France, Paris	Aug. 14–21	..	1
India, Calcutta	July 31–Aug. 7	..	2
Rangoon	July 31–Aug. 7	..	2
Italy, Naples	Aug. 22–29	17	3
Java, Batavia	July 31–Aug. 7	1	..
Mexico, Monterey	Aug. 29–Sept. 5	..	1
Veracruz	Aug. 29–Sept. 5	2	1
Peru, Mollendo	Aug. 30	..	Present
Portugal, Lisbon	Aug. 21–28	14	..
Russia, Moscow	Aug. 14–21	3	2
Odessa	Aug. 7–21	14	5
Riga	Aug. 21–28	9	..
St. Petersburg	Aug. 7–21	40	11
Warsaw	July 10–17	..	1
Spain, Barcelona	Aug. 21–28	..	6
Vigo	Aug. 14–28	..	Present
Turkey, Bagdad	July 17–Aug. 4	..	Present
YELLOW FEVER.			
Brazil, Manaos	July 7–14	..	2
Para	Aug. 14–28	9	9
Pernambuco	July 1–31	..	2
Ecuador, Guayaquil	Aug. 14–21	..	3
Mexico, Merida	Sept. 3–10	2	In vicinity
Venezuela, Maiquetia	Aug. 25	1	Vicinity of La Guaira
CHOLERA—INSULAR.			
Philippine Islands, Manila	July 24–31	1	1
Provinces	July 24–Aug. 7	278	191
CHOLERA—FOREIGN.			
China, Amoy	July 31–Aug. 7	..	15
Hankau	Aug. 3	..	Present
Shanghai	Aug. 3–11	..	Present
India, Calcutta	July 31–Aug. 7	..	7
Madras	Aug. 7–13	..	1
Rangoon	July 31–Aug. 7	..	3
Manchuria, Dalny	Aug. 7–14	1	On steamship Kobe Maru
Netherlands, Amsterdam	Sept. 10	1	..
Dirksland	Sept. 10	1	..
Middelburg	Aug. 28–Sept. 4	1	..
Rotterdam	Aug. 20–Sept. 4	34	14
Tholen	Aug. 28–Sept. 4	1	.
Utrecht	Aug. 28–Sept. 4	1	..
Vlaardingen	Aug. 28–Sept. 4	1	..
Russia, general	Aug. 21–28	573	243
Moscow	Aug. 14–21	1	1
Riga	Aug. 21–28	17	8
St. Petersburg	Aug. 22–29	180	64
Sweden, Stockholm	Aug. 12	1	Imported
PLAGUE.			
Chile, Iquique	Aug. 22	4	In Lazar'to
China, Amoy	July 31–Aug. 7	..	51
In vicinity	July 1–31	19	7
Hongkong	July 24–31	2	2
Ecuador, Guayaquil	Aug. 14–21	..	5
Egypt, general	July 29–Aug. 5	9	2
Alexandria	Aug. 5	1	..
India, general	July 31–Aug. 7	1,287	938
Calcutta	July 31–Aug. 7	..	15
Rangoon	July 31–Aug. 7	..	29
Japan, Kobe	Sept. 13	..	Present

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Original Articles.

ON THE DEVELOPMENT OF GASTRO-ENTEROLOGY IN AMERICA.*

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IN acknowledging my thanks to this association for the great honor conferred upon me in electing me its president, I feel that I cannot do better than to review in the brief period of time alloted me, the most important work achieved in America in the field of gastroenterology. In performing this task I do so not only with the view of bestowing just praise upon those who have contributed most to our knowledge of the subject, but at the same time to point to the many problems which still confront us, and to which it behooves us as workers in this field to still further direct our attention.

In glancing back to the beginning of the nineteenth century we find some epoch-making discoveries in this branch of medicine. There can be no question, as I shall presently show, but that the invention of the very instrument by means of which so much knowledge has been gained in the field of gastroenterology—I refer to the stomach tube—must be attributed to the ingenuity of an American physician.

Two English surgeons, Jukes and Bush, are, however, very generally given credit for this invention, based upon an article by Jukes in the *London Medical Repository*, 1822, under the title: "Description of an Apparatus for Removing Poisons from the Stomach, invented by Mr. Jukes, Surgeon."

In looking over some early volumes of *The Eclectic Repertory* several years ago, I was rewarded by the discovery of a paper in Vol. III, 1812, entitled, "Account of a New Mode of Extracting Poisonous Substances from the Stomach," by Philip S. Physick, M.D., Professor of Surgery in the University of Pennsylvania. Physick reports two cases of whooping cough in twins, three months old, to whom the mother had administered laudanum for restlessness, with serious consequences. The laudanum bottle had been left uncorked for several weeks and the fluid had evaporated from one ounce to scarcely a drop. This served for a dose for one, and two drops of water shaken with the residue was given the other child. Symptoms of opium poisoning rapidly developed, and Physick was hastily summoned. He found both children in such a state that swallowing was impossible and the idea of injecting an emetic into their stomachs occurred to him. Putting this idea into effect he passed a large flexible catheter for a stomach tube, and with a pewter syringe injected ipecac and warm water. The stomach contents were withdrawn and the process repeated using warm water alone; both patients received the stomach washing, and one recovered.

This first application of a tube and syringe for washing poisonous materials from the stomach took place about twelve years before its publication (that is, in 1800), and in the meantime Physick had been recommending the procedure in his lectures. Upon his advice his nephew Dorsey had had stomach tubes made in Paris as early as 1803, and had made use of them in cases of poisoning. Since the work of Jukes did not appear until 1823 there can, therefore, be no doubt that Physick was the inventor of the stomach tube and the first to make use of this apparatus.

We can next point with pride to the "Pioneer American Physiologist," Beaumont, whose remarkable experiments upon Alexis St. Martin, published in 1823, are epoch making. This work is so familiar to you that it is hardly necessary to refer to it in detail. The results of these observations, as summarized by Osler, are as follows:

"First, the accuracy and completeness of description of the gastric juice itself. Second, the confirmation of the observation of Trout that the important acid of the gastric juice was the muriatic or hydrochloric. Third, the recognition of the fact that the essential elements of the gastric juice and the mucus were separate secretions. Fourth, the establishment, by direct observation, of the profound influence on the secretion of the gastric juice and on digestion of mental disturbances. Fifth, a more accurate and fuller comparative study of the digestion in the stomach with digestion outside the body. Sixth, the refutation of many erroneous opinions relating to gastric digestion and the establishment of a number of minor points of great importance, such as, for instance, the rapid disappearance of water from the stomach, through the pylorus—a point brought out by recent experiments but insisted on and amply proven by Beaumont. Seventh, the first comprehensive and thorough study of the motions of the stomach, observations, on which, indeed, are based the most of our present knowledge. And last, a study of the digestibility of the different articles of diet in the stomach, which remains to-day one of the most important contributions ever made to practical dietetics."

The essayist has well said: "Beaumont is the pioneer physiologist of this country, the first to make an important and enduring contribution to this science. His work remains a model of patient persevering investigation, experiment and research, and the highest praise we can give him is to say that he lived up to and fulfilled the ideals which he set out and which he expressed when he said, 'Truth, like beauty when unadorned is adorned most, and

*President's address, read at the twelfth annual meeting of the American Gastro-Enterological Association at Atlantic City, June 7, 1909.

in prosecuting these experiments and inquiries I believe I have been guided by its light.'"

It is interesting to note here that another American had investigated the physiology of digestion thirty years before the publication of Beaumont's work. This fact was brought to light in a recent article by Prof. L. B. Mendel, who refers to a thesis, entitled, "An Experimental Inquiry into the Principles of Nutrition, and the Digestive Process," submitted to the faculty of the University of Pennsylvania in 1803, by Young, a Marylander. This investigator introduced small animals into the stomachs of frogs, observing from time to time the progress of digestion upon these tissues. In addition he removed the gastric secretion from animals and utilized it for test-tube experiments. He investigated the digestion of vegetables and bread stuffs by introducing these foods, ingeniously enclosed in linen bags, into the frog's stomach, and making observations on the digestive changes at the end of varying periods. He disproved the occurrence of an acid fermentation by the aid of a friend, Mr. Mitchell, who, "being in good health and having the power to ruminate, was experimented upon." Young's description of the digestive process is complete and remarkably accurate, and well worthy of your hearing but the time at my disposal necessitates its omission.

It is interesting to glance at some of the contributions to gastroenterology published in the early part of the nineteenth century. These are largely of a clinical character and consist mainly of reports of interesting cases. Thus Dr. William Shaw, in *The American Medical Recorder* in 1818, records an unusual case of abdominal surgery. He was called to see a woman, who, as he remarks, had been shockingly gored in the abdomen by a cow. There was present a wound through the abdominal wall sixteen inches long. In order to ascertain the extent of the injury to the internal organs, he introduced his hand and fore-arm, upon the withdrawal of which a considerable amount of fat followed. This he was obliged to excise. The abdominal wound was sutured and the patient made a rapid recovery. The result obtained in this case could hardly be surpassed by the achievements of modern surgery.

Dr. Archer of Maryland had already recorded a similar case of early surgery occurring at the end of the eighteenth century. In a difficulty with a negro the patient had received a wound in the right side of the chest from a large knife which entered the cartilages of the false ribs and penetrated the stomach. The wound was nearly three inches long and was situated about two inches below the level of the ensiform cartilage. The stomach opening was more than two inches long. The contents of the stomach were partially discharged through the wound, some escaping into the peritoneal cavity. The wound was stitched by an old sailor with an awl, needle, and thread. Recovery was rapid and uneventful.

Equally interesting is a case of cancer of the pylorus reported by Dr. John Eberle in *The Medical Recorder* in 1818. The patient, a man of fifty-five, had had a carcinoma of the lip removed by Dr. Physick the year before. The symptoms were frequent vomiting of a dark-colored fluid, intolerable, burning sensations in the stomach noticed especially after the administration of drugs, and chocolate-colored stools. On examination an irregular indurated mass was palpable in the lower part of the epigastrium. The patient died and at autopsy the pylorus was found almost completely occulated by a scirrhous growth involving it, weighing one pound and two ounces. The tumor was similar in appearance and structure to the one removed from the lip.

A very instructive paper by Dr. John Revere of Baltimore, on "Some Cases and Observations on Dyspepsia," appeared in *The Medical Recorder* in 1821. The author outlines in detail the treatment of dyspepsia and illustrates his subject by the report of five cases. The importance of diet, massage, and exercise in the treatment of this condition is emphasized, and certain rules in this regard are submitted which may even to-day be read with profit. He says diet "should consist of food readily soluble in the gastric juice and should be exhibited in moderate quantities at regular intervals. The stomach is capable of performing a certain amount of duty with ease to itself and benefit to the general system; like the other organs, too, if it be taxed beyond this point it either acquits itself imperfectly or entirely fails."

For constipation he recommends horseback riding, which produces a wholesome agitation of the body, eating of small quantities of ripe fruit in the forenoon, regularity in going to stool, and the occasional dose of a mild laxative or enema. This publication indicates that even as early as 1821 diet, massage, and exercise were recognized as important factors in the treatment of chronic gastric and intestinal disorders.

In 1821, Dr. John C. Cheesman reported "A Singular Case of Ulcerated Stomach Unattended During Life by any Symptom of Disease of the Organ." The patient, a man sixty years old, was suddenly seized with a violent pain in the epigastrium extending to the umbilicus. Death occurred and at autopsy a perforated ulcer three inches in diameter, with ragged elevated edges, was found on the anterior wall of the stomach.

Dr. Robert Archer, in the second volume of *The American Recorder* (1824) records a case of "Intestinal Polypus," where for fifteen years the patient had suffered with acute attacks of pain in the lumbar region which were relieved by evacuation of the bowels. Finally during one of these attacks a rather drastic cathartic was prescribed and, in the evacuations resulting, a polyp two and a half inches in diameter was passed.

During the first half of the nineteenth century a number of interesting articles appeared containing observations upon a condition known as milk sickness or sick stomach, an epidemic disease only occurring West of the Allegheny Mountains, especially in the States of Indiana and Illinois, and presenting symptoms largely of a gastro-intestinal character. A very complete and vivid description of this condition is given by Graff in *The American Journal of Medical Sciences* in 1840. The chief symptoms of the disease in man are, breifly, loss of appetite followed by pain and excessive irritation of the stomach, obstinate constipation, fever, intense burning in the epigastrium, persistent vomiting, intense abdominal pain, and headache; the patient becomes restless and irritable and the mind confused. After six or eight days diarrhea sets in, with marked prostration and convulsions. If recovery takes place the patient does not retain the slightest recollection of anything occurring during his illness. This disease became rare after the clearing of the forests and it has been recently demonstrated by

the Bureau of Plant Industry that the cause of the disease is a poisonous variety of loco weed. Jameson, in 1825, reported a case of stricture of the esophagus, illustrating the employment of a very ingenious set of instruments for the relief of this affection. The author relates the clinical history of a woman forty years old, who had experienced difficulty in swallowing solids for two years, and dated the inception of the trouble to a choking spell after swallowing a piece of beef. The condition had gradually grown worse, and the patient seemed threatened with starvation. Jameson introduced probangs and bougies but was unable to pass a stricture which appeared to be located just below the pharynx. After many attempts he succeeded in passing a small probe and then he was able to introduce well through the stricture a probe armed with a piece of dried cat's intestine which was forcibly injected with water by means of a syringe. The water was replaced by mercury, the weight of which served to dilate the parts to a slight degree. He then began the use of sliding probangs, employing No. 1 (see figure) at first. By passing the probe through the stricture for about two inches and introducing the wire into the opening in the outer end, the wire and probang were brought together and passed through the stricture. This procedure was repeated several times a day. As the passage became easier probangs of gradually increasing size (Nos. 2, 3, 4 and finally 5) were substituted. Recovery was complete.

In connection with this case it is interesting to note the description of "A New Oesophagus Forceps," by Weaver of Detroit, in 1834, published in *The American Journal of Medical Sciences*. This instrument was devised to remove foreign bodies such as pins, needles, and sharp pieces of bone from the esophagus.

Diaphragmatic hernia, which has elicited so much interest in recent years, was well described by Edward Cornell in *The Medical Recorder*, in 1825, in an article entitled, "A Case of Escape of All the Intestines Through a Hole in the Diaphragm into the Right Side of the Thorax." The patient was a child ten months old. The symptoms first manifested were slight dyspnea and cough at seven weeks of age, progressing shortly after into choking spells, marked dyspnea and cyanosis. On examination, the right side of the chest appeared larger, on palpation it was hyperresonant, and an unusual sound was noted on ausculatation. The abdomen was empty and flaccid. Death finally ensued, and at autopsy the right side of the thorax was found filled with intestines. In the diaphragm on the right side there was an opening two and a half inches in circumference admitting all of the small intestine and the large intestine except the rectum. Between the diaphragm and the intestines were numerous fibrous adhesions. The right lung was compressed to one third its normal size.

In *The New York Medical and Physical Journal* of July, 1826, Professor Holmes reports an interesting case of an infant in whom the esophagus and trachea communicated. It lived ten days and whenever applied to the breast drew the nipple in the usual manner, but was seized at once with symptoms of suffocation, which were only relieved by vomiting the milk it had swallowed.

In a very interesting manner, Dr. W. E. Horner enters into an "Inquiry into the Healthy and Diseased Appearance of the Stomach and Intestines," in the first volume of *The American Journal of Medical Sciences*, in 1827. The naked eye appearance of the mucous membrane in these organs in cases of congestion and acute and chronic inflammations is described in a most thorough manner, indicating a clear conception of the morbid anatomy in these conditions.

Dr. Henry Dickson, in an article on "Observations on the Black Vomit," published in *The Philadelphia Journal of Medical Sciences*, August, 1827, gives an excellent description of this condition, with particular reference to symptomatology and pathology, based upon a number of personal observations. The writer advanced the idea that the black vomit was due, not to a gangrenous condition of the mucous membrane of the stomach, a view very generally held, but to a peculiar secretion from the vessels of the stomach. "Observations on Dysentery," is the title of a paper appearing in the *American Medical Recorder*, in 1828, by Wm. Horten of Goshen, N. Y. Both the sporadic and epidemic forms of dysentery are considered, with detailed description of symptoms and treatment. The thorough evacuation of the bowels by means of a suitable cathartic is strongly advised and the doctrine that dysentery is not a local but a constitutional disease and should be treated on this principle, is enunciated.

Edmond W. Roberts reports a case of "Scirrhus of the Stomach" in the *American Medical Recorder*, 1828, in which he describes the clinical history and gives the postmortem findings. The symptoms were pain, eructations and vomiting of a coffee-ground material. On examination a mass of considerable size was palpable in the epigastrium. On postmortem examination the pylorus was found involved in a hard growth which markedly constricted the lumen of the bowel.

In *The American Journal of Medical Sciences*, of 1830, Dr. L. Rawson presented an interesting case of "Perforation of the Stomach," resulting from ulceration. The patient, a man of thirty-six years, was suddenly siezed, while at work, with intense epigastric pain, vomiting, and collapse. He had suffered with indigestion for about a year. A diagnosis of rupture of the stomach was made. Death occurred in twenty-seven hours, and at autopsy the contents of the stomach were found in the abdominal cavity; and on the anterior surface of the stomach, midway between the pylorus and cardia, a perforation, seven-eighths of an inch in diameter, was observed. The opening presented thick ulcerated edges surrounded by adhesions, clearly a perforated ulcer.

An early case of intussusception was recorded by Samuel Jackson in *The American Journal of Medical Sciences* in 1833. The patient was suddenly stricken with violent pains in the right lumbar, iliac, and hypochondriac regions, accompanied by vomiting of a greenish fluid. Constipation was marked; there was no elevation of temperature. Death ensued, and at autopsy the ileum was found inverted through the iliocecal valve, forming with the cecum a firm cylindrical body.

In a paper entitled, "Gastritis Superinduced," Charlton, in 1834, calls attention to the fact that while medicinal agents are intended to relieve disease that, frequently, when of a drastic character, they may instead act as causative factors. He reports a number of cases illustrating this point, one in which tarter emetic, given in a mild febrile disorder, induced an attack of gastritis. He called attention, even at this early period, to the fact that

rapid recovery may be brought about by rest and diet alone, a principle which has been more actively promulgated in recent years. Several excellent contributions to the subject of digestive disorders were made by Chapman between 1833 and 1841. Of special interest are monographs on dyspepsia and diseases of the intestines, and a lecture on cholera morbus delivered before the students of the University of Pennsylvania. In his discussion of dietetics in connection with dyspepsia, his views are largely those we hold to-day. The monograph on inflammation of the intestines contains a thorough description of acute and chronic enteritis with treatment. His conception of the pathology of these conditions was rather vague, but the chapter on treatment may even now, some seventy years later, be read with profit.

A very interesting case of hepatic abscess in which tapping was done was reported by Dr. W. L. Horner in 1834. The description clearly indicates that the case must have been one of amebic dysentery with abscess of the liver, which, of course, was not recognized as such at that time. Two months after a recurring attack of dysentery, the patient began to suffer with severe pain in the epigastric and right hypochondriac regions, associated with chills, and irregular fever; the liver was enlarged and after some days fluctuation could be made out. The patient lost ground rapidly and evacuation of the abscess was deemed imperative. The liver was exposed and five gallons of pus evacuated through a trocar. Relief was immediate. The trocar was left in place fifty-four hours and then a catheter was substituted for drainage. There was a constant free discharge of pus. On the second day abdominal tympany, hiccough, and pain set in and the patient died on the fifth day.

George Sumner reports in 1837, a case of cancer of the stomach in a man, who, for years, had been in the habit of swallowing foreign bodies. At one time upon a wager he swallowed a live snake which he afterward vomited. The writer suggests a causative relationship between these irritants and the appearance of a cancer in later life.

In 1841, Flint discussed very completely the various psychic phenomena often associated with dyspepsia; indefinite sensations of fear and apprehension; worry and depression over imaginary diseases from which the dyspeptic has absolutely no hope of recovery; inaptitude to both mental and physical exertion; absence of volition; difficulty of mental concentration, etc.

Flint also points out the existence of dyspepsia secondary to certain nervous or mental states—a condition which we now recognize as nervous dyspepsia.

John Watson contributed in 1844, a very instructive article entitled, "Practical Observations on Organic Obstruction of the Esophagus."

A case of tuberculous ulcer and stricture is described, in which esophagotomy was performed for the relief of the aphagia which had developed. A tube introduced through the wound afforded a means for introducing nourishment, but perforation between the esophagus and trachea took place, necessitating an immediate tracheotomy, and death from pneumonia occurred a few days later.

Another case of esophageal stricture was reported by Cummins in 1851. The patient was a child with a stricture due to swallowing caustic potash; even liquids were swallowed with difficulty. After futile attempts at dilatation with gum-elastic bougies, a small ball probe was finally passed. This was followed by probes of gradually increasing size. Temporary relief was afforded but symptoms soon recurred, and in attempting to force a passage with a ball probe of considerable stiffness, the esophagus was ruptured. The child died one day later.

We find an anticipation of later discoveries upon the relationship of bacteria and parasites and their toxins to disease in an article by Charles Frick in 1851, on "The Pathology of Epidemic Dysentery." The writer suggestively remarks: "If we consider attentively the collection of symptoms, and note the great mortality attendant upon them, even in the first few days, we cannot but be struck with the fact that the cause of death is not sufficiently evident; that the severity of the local disturbance is inadequate to produce a fatal result, and the idea constantly intrudes itself, that some morbid poison in addition to the local disease has an agency in producing the extreme prostration and subsequent fatal termination."

It was about the middle of the nineteenth century that a new era dawned in American medicine, when experimental investigation began to forge into prominence. Up to this time the work in gastroenterology had been largely of a clinical character, but the work of Beaumont on the physiology of digestion, which had been heralded abroad, had sown the seed of enthusiasm and zeal for research on this side. Jackson, in 1854, confirmed Bernard's observations concerning the digestion of fats, which had been disputed by Bidder and Schmidt, and Lehman and Frericks.

John Dalton about this time described fully the nature and function of the gastric juice, based upon a series of experimental studes; and in 1857 this author contributed a most admirable and instructive article on "The Constitution and Physiology of the Bile." He presents in detail his researches upon the comparative study of bile in different animals with particular attention to its chemistry. He demonstrated that bile passes into the intestines of carnivorous animals for at least twelve hours after meals, and that it is discharged most abundantly immediately after feeding.

In 1860, Flint called attention to the relationship between anemia and atrophy of the gastric tubules, and expressed the belief that some cases of obscure and profound anemia are dependent upon degeneration and atrophy of the glands of the stomach. It was twenty-six years later that the well-known paper of Henry and Osler on "Atrophy of the Stomach with the Clinical Features of Progressive Pernicious Anemia," was published, in which it was again pointed out that a primary atrophy of the gastric mucous membrane might occur, and the theory advanced that certain cases of progressive pernicious anemia depended upon profound alterations in the gastric tubules.

DaCosta, in 1867, and Robert Harris, in 1872, directed attention to the difficulty in diagnosis in certain cases of abdominal tumors on account of the obscurity of the symptoms. Case reports with autopsy findings illustrating this contention are submitted.

The clinical history and treatment of membranous enteritis are described by DaCosta in 1871, and Findless in 1875. They both recognize the frequent occurrence of this affection in nervous and hysterical individuals, its very protracted course, and the importance of rectal irrigation as a routine course of treatment.

Of great importance is the classic work of J. J. Woodward on "Diarrhea and Dysentery," published in 1879 in "The Medical and Surgical History of the War of the Rebellion." In this comprehensive volume of 869 pages, Woodward gives a complete statistical report of the cases of diarrhea and dysentery occurring during the war, descriptions of the fatal cases, an account of the pathological changes observed, and a discussion of the treatment of these affections. There can be but little question that this extraordinary volume may be classed as one of the greatest works published in the field of gastroenterology in America.

Reginald Fitz reported in 1877 a remarkable case of rupture of the healthy esophagus. The patient had become strangled with an article of food which lodged in his throat. After an hour's discomfort the food was ejected with a moderate amount of blood. The patient became greatly exhausted and finally succumbed; at the autopsy a rupture of the esophagus was revealed.

To Meltzer is due the credit of first investigating the peristaltic movements of the esophagus. Associated with Kaonecker in 1883, he demonstrated the incorrectness of the view, previously maintained, that the food is forced into the esophagus by the contraction of the pharyngeal muscles and showed that the contraction of the mylohyoid muscle shoots the bolus through the entire esophagus in the case of liquids or very soft food. When the food is semisolid or solid, however, Cannon and Moser demonstrated by means of the *x*-ray that the passage through the esophagus is accompanied by peristaltic contraction of its muscles. It was Meltzer, too, who in 1833 first noted the importance of the sounds of deglutition.

A work which did much to develop the entire field of gastroenterology in this country is the excellent and comprehensive production of Welch in Pepper's System of Medicine, 1885, comprising contributions on ulcer and cancer of the stomach and dilatation. This work is in many respects the most exhaustive ever published on these subjects. The entire literature is reviewed and new statistics prepared from a large series of cases, the whole forming a complete monograph, which has helped to form the foundation for the study of these conditions according to modern methods.

Great credit is due Reginald Fitz for his masterly and epoch-making work on acute pancreatitis, published in 1889, in which he treats of the etiology and symptomatology of this affection and its relationship to other diseases. He discusses the significance of pancreatic hemorrhage, the cause of sudden death in acute pancreatitis, and the relationship of acute pancreatitis to fat necrosis.

It was but little more than a decade later that Opie pointed out the frequent association of cholelithiasis and disease of the pancreas. He says: "A small calculus may lodge at the orifice of the diverticulum of Vater and by occluding it convert the common bile duct and the duct of Wirsung into a continuous channel causing the penetration of bile into the pancreas and subsequent hemorrhagic pancreatitis; while a larger calculus present in the diverticulum or in the common bile duct slightly above its juncture with the pancreatic duct may temporarily or permanently compress the latter and produce chronic inflammatory changes." Opie further studied the changes in the pancreas in diabetes and found in a certain proportion definite changes in the Islands of Langerhans.

In 1869, Alfred L. Haskins collected the histories of thirty-five cases of marked dilatation of the stomach, with a complete discussion of the etiology, symptoms, diagnosis, prognosis, and treatment of this affection.

W. T. Mayo, in 1887, was the first to direct attention to the affection of "Acquired Diverticulitis of the Large Intestine." He emphasized the fact that the term diverticulitis should be applied only to cases in which there is an acute inflammation of the mucosa within the diverticulum, while a chronic inflammation of the subserosa around the diverticulum should be designated peridiverticulitis. The acute ulcerative type is characterized by a primary inflammation of the mucosa of bacterial origin while the chronic inflammatory type is produced by a leakage of toxins or bacteria through the diverticular wall producing a reaction of the peritoneum. The former causes no material reduction in the lumen of the bowels but tends to perforation into the peritoneal cavity.

The latter causes a very marked reduction in the lumen, and perforation occurs but rarely on account of the predominance of the reparative process.

Our knowledge of appendicitis is almost entirely due to the contributions of American observers and investigators. The first case reported in this country was by Walcott Richards of Cincinnati in 1837. Dr. Edward Hollowell of Philadelphia reported a similar case in 1838. These are two out of a total of four cases reported in the United States for a period of thirty years. During the early part of the fifth decade the vermiform appendix became a subject of frequent discussion. George Lewis of New York in the late fifties published a classical paper which was the first systematic contribution to the literature of the appendix in this country. Forty-seven cases are collected and tabulated.

William Parker of New York reported four cases in 1867, and William T. Bull an analysis of sixty-seven cases in 1873. It remained for Reginald Fitz in his scholarly paper published in 1886 to clear up many obscure questions concerning this subject; to establish the name appendicitis; and to bring about a correct understanding of the morbid conditions affecting this organ, emphasizing their importance.

The surgery of appendicitis is a development of only the last few decades. Parker was one of the earliest surgeons to operate for this condition, one of his cases dating back as far as 1847. The operation consisted in evacuation of the abscess and drainage. He was followed by Weber in 1871 and Bull in 1873. The first successful appendectomy was performed in 1866 by R. J. Hall of New York. Thomas G. Morton of Philadelphia in 1887 performed the first successful removal of the appendix deliberately undertaken for disease of this organ. Sands, McBurney, Edebohls, Deaver, Richardson, and Kelly have in more recent years contributed much to our knowledge of the surgery of the subject.

Van de Warker of Syracuse was the first to call attention in this country to the operative treatment of tuberculous peritonitis. This was in 1887. Three years later Osler contributed a valuable monograph on this subject, in which he reported the result of histological investigation on the process of healing after simple abdominal incision. He concludes: "That tuberculous peritonitis is often a latent affection, localized in the peritoneum, which may even run its course without special symptoms; that as

in other local tuberculous processes, there is in this a natural tendency to healing, which takes place more frequently than has hitherto been supposed; that statistical evidence shows laparotomy to be in many cases a palliative, and, in some instances, a curative measure."

Booker in 1890 was the first to contribute a careful bacteriological study of the summer diarrhea of infants. This suggests the mention of Herter's recent excellent work, published in 1907, on "Bacterial Infection of the Digestive Tract," which comprises a complete review of the subject, together with the results of much original research. The following is an abstract of his findings: The number of bacteria present in the intestinal tract gradually increases as we pass downward from the stomach to the large intestines where there is the most dense accumulation of bacteria and the best conditions for anaërobic growth, while in the jejunum and ileum very few organisms are present. In the stools of healthy nursing infants are found: 1. *Bacillus bifidus communis.* 2. *Bacillus coli communis.* 3. *Bacillus lactis aerogenes.* 4. *Bacillus acidophilus.* 5. *Bacillus aerogenes capsulatus.*

The number of bacteria in the intestines of children fed on cows' milk is greater than in breast-fed children. The difference in number is more marked when the milk has been sterilized since this process destroys a large number of lactic acid bacteria. The varieties of bacteria present in those fed on cow's milk are: 1. *Bacillus coli communis.* 2. *Bacillus acidophilus.* 3. *Bacillus bifidus.* 4. *Streptococus lacticus.*

In childhood and adolescence the *Bacillus bifidus* types are less numerous than in infancy, but the *Bacillus aerogenes capsulatus* and the *Bacillus putrificus* are present, and increase toward adult life when the latter, as well as the coli group, are abundant.

Herter maintains that "The onset of senility may be distinctly accelerated through the development of the intestinal infections in which the putrefactive anaërobes are represented." He divides cases of chronic excessive putrefaction into three types. First, indolic type, characterized by indicanuria due to excessive decomposition of the hydrolyzed proteins producing indol. This type is found in occlusion of the bile duct, and in the chronic intestinal indigestion of children. Second, saccharo-butyric type, due to anaerobic organisms. In a large proportion of cases the *Bacillus aerogenes capsulatus* is the causative agent, at times also the *Bacillus putrificus.* The odor of the movements suggests butyric or caproic acid. On account of the excessive quantity of gas the stools have a low specific gravity and float on water; they contain little or no indol. This condition is frequently found in adults, rarely in children. There is gradual loss of flesh and muscular weakness and frequently signs of premature senility. Third, indolic and saccharo-butyric type combined. In this class are included those cases in which putrefactive anaërobes are abundant with a consequent persistent indicanuria. Nervous symptoms in the form of irritability, mental depression and early mental fatigue are prominent early in the disease. The anemia is a striking feature and may even progress into a pernicious form.

The first case of amebic dysentery recorded in America was reported by Osler in 1890. This was soon followed by the report of cases by Musser, Stengel and Dock; and a most elaborate monograph upon this subject by Councilman and Lafleur in 1891. This latter publication is a most exhaustive treatise upon the characteristics of the amebæ and the pathology of the disease.

Much work upon the nature of bacillary dysentery and the character of the organism producing it has been accomplished by American investigators. Flexner, in 1900, described the lesions associated with this disease and the role played by the Shiga bacillus as the etiological factor. Duval and Bassett, in 1902, first pointed out the association on the *Bacillus dysenteriae* (Shiga) with the summer diarrheas of infants. Howland, in 1904, gave an exhaustive description of the pathology of the Shiga bacillus infection. Flexner and Holt, 1904, reviewed this entire subject, presenting complete bacteriological and clinical studies.

Of greatest importance is the work of Cannon on the physiology of digestion. This investigator has clearly pointed out the salient points regarding the movements of the gastrointestinal canal. He called attention to the fact that the stomach consists of two parts which are distinct from a physiological point of view; the cardiac area, a reservoir for food not affected by peristaltic movements and with no mixing of the gastric juice; and the pyloric area where the food is thoroughly churned and mixed with the gastric secretion. He maintains that the salivary digestion continues for a considerable period in the cardiac area and has shown, moreover, that when carbohydrates are ingested thoroughly, mingled with saliva, 80 per cent more sugar is present at the close of an hour in this part of the stomach than in the pyloric portion, which establishes an important fact regarding salivary digestion. By means of the *x*-ray it was shown that the stomach is not emptied suddenly, upon the completion of the gastric digestion, but gradually and intermittently, the presence of hydrochloric acid producing a relaxation of the pylorus. It was found when carbohydrates, proteins and fats are separately fed in equal amounts they do not leave the stomach at the same rate. Fats remain long, the discharge is slow and continuous. Carbohydrates begin to leave the stomach soon after ingestion (within ten minutes), pass out rapidly, and at the end of two hours reach a maximum amount in the small intestine. Proteins frequently do not begin to leave the stomach during the first half hour or longer, and their departure is slow. These differences are explained by the fact that free hydrochloric acid stimulates the opening of the pylorus, thus allowing the exit of part of the acid gastric contents which is neutralized in the duodenum. This explains why the carbohydrates are quickly thrown into the intestine and why the proteins, which contain hydrochloric acid in combined form and hence less acid in character, are delayed in the stomach to be more thoroughly digested.

The absence of sphincters in the small intestine is compensated for by the presence of what Cannon terms "rhythmic segmentation," *i.e.* separation of the food into a number of segments by contractions of the circular muscle.

Cannon and Murphy studied the movements of the intestine under certain surgical conditions. They found that after end to end suture of the severed intestine "no inefficiency of the gut in the region of the suture was observed; but after lateral anastamosis there was always an accumulation of food in the chamber formed by the apposed loop." They showed also that exposure to the air and unusual cooling do not retard gastric or intestinal peristalsis,

while even the most gentle manipulation of the intestine and stomach greatly disturbs the passage onward of their contents, no food leaving the stomach for at least three hours. There is a remarkable coincidence, as Cannon points out, "in the time which the pylorus holds back the food and that required for the primary healing of intestinal wounds."

In 1902 Cannon established the condition of antiperistalsis as the normal movement of the proximal part of the colon which makes reasonable the presence of a sphincter or valvular structure between the small and large intestine.

In 1908 Cannon first demonstrated the acid closure of the cardia, in which he showed that if the stomach is well filled with a neutral fluid, the fluid is rhythmically regurgitated into the esophagus as a result of the rhythmic relaxation of the contracted cardia. If the fluid is made normally acid, however, the regurgitation ceases, thus proving the acid closure of the cardia.

John S. Boggs, of Indiana, performed the first cholecystotomy in this country in 1867, but it is Marion Sims to whom credit is due for placing this operation, in 1878, on a firm basis in the field of abdominal surgery. A. B. Atherton was the first American to perform a successful operation for perforated gastric ulcer (1894). The operation of appendicostomy was first described by Weir in 1902, who advised its use in treating intractable forms of ulcerative colitis. Finney's pyloroplasty was introduced in 1902, an operation which marked a great advance in gastric surgery. W. J. Mayo, in 1905, described his modified gastrojejunostomy, which formed a great improvement over the older methods of gastroenterostomy. Important advancements in the technique in gastrointestinal surgery were the introduction of the Cushing suture (1889), Halsted suture (1891), Senn's decalcified bone plates (1888), and the Murphy button (1892).

Gastric surgery is greatly indebted to the researches of Cushing and Livingood, who, in 1900, demonstrated the possibility of producing an amicrobic state in the stomach and upper intestines as a preliminary to operative procedures upon these organs.

Time does not permit me to enter into an exhaustive review of other advancements of gastroenterology in America during recent years. I can but refer to a few achievements—the discovery of gastrodiaphany by Einhorn in 1889; the priority in the use of bismuth in the .r-ray examinations of the stomach by Benedict, 1898; the development of radioscopy of the stomach by Einhorn, Williams, Hulst, Cannon, Tousey, Pfahler, Pancoast, and others; the introduction of the bead test by Einhorn; the excellent work of Chevelier Jackson relating to esophagoscopy and gastroscopy; the contribution of Turk on the pathogenesis and pathology of gastric ulcer; and finally to the painstaking work of J. Dutton Steele (our deceased member) on experimental observations upon the effect of intestinal antiseptics.

After the demonstration of the therapuetic value of lavage by means of the stomach tube in cases of dilatation by Kussmaul, in 1867, and the application of this instrument for diagnostic purposes by Leube, in 1871, renewed interest became manifest in the study of gastric disease. This interest was increased by the introduction of the soft rubber tube by Jurgenson in 1870 and its modification by Ewald and Oser in 1875. After the introduction of the test meals of Ewald and Boas, and Riegel in the early eighties, the use of the stomach tube became more and more general, and the value of this apparatus soon became recognized in this country.

Young physicians went abroad to study the new work in the fruitful field of gastroenterology, and from the other side others who had perfected themselves in this line of work turned in this direction to practise their chosen specialty. As the workers increased in number it gradually became apparent that some organization was needed, under whose auspices they could meet and discuss the various problems which were constantly presenting themselves, and by means of which interest could be stimulated in systematic investigation of the digestive processes.

On June 3, 1897, a small band of men met in Philadelphia and perfected plans for the organization of The American Gastroenterological Association. This association has steadily grown and under its auspices much good work has already been accomplished. It has gathered together the physiologist, internist, and surgeon, all interested in this special branch of medicine. The society is still in its infancy, but we have a sufficient number of members residing in various parts of the country that collective investigations can now be undertaken without difficulty. It will be our pleasure to-day to hear of the ultimate results of gastroenterostomy.

At future meetings collective investigations upon the incidence of ulcer and cancer of the stomach may be brought out in a similar manner.

In order to accomplish the best results let us add to our fold all investigators in this country who are accomplishing meritorious work in gastroenterology, so that as the years pass by we may be able to look with pride to this society as the organization under whose auspices the good work in this country has emanated.

In conclusion let us take to heart the words of the renowned author of the "Masterword in Medicine": "You enter a noble heritage, made so by no effort of your own, but by the generations of men who have unselfishly sought to do the best they could for suffering mankind. Much has been done, much remains to do; a way has been opened, and to the possibilities in the scientific development of medicine there seems to be no limit."

A NEW METHOD OF CATHETERIZING THE PYLORUS AND DUODENUM.*

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Our knowledge of the functions of the pylorus is quite extensive. Yet our conclusions in reference to its state have been gathered not directly but indirectly from the condition of the stomach and its contents. It is true that this may lead to errors. A direct, so to speak palpatory, examination of the pylorus, would be of considerable value for diagnosis.

If we go a step further, we have before us the duodenum, into which are poured the digestive juices of the pancreas, liver, and duodenum. To be able to examine these accurately would be of undoubted benefit to pathology.

Attempts in this direction have been made long ago, but not with much success. First, I would

*Read before the American Gastroenterological Association at Atlantic City, N. J., on June 11, 1909.

mention Boas's work in this respect. He massages the liver in the fasting condition and then obtains by means of the stomach tube the duodenal contents, which had been regurgitated into the stomach; he then examines it for pancreatic ferments. Frequently, however, on the one hand, the stomach's own secretion is mixed with it; and, on the other hand, the desired regurgitation of the duodenal contents does not always take place.

To get directly into the duodenum by means of

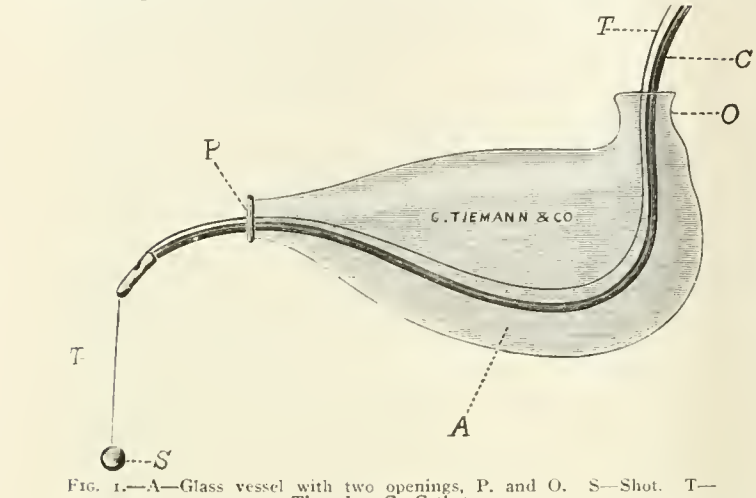

Fig. 1.—A—Glass vessel with two openings, P. and O. S—Shot. T—Thread. C—Catheter.

the tube through the pylorus has been tried by Kuhn with metallic spiral tubes and by Hemmeter* with a balloon which, conforming to the outline of the stomach, is inflated in the stomach and which carries a canal at the lesser curvature, through which a tube should be introduced into the duodenum. The instruments of Kuhn or Hemmeter have not proven practical. In a former paper† I pointed out by means of the duodenal bucket one is enabled to obtain the duodenal contents. This I can confirm by trials on a great many more patients. As a proof that the duodenal bucket is really in the duodenum, the following may serve:

1. The bucket is often withdrawn with bile-stained contents reacting faintly acid or alkaline and showing the presence of bile and the pancreatic ferments.

2. The string is colored golden yellow from 60 to 75 cm. from the teeth, and is white above this. If bile would regurgitate into the stomach and discolor the thread it would be yellow up to 40 cm., *i.e.* the entire part lying in the stomach would be colored. This, however, is usually not the case, and we therefore can assume that the bile was not in the stomach, and that the bucket with 15 cm. of thread was in the duodenum.

3. In withdrawing the bucket we sometimes feel a resistance, caused by the pylorus.

4. An *x*-ray picture shows the bucket in the duodenum (see Figs. 3-7).

Although there is no doubt that with the duodenal bucket we can gather the secretion of the duodenum, yet it appears to be of importance to possess a method, which would enable us to pass a borgie or catheter into this canal, in order to allow this important short stretch of bowel to be examined instrumentally. This can indeed be done by pushing forward a catheter upon the thread holding the duodenal bucket. The catheter is perforated twice at its lower end; the end of the thread is pulled through these holes and the catheter is pushed along the thread into the pharynx, esophagus, stomach, pylorus, and then the duodenum. In using this method we must not proceed too quickly or use force, but must feel our way slowly.

The principle of the method can easily be demonstrated on a vessel with two openings representing the stomach. If you tie a buckshot to a thread and drop it through opening O, and then allow it to emerge at P, by inclining the vessel, holding the thread tight at O, we can pass a whalebone perforated at its lower end over the thread and then shoving it along the thread through O. and P. (Fig. 1) without changing the position of the vessel. If, however, we should try to shove the whalebone, alone, without the guidance of the thread through O, it would touch the bottom of the vessel at once and could never reach P. The conditions in the stomach are similar. O represents the cardiac part of the esophagus, P the pylorus. When the duodenal bucket is in the duodenum we can utilize the thread as a guide and introduce over it a flexible instrument (catheter, bougie, etc.) into the pylorus and duodenum.

According to this principle I have succeeded in several patients to push a catheter through the pylorus and then by means of the syringe to aspirate the duodenal contents (Fig. 2, a). Furthermore, I have passed through the pylorous a catheter the lower part of which carries an inflatable balloon

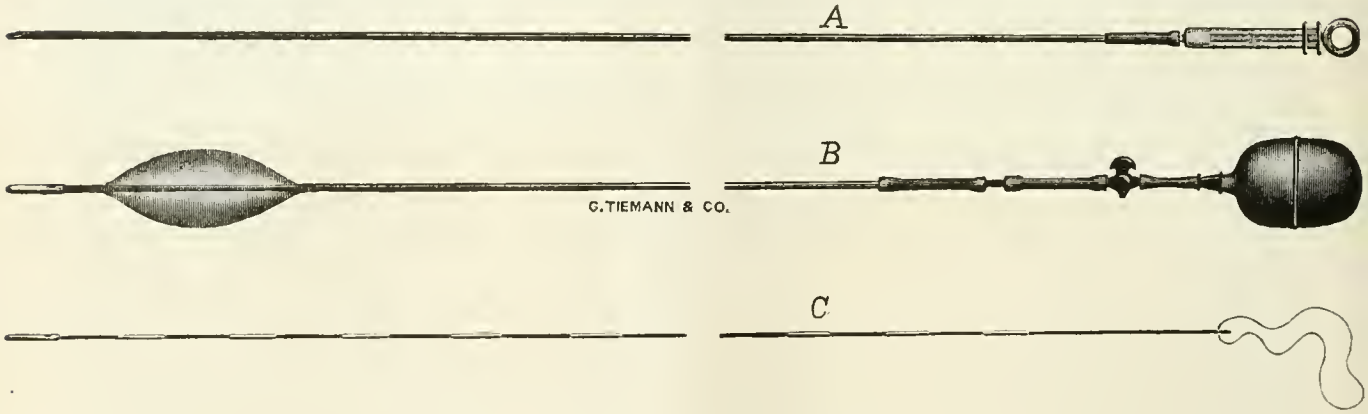

Fig. 2.—Instruments for the exploration of Pylorus and Duodenum. A—Aspirating Catheter. B—Inflatable Catheter. C—Whalebone bougie with metal end and lead paper wrappings.

*J. C. Hemmeter: Diseases of the Stomach. Third edition, 1902, p. 56.

†Max Einhorn: A New Method of Testing the Permeability of the Pylorus and an Attempt of Testing the Pancreatic Function Directly. *New York Medical Journal*, June 20, 1908.

Fig. 3.—*X*-ray photograph of patient, R. S. J., after the duodenal bucket has been in the digestive tract for four hours and the whalebone bougie has just been introduced. The bucket is visible to the right of the spinal column and end of bougie, a little above and to the left of the spinal colmun.

Fig. 5.—Mrs. S. Duodenal bucket four hours in the digestive tract. Bougie with lead paper has been introduced. During its introduction the thread of the bucket was partially withdrawn so that only 63 cm. remained behind. The bougie was introduced to 64 cm. It therefore had to push the bucket before it, when it encountered it; the latter is therefore visible in reverse position beside the bougie to the right of the vertebral column.

Fig. 4.—The same after taking bismuth (one ounce in a glass of milk). The contours of stomach and duodenum are visible; in the latter the bucket can be seen as a dark shadow; to the left the end of the bougie.

Fig. 6.—Mrs. K. Duodenal bucket four hours in; length of the cad. 83 cm. Bougie covered with tintoul. The bucket is visible to the left of the vertebral column. The bougie is visible in its course in the stomach from above to right.

(Fig. 2, b), and after inflation felt on withdrawal plainly the resistance offered by the pylorus. In order to be absolutely sure, however, that the instrument reached the duodenum, I introduced a metal-tipped whalebone bougie, that was covered with tinfoil at frequent intervals (Fig. 2, c), and then had *x*-ray pictures made with and without bismuth.* The pictures demonstrate the position of the duodenal bucket as well as the bougie very plainly (Figs. 3-7, e). Figs. 6 and 7 show especially well the position of the bougie in the stomach and beginning of duodenum. The bucket is already in the small intestine (the length of the thread being 83 cm.). Fig. 7 shows the stomach filled with bismuth. The metal piece of the bougie is visible in the duodenum.† There cannot, therefore, be the

FIG. 7.—Mrs. K. The same after taking one ounce of bismuth in milk. The stomach is plainly visible. The end of the bougie can be recognized to the right beyond the pylorus (duodenum) as an almost horizontal line. To the left of the spinal column below the stomach the bucket can be seen in the duodenum. Whereas in Fig. 6 the long diameter of the bucket is visible, its transverse diameter shows in Fig. 7. The bucket must have turned during the short interval between exposures 6 and 7.

slightest doubt, that we can reach the pylorus and duodenum instrumentally.

This opens new avenues for the recognition and treatment of affections of the pylorus and duodenum.

*All the instruments for the exploration of the pylorus have been made for me by Tiemann & Co., New York.

†The *x*-ray photographs have been taken by Dr. L. G. Cole, to whom I express my indebtedness.

20 EAST SIXTY-THIRD STREET.

Trypsin in Malignant Tumors.—B. Prampolini has treated the following malignant tumors with trypsin without any good results: tumors of the uterus, breast, kidney, inguinal and cervical glands, rectum, etc. The results have been absolutely nil, and the injections have produced much pain and high fever. The author places no faith in the value of this method of treatment.—*La Riforma Medica.*

THE CLINICAL RESULTS OF GASTRO-ENTEROSTOMY;

A PRELIMINARY REPORT.*

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AND FRANKLIN W. WHITE,

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To determine the result of the treatment of any chronic disease is a difficult matter. A large series of cases must be accurately observed and recorded for a number of years before conclusions can be drawn. The present paper represents an effort to determine by the statistical method the end results in cases of gastroenterostomy. By end results we mean the condition of the patient one year or more after the operation. In order to make our statistics as reliable as possible we have insisted upon certain strict conditions. This has limited the number of cases we are able to present at this time. Only such cases were admitted which had been under the personal observation of one of our own members before and after the operation. Cases were not accepted when the patients were lost sight of shortly after the operation. Some of our members did not have the time or opportunity to respond to our request for case reports, or sent only partial lists of immediately available material. This paper, therefore, must be looked upon as a preliminary report only. We intend to continue our research at least one more year, and hope to present a series at least two or three times as large at a later date. Our study includes the results of gastroenterostomy (in almost all cases posterior) and of Pinney's gastroduodenostomy. We excluded cases of resection, and the older forms of pyloroplasty. We were especially interested in the benign cases, and have separated them from the malignant cases.

After a general survey of results we have classified the benign cases in three main groups. This classification coincides with that into which our clinical cases naturally fall. (1) Cases of pyloric obstruction with active ulceration at the pylorus.

(2) Cases of pyloric obstruction without active ulceration at the pylorus at the time of operation.

(3) Cases of ulcer without pyloric obstruction.

(4) A fourth group includes all cases in which no organic lesion, or at most gastroptosis, was found at the operation. We received, in all, reports of 175 available cases, 150 benign, 25 malignant.

Benign Cases (150).—The immediate mortality (death within 35 days) was 10 per cent. The 15 deaths were ascribed to chloroform, 1; hematoma at the site of operation, 1; shock, 1; paralytic ileus, 1; gangrene of lung, 1; cerebral embolism, 1; pneumonia, 2; peritonitis, 2; subphrenic abscess, 1; persistent vomiting, 3; cardiac dilatation, 1.

Three other patients died of their gastric disorder within the first year following the operation. Seven others were dead at the time of the report, four from causes associated with the gastric trouble, three from causes not so associated. Of 150 benign cases which were operated on, 18 died within the

*Paper presented as part of a symposium at the 12th annual meeting of the American Gastroenterological Society at Atlantic City, June 7, 1909.

first year (12 per cent.); 22 died of their gastric disorder within five years (14.6 per cent.). Six patients are alive, but have been operated upon within one year.

Of the 126 patients who survived the operation, and have been under observation for one year or more, 81 (or nearly two-thirds) were reported as entirely recovered, or well; eight as much better, and thirty-one (nearly 1 in 4) as little or no better. Of the 150 patients, 89, or 60 per cent., were much better or entirely well; fully 30 per cent. died or were little or no better at the time of report.

TABLE I.—BENIGN CASES—RESULTS AFTER ONE YEAR.

	Pyloric Obstruction			Chronic Ulcer	No Lesion
	Ulcer	No Ulcer	Ulcer?		
No Cases	44	37	6	25	14
Immediate mortality	8	1	..	2	2
Well	25	26	4	17	6
Much better	1	2	1	1	..
Little or no better	7	7	1	5	6
Cancer developed	3	1	..	..	..

Table I shows the end results in the various clinical sub-divisions. The immediate mortality is greatest in the class of pyloric obstruction with active ulceration at the pylorus. The end results are approximately the same in cases of ulcer without obstruction, and obstruction with or without ulceration. Fourteen cases were operated on in which no organic lesion, or at most gastroptosis, was found. These patients were mostly neurasthenics with symptoms simulating pyloric obstruction or gastric ulcer. Only six of these patients were benefited by the operation. Two died and six remained unimproved.

Five cases considered benign at the time of operation subsequently developed cancer. In three the operation seemed entirely successful, and the patients were entirely restored to health, but cancer developed seventeen months, four years and five years, respectively, after operation. In the two other cases considered benign by the operator, the development of serious symptoms within six months of the operation suggests the possibility of error.

TABLE II.—SECONDARY OPERATIONS, BENIGN CASES.

15 Patients, 21 Operations.

Cause:		Final Results:	
Vicious circle	9	Well	4
Closure of opening	5	Much better	1
Kink	2	Little or no better	9
Adhesions	1	Recent	1
Dilated stomach	1		
Fistulæ	1		
Vomiting and bleeding	2		
	15		15
Cancer adhesions	1 case	Much better	1

Secondary Operations (See Table II.).—Fifteen patients required secondary operations. Of these six required a third operation, making twenty-one secondary operations. The causes assigned were: Vicious circle, 9; closure of opening, 5; kink, 2; adhesions, 1; dilated stomach, 1; fistulæ, 1; vomiting and bleeding, 2.

Of these fifteen patients, four were eventually cured, and one was reported much better; nine remained practically unimproved. One operation is too recent to determine the result. This table seems to indicate that when secondary operations are necessary, only one patient in three is restored to good health.

It is important to determine if the operations made within the past two or three years have given better results than those made years ago. We have, therefore, prepared a chart (see Table III) tabulating the results according to the year of operation. It would seem from this table that in our series no better results were obtained in the later years than in the earlier.

TABLE III.—COMPARATIVE RESULTS OF RECENT AND EARLIER OPERATIONS.

Operation	No Cases	Well	Much Better	Little or No Better	Dead	
					1 Year	Later
7 years ago	9	5	..	1	..	3
6 " "	9	6	..	2	1	..
5 " "	12	8	..	2	2	..
4 " "	20	11	1	5	2	1
3 " "	12	4	3	2	3	..
2 " "	26	12	3	9	1	1
1 " "	26	18	2	2	3	1
Not dated over 1 yr.	12	8	3	1	..	..

It is of interest to study the effect of the operation upon the gastric secretions. We have notes of twenty cases in which the secretions were studied before and after the operation.

Ten hyperacid cases remained hyperacid. In three, the secretions became or remained normal; in three, the secretions were reduced below the normal or remained so, and in four the free HCl disappeared entirely.

Cancer Cases.—Twenty-five cases are reported. Twenty are in men. Ten patients died within one month of the operation, an immediate mortality of 40 per cent. One is still living two years after operation, another six months, and another four months. Ten patients lived more than four months after operation. Six of these were temporarily much improved, and gains of weight ranging from eighteen to forty-seven pounds are recorded. Two patients received no benefit at all from the operation.

It is curious to note the predominance of the male sex in the cases sent in. Of the benign cases two-thirds are men. Of the cancer cases four-fifths are men. This is probably more than a coincidence. It suggests that the greater prevalence of cancer of the stomach in men is due at least in part to the greater prevalence of intractable gastric disorders in that sex.

GASTRIC SYMPTOMS AND GALL-BLADDER DISEASE.*

By HARRY ADLER, M.D.,

BALTIMORE, MD.

The frequency with which gastric symptoms are encountered in cholelithiasis and gall-bladder disease is so well known; the literature on the subject is so replete, as to offer no excuse for repetition. Disorders of digestion are now looked upon as a part of the symptom-complex of gall-bladder trouble and furnish an aid, rather than a drawback, to diagnosis, when other symptoms referable to this organ are present. There exists, however, a large group of cases in which the symptoms are all referable to the stomach, where examination of that organ demonstrates abnormalities, perhaps, of secretion, of motility, or of position, or any combination of these, where the patient under treatment appropriate to these gastric disturbances obtains a more or less complete relief from his symptoms; and yet, where a sudden attack of severe pain in the liver re-

*Read before the American Gastroenterological Society, June 7, 1909.

gion clears up the nature of the underlying trouble. Two cases in point are as follows:

Case I.—C. S., female; age 43. Mother died of cancer of liver; father had attacks of gallstone colic. Her previous history unimportant. Neurotic temperament. Has been suffering with heartburn, sour eructations, fluid frequently rising in throat. No nausea or vomiting. Appetite good. Bowels constipated. Physical examination: Patient well nourished; florid complexion. Examination of chest and abdomen negative. Urine normal. Free HCl, 62. Total acidity, 84. Motility of stomach, good. No localized tenderness. This case was considered one of hyperchlorhydria of nervous origin; and the symptoms were relieved by the usual treatment of that condition. About two months after treatment was discontinued she was suddenly seized with severe pain in right hypochondrium radiating to the back. This was followed by similar attacks; and an operation showed the presence of numerous gallstones. Since then the patient has had no gastric symptoms.

Case II.—R. M., male; aged 50. Healthy until three years previous, when symptoms referable to the stomach began. Complains of pain in the epigastrium. Appetite good; but afraid to eat on account of pain and distension soon after a meal. Acid eructations and rising of sour fluid into mouth. No nausea or vomiting. Has been taking nothing but milk and zweiback. Has lose 17½ pounds in past year. Physical examination negative. Stomach normal in size and position. Some tenderness in epigastrium. No dorsal tenderness. Free HCl, 42. Total acidity, 76. Patient was treated for chronic ulcer. Symptoms cleared up beautifully and he gained rapidly in weight. Five months thereafter, typical attack of gallstone colic. Operation showed colecystitis with several large gallstones. A rather limited examination of the stomach failed to show evidence of ulcer. Since then he has been well.

Other cases of this kind need not be cited. I have no doubt many of you have had similar experiences. But mistakes of this nature are of importance not only from the standpoint of the welfare of the patient; they reflect discredit on the specialist in diseases of the stomach. They must make us realize that gastrology is but a narrow science; and, unless combined with a broad experience of internal medicine, must inevitably lead its disciples into error and discredit.

While studying the urine in cases of obscure abdominal pain, I was struck by finding traces of bile in several cases where there were no special symptoms indicative of disease of the biliary passages. Rosin's method with tincture of iodine was employed as follows: Tincture of iodine is diluted with alcohol until about the same color as that of the urine to be examined. It is carefully run down on a small amount of the urine so as not to mix but to form a layer. If bile be present at the plane of contact a pale green ring of biliverdin is formed. It is best seen by holding it against a white background. If the amount of bile present be extremely small, the ring appears only after standing a few minutes. This test is by far the most sensitive of simpler methods, giving positive results, when Gmelin's test or its modifications are negative. The following cases will exemplify the importance of carrying out this method:

Case III.—Mrs. S. C., aged 42 years, complaining of "stomach trouble" for several months; oppression and distention after eating; bad taste in mouth; attacks of pain in upper abdomen on both sides; no nausea or vomiting; bowels constipated. Physical examination negative. Stomach and liver normal in size and position. No areas of tenderness. Free HCl, 20. Total acidity, 48. The day following an attack of pain, urine showed a definite ring of biliverdin with Rosin's test. No jaundice. Operation for gallstones showed thickened gall-bladder with several large stones.

Case IV.—Miss G. O., aged 32; slender, neurotic; suffering with lack of appetite, nausea, and occasional vomiting. Has periodic attacks of severe pain in right hypochondrium. No jaundice. Physical examination: Marked gastroptosis and floating right kidney. Paroxysms of pain were attributed to kidney (Dietl's crises). The use of an abdominal bandage was followed by an absence of attacks for about one year when, after a particularly severe attack, the pain being mainly in the left hypochondrium, bile was found in the urine. It had not been looked for previously. No jaundice. On operation a distended gall-bladder containing numerous stones.

The above will suffice for illustration of positive findings, though a number of similar cases might be presented. After a sufficient number have been met with I shall tabulate my findings. Many other cases of abdominal pain could be cited, where the absence of bile in the urine by Rosin's test caused me to throw gallstones out of consideration, and where other findings, as occult blood in the feces, have made the diagnosis of ulcer; or the absence of abnormal signs has consigned the cases to the waste basket of abdominal neuroses; and where appropriate treatment has been attended with happy results. While my experience is as yet too limited to speak with positiveness, or even to tabulate results, it has been, I think, sufficient to demonstrate that by Rosin's test we are able to show choluria in many cases where there is no suspicion of jaundice, and thereby furnish an invaluable aid in this difficult field of internal medicine. The test may also be of value in proving whether a yellow sclera is due to bile or simply to subconjunctival fat. I am in hopes that a more extended experience will prove the importance of this method in cases where attacks of pain are an accompaniment of chronic gastric disturbance. Its simplicity should appeal for its more frequent application. The explanation of the choluria in these cases where there is no occlusion of the common duct lies probably in the extension of the inflammation of the gall-bladder during the attack to the bile passages with interference with the flow of bile, as brought out by Riedel; or on the basis of Minkowski's theory that a disturbance in the function of the liver cells is produced which results in a secretion of the bile in an abnormal direction (icterus per parapedesin).

Bactericidal Power of the Feces of Normal Nursing Infants.—Vitangele Nalli has made an experimental study of the bactericidal qualities of the feces of nursing infants under normal conditions. He finds that the bactericidal powers of the feces are very variable with respect to the different pathogenic organisms. It depends partly on the acid reaction of the medium and partly on the presence of certain special substances. Such substances, in part of microbic origin, belong to the category of thermolabile substances; and a portion of them pass through a porcelain filter. The bactericidal power resolves itself into a process of bacteriolysis.—*Rivista di Clinica Pediatrica.*

CESAREAN SECTION IN PLACENTA PREVIA WITH REPORT OF A CASE.*

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HAVING had during the past year a patient with a central implantation of the placenta with hemorrhage upon whom a cesarean section was performed, it is considered worthy of report. The history of the patient is as follows:

Mrs. J. G. Housewife; age 29. Family history negative. Has had none of the usual diseases of childhood. Had always enjoyed good health until seventeen years of age, when, while walking, she slipped and fell and struck upon her back and developed Pott's disease. A kyphosis appeared a short time later which is still present. At nineteen or twenty years of age she had an abscess of the left middle ear which opened spontaneously and discharged for some time but eventually healed. No deafness followed the abscess. She was married at 23, shortly after marriage became pregnant, and was confined Oct. 7, 1903. As labor was slow and the head failed to engage high axis traction forceps were applied and after some difficulty delivery was effected. The child was dead and all efforts at resuscitation were in vain. It weighed 8 pounds. The perineum was severely lacerated and repaired at once. Convalescence was slow and it was some months before her health was again good. After this she again became pregnant and was delivered Aug. 14, 1905. This labor was again slow for the reason above cited and after waiting some hours for the head to engage, with failure, forceps were applied and extraction of the child proceeded. Some laceration of the soft tissues again followed which was immediately repaired. The child weighed 7½ pounds. As there was some stridor in the child's breathing it was examined and a congenital hypertrophy of the thyroid gland was found to be the cause. It lived 18 hours. The specimen was removed and shown before the Outagamie County Medical Society. Convalescence of the patient was again slow and complicated by much pain about the dorsal vertebræ. Later the third and last pregnancy occurred. Nausea which persisted several months became a distressing feature. Upon Sept. 26, 1908, while in the ninth month of pregnancy, about 1:30 P. M., while standing engaged in some household duties a sudden hemorrhage occurred which was not accompanied by any pain. I saw the patient about half an hour later. Upon examination the os was firm and admitted a finger. A soft bogy mass was felt covering the internal os. The slightest movement in and aside from the examination produced bleeding. Placenta previa was diagnosed. With full knowledge of the previous two difficult labors, of a moderately contracted pelvis, and a rigid and unyielding os, I had great fear for the outcome for both mother and child in case expectant plans were followed. And in face of the fact that a living child was greatly desired I concluded that the interests of the family would be conserved best by resorting to an abdominal cesarean section, and so advised. My associate, Dr. Quick, was telephoned for and arrived within a short time. Dr. Quick concurred in the diagnosis and treatment advised. The vagina was firmly packed with sterile gauze. The husband of the patient consented to the treatment proposed and she was transported to St. Elizabeth Hospital and at once taken to the operating room and prepared for section. After suitable preparation of the abdomen an anesthetic was administered by Dr. Sandborn and a median incision made, the uterus delivered outside the abdomen. The abdominal contents were protected with hot saline compresses. The uterus was incised, a fetal foot seized and the body delivered; the cord was clamped and cut and the child given to Dr. Ritchie to care for. The placenta, which was attached to the lower uterine segment, immediately over the internal os, was separated and removed. The uterus contracted but the contractions were not sufficient to stop the bleeding from the placental site. The lower segment was then packed with plain sterile gauze and the end brought out in the vagina. Some few minutes were consumed in staying hemorrhage. The uterine wall was coapted with two layers of catgut—the first one uniting the muscular layer, the second uniting the serous external layer and infolded to prevent adhesions to parietal peritoneum. The tubes were ligated to prevent future conception. The abdominal wall was closed in our usual way. The operation consumed 37 minutes. The patient's condition continued excellent throughout and her convalescence was uneventful. Both the patient and the baby returned to their home two weeks later. The health of both mother and child has been excellent to date. The patient is a warm advocate of section as a substitute for difficult forceps delivery. She believes she was saved much pain and weeks of invalidism, and the anguish of another still-born child.

It is proposed to discuss cesarean section in placenta previa centralis et lateralis in selected cases with other obstetric measures for the same condition. In the light of the case just cited, and of others occurring in the literature may we not believe that a definite indication can be found which will permit a conscientious profession to substitute the clear cut, scientific cesarean section in some cases of placenta previa for other methods of *accouchement forcé*. The implantation of the placenta over the exit of the fruit sac, either partial or complete is a fell accident of pregnancy fraught with great danger to the lives of mother and child. The danger to the mother is from hemorrhage, from the trauma of a hurried interference to terminate labor, and from infection. The dangers to the child are from asphyxiation, from detachment of the placenta and from the injuries incident to rapid delivery. There is no question that previous results in the treatment of this condition leave much to be desired. And all attempts, and all serious inquiry for the purpose of improving these results must be cordially viewed. There is a notable tendency wherever modern surgery is practised to extend the indications for cesarean section. The absolute indication for abdominal section is, I believe, rapidly covering the ground of what we formerly called the relative indication in contracted pelvis. To drag a child through a pelvis with a conjugate vera of 3½ inches or under is not practicing obstetric surgery according to our light. In the face of the fact that in my case there were a moderately contracted pelvis, two previous difficult high forceps deliveries, and placenta previa, I believe I had ample justification in substituting the abdominal method of delivery. What other methods were available? (1) Packing vagina and waiting for sufficient dilatation

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for application of forceps or production of version. (2) Rapid dilatation, manual or instrumental, separation of placenta, and extraction of child by means of forceps, or after podalic version. Williams[1] states that according to Müller, under expectant treatment the maternal mortality varied from 36 to 40 per cent., while for the children it was about 66 per cent., one-half of those which are born alive perishing within the first ten days following delivery. In 178 cases reported by Hoffmeier, Behm, and Lomer, and treated by 11 different obstetricians by combined version by the Braxton Hicks manœuver, the maternal mortality was 4.5 per cent., whereas 93 cases treated by the three operators above mentioned showed a mortality of only 1 per cent. Koblanck reports a death rate of 3.8 per cent. in 467 cases treated in the Frauenklinik in Berlin, and Strassmann, one of 5 per cent. in 100 cases which he delivered personally. According to their figures, the prognosis is from 3 to 8 times more serious in central placenta previa than in the other varieties. The maternal mortality is dependent primarily upon hemorrhage, which is directly due to the condition and which results from deep cervical lacerations, from too rapid dilatation or extraction through an insufficiently dilated cervix and from puerperal sepsis.

The fetal mortality is dependent upon the fact that many of the children are born several months or weeks prematurely or are asphyxiated from placental hemorrhage or die during attempts at extraction through an insufficiently dilated cervix. The fetal mortality has not changed appreciably in recent years. Both maternal and fetal mortality are also dependent upon the variety of the placenta previa, the method of delivery, the condition and surroundings of the patient when first seen.

Can cesarean section in a large series of cases show better results? Of course, no such series can be given as it does not exist. Therefore, if this line is to be followed our indication must be based on a reasonable conjecture or scientific inference. Hence it will be valuable to quote the opinions of some of the leading obstetricians of the world, which I have gathered together.

F. Schauta[2] of Vienna, says: "The introduction of cesarean section as a possible therapeutic measure in the treatment of placenta previa demands careful consideration. I have never performed this operation for placenta previa, and probably shall not do so for some time to come. In the past 10 years my clinic has treated a total of 234 placenta previa, of which 16 were fatal. Equals 6.8 per cent. death rate which is not high. The extreme view of some American authors who pronounce cesarean section to be the only reasonable treatment for placenta previa in general, has been properly repudiated by those who would confine this heroic treatment to cases of placenta previa centralis or lateralis. The results of cesarean section performed in my clinic have certainly been excellent when the patient's genitalia were uninfected. But the prognosis is quite different in cases where the reverse prevailed or the conditions were not favorable. But my belief is that even in cases of placenta previa centralis the commonly practised method is preferable to the cesarean.

C. D. Palmer[3] observes, regarding the cesarean operation for placenta previa; that Dr. Zinke advocates the availability of the cesarean section in cases of central placenta previa with an os closed and rigid and hemorrhage profuse in prima gravidæ. Under the following conditions, undilated os, uncontrolled hemorrhage, child at term and living, normal temperature, and environment favorable, the cesarean section may be seriously considered. He will not insist that it never should be done but think the conditions that indicate it are very rare.

F. A. Higgins,[4] in his Remarks on the Treatment of Placenta Previa, observed: "With respect to the use of the cesarean section in placenta previa I have yet to see a case in which it would be advisable or justified, and such, in my opinion will be rarely seen. The only occasion for cesarean section I would define as: complete placenta previa with both mother and child in good condition before the occurrence of severe hemorrhage, and with the os undilated."

J. B. Deaver[5] reports a case of cesarean section in placenta previa: "Previous deliveries, 4; all by forceps. Child and mother made good recovery. Results of cesarean section for placenta previa are not encouraging. They show an increased mortality for the mother, and the death rate for the child not much decreased. Twenty-five cases have been collected of this treatment. In one case (Storer's) result has not been determined. Of the remaining twenty-four cases nineteen mothers and eight children recovered. Cesarean section is not to be unreservedly commended for placenta previa, and is best confined to cases where cervix is rigid, birth canal contracted and immediate extraction of fetus necessary, and where further hemorrhage would kill either or both."

A. P. Condon[6] of Omaha, reports two cases of placenta previa centralis, upon which he performed cesarean section. There was a good recovery of both mother and child in both cases. He believes the cesarean section to be the proper procedure in cases of central implantation of the placenta where the child is alive and viable. The life of the babe (when viable) is as important as the mother's. It can be done quicker than dilatation, version or extraction. The danger of a ruptured uterus and hemorrhage can be better overcome by section. No obstetrician should attempt a version unless he is equal to a cesarean section.

W. A. Briggs[7] reports four cases of placenta previa in two of which cesarean section was performed. Mother and child both did well in one case, but the child was lost in the second. He believes that serious hemorrhage and infection (consequent in packing and manipulation) could be prevented by early operation, prophylactic cesarean section. In cases of central placenta previa cesarean section of Sanger type should be done at greatest viability of fetus, that is compatible with least danger to the mother. In emergency cases, the Sanger cesarean section with fairly clean uterus should be done (if operator is skilled) and the porro-cesarean of the uterus is deeply infected.

R. Warren[8] of London, reports ninety-four cases of treatment, and says regarding the cesarean section that Tait, Conroy, and Donoghue have each saved a patient by it, but while these results redound to the skill of the surgeons as well as to the stamina of the patients, the mortality, it must be confessed, is very high. Out of ten cases reported, five died. *Accouchement forcé* was not more deadly. In selected cases the death rate of the cesarean section has been reduced to near zero. But a patient with big flooding is not an inviting subject for this operation. Palmer is right who says: "Where the os is undilated (undilatable is better) or hemorrhage uncon-

trollable, the child alive and at term, temperature normal, patient not too weak, then only is the cesarean method advisable."

I. L. Hill[9] read a paper at a meeting of the New York Academy of Medicine (section on Obstetrics and Gynecology) in which he said that placenta previa, among multiparas, was not rare. In one thousand eight hundred cases of which eighty-seven per cent. were multiparæ (four pregnancies usually), the proportion of placenta previa was one to two hundred and twenty-five. The mortality had been understated. There was but little reduction in the fetal death rate of from forty to fifty per cent. He thought cesarean section should be pereformed in the interest of the child, when the case presented long, rigid cervices, complete previa, and a viable child, if surroundings were favorable. Maternal death rate had been reduced, now progress must be directed to getting a decrease in fetal deaths.

Asa B. Davis[10] reports a case of placenta previa, in which the cesarean operation was performed four successive times in four deliveries. The child was saved in each delivery and each time the mother made a prompt recovery. The last delivery was in May, 1905. There was a breach presentation. The abdomen was opened by a median incision, 10 cm. long above the umbilicus. The operation caused the patient less inconvenience than an ordinary delivery.

These opinions are much at variance as one would expect from the nature of the matter in hand. There are many horns to the dilemma, and there seems to be no hope for a future certain indication that will guide for all cases. We may expect to approach a case of placenta previa with not much less fear than in former days. But if cesarean section can be used to extricate us from an occasional heroic situation practitioners should certainly avail themselves of it. I trust I shall not be accused of undue caution when I suggest the following tentative indications for cesarean section in placenta previa: (1) Central or lateral previa (when these can be diagnosed) associated with rigid os—with or without profuse hemorrhage. (2) Child at term and living. (3) Sterile birth canal, *i.e.* norman temperature of mother and favorable surroundings. (4) Justo-minor pelves. Conjugate vera 3½ inches or under. (5) Deformed pelves. (6) History of previous operative deliveries. Finally, to perform cesarean section for placenta previa requires the exercise of individual judgment in any particular case, and no set of rules can be formulated that will help much in the decision, nor do I hope for any fixed indications. Much will depend on the attitude of mind of the operator, his belief in his own aseptic technic. And in addition to these, in private practice at least, he must have the unqualified confidence of his patient.

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CHRONIC VARICOSE ULCERS OF THE LEG.

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During five months' association with the inmates of one of the divisions of the Departments of Charity and Correction of the City of New York, personal observation permitted the writer to investigate the cases of a great number of patients who were troubled with "old leg sores." The majority of these cases refused the radical treatment of operation, and for this class a system of medication and treatment was instituted which may prove of interest.

The varicose ulcer is designated by Prof. Da Costa as having for its commonest site the area on the leg above the inner malleolus. Possibly a wider area might be acceptable, confining varicose ulcers of the leg along any portion of the inner side of the leg from below the knee and over the external malleolus. All mention made about chronic varicose ulcers of the leg is derived from the actual handling and treating of about one hundred and twenty cases, presenting a chronicity anywhere from a few months to as far back as fifteen years. The majority of these patients were past middle age and the interesting fact was noted that the varicose ulcer is commoner in the female, and especially common with those who had borne children.

Behind the cause for the varicose ulcer lies the cause of varicose veins. Professor Coplin says "phlebectasia may result from obstruction to the onward flow of the blood," and tumors of the pelvis, pregnancy, etc., are often the underlying cause of varicosities of the leg. Aside from the obstruction theory the disturbances of proper physiological action of the heart and kidneys are factors predisposing to varicosities. Obstruction with pressure of the lesion, be it abnormal growth, pregnancy, or other force exerting intraabdominal pressure, is sufficiently clear as a cause of varicose veins, since overdistention must occur in the veins of the leg when the lumen of the venous radicals of the pelvis is narrowed by pressure. Again, a lesion in the heart causing in any way a weakness in the force of the organ upon the blood stream may be found a truly good cause for overdistention of the veins of the leg because of the heart's failure to pump the blood upstream through the veins of the leg, and resultant stagnation.

The cause of varicose veins can also be attributed to the kidneys, and this can be accepted as plausible since the fact of a deficiency in function or disease in the parenchyma of the kidneys allows an overdistention of the venous radicals, and especially those of the leg, because of gravity holding the body-fluids in this weakened condition of the kidneys, to the lowest level. When the veins of the leg become distended the valves lose their power. Nodules of clotted blood may deposit themselves about these non-functionating valves, and these protrusions and elevations develop to such a degree as to interfere with the free passage of the current. Pressure

from behind may force the blood through a narrow channel and a tortuous route is found by the stream which appears upon the leg as a bundle or string of knots. Since there is always a sluggish flow of the blood in the varicose area, there is a predisposition to effusion of the fluids of the blood into the tissues. This effusion gives rise to the associated edema so commonly seen in the varicose leg. As the protrusions or elevations of the tortuous vein and the edema exert pressure, the overlying structures become thin, the skin shiny, tense, and less resistant. A slight bruise or excoriation, which renders the area susceptible to infection, is the beginning of the ulcer, and with the irritation caused by the viscid excretion from the site of the infected area an eczema is excited about the ulcer. This eczema causes intense itching, which the patient attempts to relieve by scratching. Through such irritation further abrasions, about the non-resistant area of the ulcer, are caused and as a result the ulcer grows rapidly larger. Very often the patient gives only a history of trauma as the beginning of the ulcer and never in such instances does he attribute the development of the ulcer to his "swelled veins." In the leg the long saphenous vein, which has no great muscular covering over it, is the commonest vein giving rise to varicosities. As a varicose vein becomes distended the pressure upon the overlying tissues will cause an atrophy of these structures, and in the event of injury to such tissues there is little or no resistance. Inadequate blood supply or sluggish circulation in a varicose area predisposes to ulcer formation, because there is not sufficient aid in such an area to combat an infection which may develop during an abrasion or excoriation from a trivial bump.

Usually the patient complains of a weakness of the affected leg. Commonly he mentions the fact of his having swelled veins for years which never gave him trouble until the day he fell or bumped his leg, but it is surprising that he complained little of pain or tenderness over the site of the ulcer, although it may have been very large. Edema about the site of the lesion, the associated weakness of the extremity, and the failure to close the "running sore" are the factors which usually bring the case to the physician. Frequently, after the ulcer has been of long standing, there develops an intense itching and redness about which the patient will complain. Hence the commoner subjective symptoms are: (1) weakness of the affected leg; (2) a history of swelled veins; (3) edema; (4) intense itching.

Usually, when the patient came to the doctor for the first time, he exposed his limb bandaged with some old cloth or rag that was used repeatedly for the dressing. This dressing, as a rule, was a heavy muslin bandage covering the foot and leg well above the area of involvement. The physician was never surprised to learn, upon questioning the patient, that the leg had not been dressed for anywhere from five to ten days. Ordinarily the bandage over the site of the ulcer was wet through with a brown or grayish discharge which emitted a most disagreeable, musty odor. Upon exposing the ulcer, the odor was that of decaying meat, and the area presented a liver-colored patch of granulations, covered over with a thick, grayish white mucopurulent exudate. There was surrounding the ulcer, usually, an undefined skin area of redness for which the patient would reach with his finger nails as soon as the bandage was removed. An intense itching seems to start in the affected part when it is exposed to the air. The inflamed skin area, upon closer examination, was seen to be undefined, running very gradually into the area of healthy skin. The skin area was scaly, dry, and peeling. The skin underlying the scales was tense and glistening and the entire condition was identical with eczema. It seems entirely due to the irritating viscid and glairy exudate from the ulcer. The edges of the ulcer were thick and sloped gradually to its floor. The leg about the margin of the ulcer was especially red, often edematous, and pitted on pressure. Not uncommonly the floor of the ulcer presented granulations above the level of the skin, and these were of the exuberant type, large, rather dark, and bleeding after being touched. The ulcer increased in size by its destruction of the surrounding atrophied tissues, which had become further nonresistant to the irritating exudate from the ulcer because of their eczematous condition.

As to the methods given trial along the lines of minor surgery the following were used: (1) skin grafts; (2) epidermis grafts by means of blistering agents; (3) destruction of exuberant granulations; (4) scarification of ulcer bed; (5) scarifications of ulcer margins; (6) combined methods.

Skin grafts were never successful at a single sitting and in several instances the grafts became a part of the old ulcer again. By means of cantharidal plaster (in one piece) blisters of the epidermis were made which after twenty-four hours were punctured. The loose epiderm was cut off under sterile and antiseptic precautions and permitted to rest over the blistered area until the ulcer was carefully cleansed and rubbed with gauze thoroughly wet with warm normal salt solution. The ulcer which had previously been treated so that healthy granulations had formed bled freely after the rubbing and the margins of the ulcer were scarified. With dry, sterile gauze the ulcer bed was dried; then by means of two pairs of tissue forceps the skin was carried from the site of the blister to the ulcer. The graft should be large enough to readily cover the ulcer. Either the opposite leg or high up on the same leg was always used for blistering. The treatment for the blister was the same as that for a burn: 1 per cent picric acid solution for first dressing, after which dressings of zinc oxide ointment were used until healed. Destruction of exuberant granulations was done with the curette, carbolic acid, and alcohol, or lunar caustic. Where any of these procedures were painful to the patient a 2 per cent. cocaine injection was used. Scarification of the ulcer bed was used where granulations were tardy. Scarification of the ulcer margin was used in almost every case to stimulate granulations and to cause a pulling together of the edges. The combined method was two or more of the above procedures upon any one ulcerous site, and no case calling for the knife in the realm of minor surgery was treated without this method.

In treating any lesion the primary procedure is toward relief of the aggravating symptoms. After this, efforts at repair and removal of the cause of the lesion are made, and finally the resultant complications diminished. It is just in this way that the treatment of the varicose ulcers of the leg was instituted in the cases handled; the weakness, edema, itching, and other symptoms were overcome; efforts at prevention of congestion and stasis in the venous radicals of the extremity were endeavored; and the ulcer itself was treated with efforts at prevention from further infection by proper sterile and anti-

septic precautions being exercised in the treatment of the site. The practitioner has, in the past, been more or less indifferent to Nature's provisions for repair and care of diseased parts, and medication has been, in many cases, lauded when Nature's repair was the real factor in restoration to health.

In the treatment of the cases there were two great divisions made of the number, regardless of the chronicity or extent of the area involved, viz., walking cases and resting cases. The walking cases constituted that list of patients who could attend the regular tri-weekly clinics, while the resting cases belonged to the list of patients who remained in the hospital wards. With both classes the same line of treatment was instituted, and in conjunction with medication, Nature's remedies, viz., rest, elevation, and aeration, were applied whenever it was possible.

Upon the occasion of the patient's first visit the ulcer was curetted so that all exuberant granulations were removed from the ulcer floor. The ulcer was mopped with sterile cotton, saturated with a 1 per cent. or 2 per cent. solution of cocaine or beta-eucaine, to render the treatment as painless as possible. Certain cases in which the margins were deep were treated after the curetting of the bed by lifting the margin and scarification of the ulcer bed. If the margin and bed bled freely the hemorrhage was allowed to go on for a few minutes. If the ulcer bed showed a tendency to tardy or poor granulations it was livened up by painting with iodine or by destruction of the granulations with lunar caustic, 50 per cent. silver nitrate, or pure carbolic acid to be washed off with alcohol. After the treatment for exuberant or tardy granulations, the ulcer area was treated with warm 1-2000 or 1-5000 bichloride dressings. Sterile gauze pads (about 4-6 inches) were placed in the warm bichloride solution, and after a free removal of the excess solution, they were placed upon the ulcer. Rubber tissue was placed over the gauze and the part was bandaged with 3-inch gauze (not too tight.) If the patient remained in the wards rubber tissue was not used and the bandage over the ulcerous area was kept wet with the bichloride solution. All patients were instructed about the importance of rest, elevation, and aeration. After forty-eight or seventy-two hours the patients presented themselves for examination either at the clinics or in the wards. Each patient had the same kind of dressing placed upon the ulcer again and internal medication was instituted. Fluid extract of ergot was administered 7 to 15 minims three times a day, and this remedy was to be continued indefinitely. (It is to be remembered that all cases received direct attention every forty-eight or seventy-two hours, and when an application is spoken of as having been used for one or two or three dressings the writer wishes the time interval between dressings to be considered.)

Usually at the third or fourth dressing the ulcer appeared as a bright red, freely bleeding area and upon closer examination small pinhead granulations could be seen. At such a time treatment for the edema was instituted along the line of any of the saline purges in the morning (a wineglassful of a saturated aqueous solution) and the infusion of digitalis one to two fluid ounces three times daily, until the edema lessened. Edema appeared rarely in the lean or wiry type and the fat and boggy patient could only profit from the purges and the infusion of digitalis. In all cases the free daily elimination of the excretions was desired. The cases were all instructed not to allow the bowels to remain blocked for longer than twenty-four hours. The musty or foul odor which came from the loosening of the early dressings disappeared about this time. The previous dressings of bichloride were applied for the purpose of antisepticizing the affected area, but for the next dressing remedial measures were called into use.

For the stimulation of healthy tissue granulations iodoform, aristol, or bismuth subgallate were used; dusted directly over the ulcerous area. Acetanilide and phenacetine were also frequently combined with any of the dusting powders mentioned. Where there was an eczematous involvement about the ulcer the free dusting of any of the powders and salicylic acid, as a powder, seemed to bring on the best results. Wherever it was possible to keep the area involved moistened with bichloride 1:5000, it was done. There were several advantages in keeping the affected area wet with this solution; it diminished the chances of further infection; it softened the tissues, thus rendering them more susceptible to medication, and it prevented the applications from sticking to the healing ulcer. Whenever a complicating eczema spread itself over an extensive area, zinc oxide was freely applied upon the outer limits of the irritation, and besides this an application of tincture of iodine was applied to what appeared to be about the outer zone of eczema. Such applications were often repeated for several sittings and were, as a rule, kept up until the patient complained no longer of itching at the margins of the ulcer. The liberal use of salicylic acid powder over this area, and often a combination of this powder with any of the ordinary surgical dressing powders, produced a lessening of the itching. The combination of salicylic acid and iodoform, aristol, bismuth, or bismuth subgallate produced most gratifying results. There were many complaints about the burning pain from the use of a combination during the first few dressings, but the powerful stimulating and absorbing powers of the drugs were too encouraging to be abandoned. Usually after the third application patients bore the powders very well. The belief in the use of powders arose from the observation made, viz., they bring the exudate more rapidly to the surface and tend to centralize it. Powders were usually applied at anywhere from three to nine dressings, after which there was a sufficient formation of new granulation and all irritation from the eczematous area had ceased. At about this time—this being sometime between the fourth and sixth week—an opalescent film had developed upon the ulcer surface. It is at this stage that the salves and unguents may be applied; *i.e.* after the granulations are covered with a protective layer. Many cases requested the changing of the powders to salves before this stage had been reached, because of a continued pain from the stimulating powders, but in no instance where this was done were the results gratifying. As is well known, almost all unguents form a nidus for the propagation of bacteria, and since this is the case we should not expose an open ulcer to infection after it has been rendered sterile. A good stimulating and healing unguent is a 10 per cent. or 20 per cent. ichthyol ointment. Either strength is good alone where eczema is not a complication of the ulcer, but when it coexists either of the strengths may be used with salicylic acid and zinc oxide. All dressings with unguents should be thickly lathered.

For the rapid healing of any affected area, presenting an open or abraded surface, there seems nothing so beneficial as rest. If an ulcer is bound

up or bandaged, as in the instance of walking cases, it stands to reason that little cure or repair can be expected as a result from the applications, as long as there is motion with resultant irritation from the bandages. From the use of the part the applications of the remedies are often spread beyond the site where they are intended to do their work. The using of the affected part calls for an increased blood supply, and this is just what should be guarded against, because a congestion already exists. This occurs from the condition of the venous radicals. The veins are incapacitated and damaged, they cannot functionate properly, the blood does not return unobstructedly from the extremity, it lies in the venous channels until the liquor sanguinis, as an exudate into the tissues, produces the edema so common with varicose ulcers. It seems reasonable, at least, then, to say that rest increases the chances for repair by lessening the irritation to the ulcerous site and by decreasing the tendencies for edema to the part.

Elevation was used with the idea in view that the arterial tension in the part would be lowered while the venous return would be favored by gravity; thus a great tendency to congestion would be overcome. In all instances where the patient was a walking case he was instructed to sit down as much as possible for rest while he elevated the affected extremity on a chair or table to the level of his buttocks, and preferably six or eight inches above the level. In the resting cases the extremity was always elevated upon pillows and kept six or eight inches above the level of the mattress for days at a time. When the bed clothes were changed the leg was lowered to the mattress level for a change for the patient.

Aeration as a most curative measure could be used only in a limited number of cases. In these instances, however, the results were most gratifying, but the patient needed great attention. The ulcerous area was exposed to the air and treated as follows: All medication was dusted upon the part where indicated and over the powder a light layer of gauze was spread to keep the part free from flying particles and insects. When wet dressings were required there was only a light layer of gauze upon which the wet applications were dropped.

I wish to emphasize my convictions in regard to treatment. There seems to be a fallacious notion about the handling of ulcers from the standpoint of medication; the changing from one application to another is very important and the physician should know when to do this. Certain drugs, after bringing about a condition of improvement, will undo their good work during continued application. One should know when to use drugs and know also when to stop them. When it is possible we should allow Nature's remedies, rest, elevation, and aeriation, to perform their cures and never fail to impress the patient with the importance of these.

As a strict requirement in the treatment of varicose ulcers, the patients are instructed not to keep the knees flexed while sitting or lying down, as this flexion retards the return flow of blood in the venous circulation.

20 West Stockton Avenue.

Two Cases of Poisoning of Infants from Anise Water.—Giovanni Berti describes two cases in infants in which severe symptoms of poisoning occurred after the use of anise water. The symptoms were those of excitation, followed by stupor and etheral narcosis of rapid invasion, short duration, and rapid disappearance, and ending in intestinal catarrh.—*Rivista di Clinica Pediatrica.*

A CASE OF TRICHINOSIS.*

By LINDLEY DOBSON, M.D.

ASHLAND, MAINE.

The patient, Mr. Andrews, aged 27, was seen by me January 24, 1908. His family history is unimportant. Nothing in the personal history of any moment, excepting an attack of the small pox in 1903, and one of typhoid fever in 1905, from both of which he fully recovered. His present illness commenced about January 20, 1908, with aching of muscles and general malaise. There were no gastro-intestinal symptoms.

On January 24, there was some fever and accelerated pulse. Limited to the upper part of the face, including the upper lip, there was some edema lasting several days. The urine was scanty, not over eight ounces in twenty-four hours; no albumen, no sugar, reaction acid, specific gravity 1,022. On January 26, symptoms remained about the same, with herpes labialis on the right side, added. On January 27, temperature was 100.4°, pulse 86, respiration 20. He complained of muscle pains. The heart sounds were distant and feeble. Some moist râles were present throughout both lungs.

On January 30, on sitting up in bed, he had a severe attack of syncope. From the step ladder rise of temperature from the first of the attack, I thought Mr. Andrews might be developing typhoid. The Widal test made proved negative. A differential blood count gave: polynuclears, 56 per cent.; eosinophiles, 31 per cent.; lymphocytes, 11 per cent.; transitionals, 2 per cent. This eosinophilia taken with the local facial edema and muscle aches cleared up the diagnosis. Patient was given five grains of santonin.

On January 31, the patient complained of pain on protruding the tongue, and there were local tender points in the calf and pectoral muscles, especially near their tendinous parts. On February 1, the patient was given five grains of santonin. Examination of the stool for *Trichinellæ* proved negative. On February 2, the patient was given calomel, three grains. He was also given glycerine, one-half ounce every hour for several doses. On February 3, a saline cathartic was given in the morning. In the afternoon the patient had three large liquid stools, which, after some searching, showed many *Trichinellæ spirales.*

On February 6 the blood examination showed: red cells, 3,900,000; hemoglobin, 67 per cent.; white cells, 10,000, of which there were polynuclears, 55 per cent.; eosinophiles, 16 per cent.; lymphocytes, large and small, 24 per cent.; large mononuclears, 2 per cent.; transitionals, 3 per cent. One baso-myelocyte in 500 cells counted. On February 11, the temperature and pulse were normal and the patient's recovery was uninterrupted from this period.

On April 22 differential blood count showed; polynuclears, 67 per cent.; small lymphocytes, 14 per cent.; large lymphocytes, 6 per cent.; eosinophiles, 8 per cent.; large mononuclears, 3 per cent.; transitionals, 2 per cent. One mast cell in 300 counted.

Extreme weakness, profuse sweating, and sleeplessness characterized the whole sickness, and after recovery there was considerable falling of hair. The eosinophilia lasted at least three months.

Before 1908 I had never seen a case of trichinosis;

*Read at the meeting of the Maine Medical Association, June 16, 1909.

and, while some of the classic symptoms were well known to me, it was only through knowledge of Dr. Brown's study of the blood in this condition at Johns Hopkins, that I was led to diagnose the case. In my tardy diagnosis of the case, which I believe proved almost fatal to the patient, I ask your most lenient criticisms.

Infection with the *Trichinellæ spiralis* occurs so seldom in this country that the above report may be of interest to you. It is possible, however, that trichinosis is not so rare as supposed. Dr. H. U. Williams in the *Journal of Medical Research* for July, 1901, states that in 505 cadavers taken at random the *Trichinella spiralis* was present in 5.34 per cent. Dr. Baben in the *Annals of Surgery*, March, 1908, reported the third case of this parasite found in carcinomata in patients with no history whatever of trichinosis. From these facts I am led to believe that some cases of mild infection have passed unrecognized.

While it is not the purpose of this paper to deal with the diagnosis of this disease, I wish to refer to a recent paper by Drs. Herrick and Janeway wherein they state the finding of the embryos in the blood. The blood is laked with 3 per cent. acetic acid solution and the sediment obtained with the centrifuge is examined for the embryos. This method will prove more certain in its results than will an examination of the stools, and it will be much less painful and repellent to the patient than the examination of a portion of excised muscle.

PERMANENT BLOOD-PRESSURE RECORDS.

By BRYCE W. FONTAINE, M.D.,

MEMPHIS, TENNESSEE.

The importance of sphygmomanometry has necessitated the adoption of a great many instruments, of which those with a mercury manometer, wide armlet, and with devices for recording the systolic and diastolic pressures graphically, are the most accurate.

In instruments of this type, in order to determine the pressures, it is necessary to watch both the manometer and the writing lever at the same time; and, when the estimate has been made, it is entirely a matter of one's memory as to just what was the proper reading.

By altering the arrangement of the tambours on the Hirschfelder-Erlanger instrument, I believe I have simplified the matter (Fig. 1). With this arrangement it is only necessary to watch the manometer, and after the estimate has been made there is a permanent record of both pressures, systolic and diastolic, which, like the sphygmographic tracing, can be attached to the history sheet.

The writing lever attached to the small tambour is made the same length as the lever on the larger tambour of the sphygmomanometer and is adjusted beneath it; leading from this smaller tambour there is a rubber tube (Fig. 1, *a*).

An idea of the blood pressure of the individual to be examined is forecasted from the age and the disease from which he suffers, and the kymographion is made to revolve and the levers adjusted accordingly.

When the manometer registers slightly above that figure, at that moment pressure is made upon the smaller bulb, which produces a marking with the smaller lever upon the kymographion, and at each successive fall of ten millimeters in the column of mercury in the manometer pressure upon the bulb is repeated.

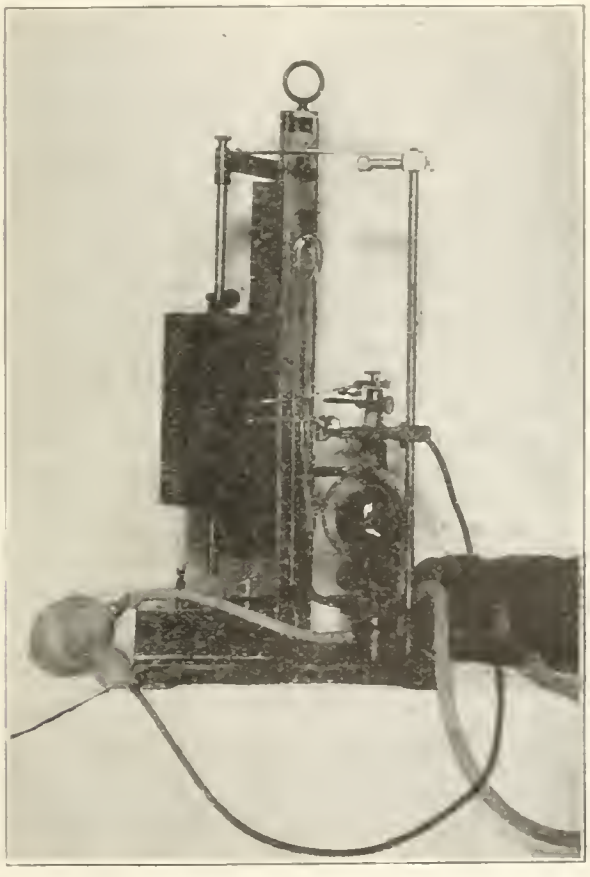

Fig. 1.—Author's modification of the Hirschfelder-Erlanger sphygmomanometer.

The record will then show interruptions in the lower line, at every ten millimeters in the fall of the blood pressure, and knowing the beginning of the record to be, for example, 160 millimeters, the record of the manometer corresponding to the first abrupt increase in the amplitude equalling the systolic pressure, and the last maximal amplitude equaling the diastolic pressure, can be accurately recorded and kept as a permanent record by coating the smoked paper with shellac.

Byrd Building.

Fig. 2.—A sphygmomanometer record.

MEDICAL RECORD.

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AN ENEMY TO THE SOUTH.

ONE of the most conspicuous of the minor triumphs of medicine in recent years—it would be more just to say one of the greater triumphs—is the discovery of the cause of the anemia which is so marked a feature among the poorer whites in the South outside the larger cities. The anemia was long since recognized, but its cause was not known, and when one gave it a thought it was usually attributed to poor food, the males of the family being shiftless and too lazy to earn their bread. Stiles discovered, however, that the anemia was due to the presence of uncinaria, or the hookworm, in the intestine, and that the laziness and general good-for-nothingness of the poor whites were not moral defects, but were due to actual physical inability to do hard labor as well as to a mental disinclination, both being the direct result of this same hookworm-induced anemia. The whites are not the only sufferers, however, for the negro as well harbors the parasite, but they are the greatest sufferers, negroes seeming to have acquired a partial immunity to the poison of the hookworm. The latter are, as Charles Wardell Stiles points out in one of his recent writings on this subject,[1] carriers of the hookworm, suffering comparatively little themselves, but serving as breeders of the worm and sowers of its seeds, to the lasting injury of their white neighbors. It is quite likely also that the South owes the introduction of the disease to the negro who brought the parasite from Africa and polluted with its eggs the soil from the Potomac and the Ohio to the Gulf.

Although the negro does not suffer directly from uncinaria infection in nearly the same degree as does the white, the indirect effect, Stiles thinks, may be in him most deplorable. The injury to the intestinal walls may not improbably interfere more or less with digestion, while the poison excreted by the parasite must affect the red blood corpuscles to a harmful extent even if it does not induce the high degree of anemia that it does in the white man. It therefore reduces the resisting power to infections and especially, Stiles contends, to pulmonary tuberculosis. He ascribes the terrible fatality of this disease among the negroes of the South largely to the almost universal presence of uncinariasis. He recalls the observations made recently in Manila regarding the indirect effects of hookwork infection. When the Americans took charge of Bilibid prison the death rate was 238 per 1,000 per year; by improving the sanitary conditions this death rate was reduced to about 75 per 1,000; here it remained stationary until it was discovered that a very high percentage of the prisoners were infected with hookworms and other intestinal parasites; then a systematic campaign was inaugurated to expel these worms, and when this was done the death rate fell to 13.5 per 1,000. The whites suffer more severely from the direct effects of the poison, many deaths among them being attributable to this cause, but undoubtedly they also suffer from the indirect effects, and their death rate from all diseases would be reduced in equal measure were the hookworm exterminated.

The South suffers in other ways than pathologically from the prevalence of this parasite, and its economic advance beyond a certain point will be impossible so long as the ravages of this worm are allowed to go on unchecked. The shiftlessness of the poor white and the negro is not the effect of climate or of class, it is the result simply of the hookworm infection—an infection made possible, even inevitable, by the filthy habits of the southern peasant—both white and black. The disease also puts a mental handicap upon the children. Stiles says: "As nearly as can be estimated (admittedly a rough estimate) the physical condition of the southern country school children with whom I come in contact is such that they cannot possibly assimilate much over 70 per cent. of the education they receive; in other words, somewhere about 30 per cent. of the educational efforts are wasted, and prominent southern educators have stated that this estimate is very conservative."

As is known, the hookworm does not multiply in the intestine of its host; it deposits its eggs there and these are then discharged in the stools and hatch out in warm, damp, dark places. The young worm enters the body of a new host, possibly in the water or on salads or vegetables eaten raw, but its chief mode of entrance is probably through the skin of the feet and ankles. The wearing of shoes will therefore prevent infection in a measure, but the attempt to shoe the children of the southern small farmers and all the pickaninnies as well, would be a task from which even the most daring sanitary reformer would shrink. The only effectual mode of attack of the hookworm is to destroy the stools containing its eggs, but this, too, seems a hopeless undertaking when one thinks that only about 31 per cent. of the farms in some States of the South have privies of even the most primitive and insanitary sort, the natives in most cases defacating wherever they happen to be when the desire moves them; many of the country schoolhouses and churches also are unprovided with this convenience.

Theoretically the eradication of hookworm disease could be accomplished in a short time by treating all the harborers of the parasite with thymol, shoeing the entire population for a time, until the

[1] "Public Health Reports" of the Public Health and Marine-Hospital Service, July 30, August 20, October 1, 1909.

present soil pollution could be remedied, and burning or chemically treating the stools of the infected. That such measures as these could never be universally or simultaneously carried out is evident, but much can be done by individual and concerted effort. The charitably disposed and the patriotic people of the South could do no greater good to their land and its inhabitants than by organizing leagues for combating the hookworm, after the plan of the antituberculosis leagues, for it is no exaggeration to say that the regeneration and the lasting prosperity of the South depend absolutely upon the extermination of this detestable parasite that is literally sucking its life blood.

AGGLUTININS AND BACTERIOLYSINS IN CHOLERA.

The diagnosis of Asiatic cholera in the acute stages of the disease offers but few difficulties to the modern physician, trained in simple bacteriological technique. With the use of the common nutritive media and a thermostat the causative agents of the diesase may be demonstrated in the dejections of the patient within twenty-four hours. On the other hand, the diagnosis of sporadic cases or such as are suspected to be cholera only after the first week or more of the disease has passed, cases, that is, that are most likely to be met with in the United States among immigrants and sailors, is quite difficult. In these patients, the microorganisms are usually no longer demonstrable in the feces, and clinically the picture of the disease is often very similar to certain advanced stages of typhoid fever. Dr. Swenson of Kieff has recently attempted a study of the newer biological diagnostic methods in connection with the recent cholera epidemic in Russia and reports his findings in *Russkii Vrach*, No. 30, 1909.

He first examined thirty-seven patients in various stages of cholera for the presence of specific agglutinins; the nature of the disease was conclusively proved in all but one of these patients by the cultivation of the cholera vibrio from the feces. However, only thirteen of them gave a positive reaction, their sera agglutinating the vibrios in dilutions from 1:30 to 1:50. Moreover, the same agglutinating property was found in several persons who had never suffered from the disease. Agglutination, therefore, could not be safely used in the diagnosis of sporadic cases of cholera. Swenson then studied the serum of the patients with reference to its bacteriolytic power, using the old test of Pfeiffer, which consists in injecting definite amounts of serum and of a pure culture of the cholera vibrio into the abdominal cavity of guinea pigs. The presence of bacteriolysins was shown by the loss of motility and the transformation of the vibrios into spheroidal degenerative forms; at the same time the amount of serum required to produce this phenomenon served as a measure of the activity of the serum in this direction. This time bactericidal bodies were demonstrated in the sera of almost all patients suffering from cholera as well as in many patients who had recovered from the disease. However, the test could be used as a diagnostic evidence only when quantities of serum smaller than 0.5 c.c. were sufficient to exercise a bacteriolytic effect, for normal sera often produced a similar effect when used in large amounts. Neither agglutinins nor bacteriolysins seemed to play any decisive rôle in the mechanism of immunity, for their presence and amount had no relation to the severity or stage of the disease.

Swenson does not, of course, attribute any but corroborative or partial value to the phenomena of agglutination or bacteriolysis in the diagnosis of cholera. Yet, though not pathognomonic signs they may prove of great importance in the diagnosis of sporadic cases or those of patients who travel from centers of infection before their disease has become manifest.

TROPICAL DYSENTERY.

At the recent International Medical Congress at Budapest, Dr. Galli-Valerio read a paper on the etiology and prophylaxis of bacillary dysentery. He laid especial stress on the fact that the disease is caused not by one bacillus but by many bacilli belonging to the Shiga group of these organisms. According to the author the disease in all its varieties is spread chiefly by personal contagion either from sick persons or from healthy "carriers" of the bacilli, and either directly or through fomites; by water, which plays a most important rôle in the spread of the disease; by means of flies, as proved by experiments; by milk, which may be infected by flies or by the addition of infected water, or by the washing of vessels with such water; by vegetables, and by the soil and dust. The main prophylactic measures recommended were placed under the following headings: 1. As rapid diagnosis of the first cases as possible; 2. Compulsory notification of all cases; 3. Strict isolation of the sick, and 4. Disinfection of the excreta, linen, etc., and of the room occupied by the sick.

At the recent meeting of the British Medical Association Cantlie dealt with the treatment of what he termed chronic recurrent dysentery. He is of the opinion that drugs have little effect upon the condition and that diet should aim at the administration of food causing but a minimum of excretion. All farinaceous foods should be excluded from the diet and milk completely withheld. Pounded meat, eggs, jellies, etc., should constitute the means of sustenance when an attempt is made to control local congestion in the sigmoid. Enemata are useful, and warm sea-water is the best fluid for this purpose. The most valuable portion of Cantlie's paper was that which dealt with operations upon the colon for dysenteric lesions. The author expressed himself as strongly in favor of operative measures in perhaps the majority of cases. He is of the opinion that when the disease is quite chronic, and should the dysenteric attacks occur again and again, opening the sigmoid flexure will be found to be theoretically and practically an efficient means of treatment, because the disease in 90 per cent. of such cases is at the junction of the sigmoid flexure and rectum, and an opening at the upper end of the sigmoid will be found to be well above the lesion. Through the opening in the sigmoid bougies may be passed downward through the stenosed portion, thereby

curing the cause of the lesion. Cantlie also holds the view that removal of the entire colon is a justifiable operation when the walls of the whole length of this portion of the bowel are hopelessly destroyed. He does not regard ipecac as useful in warding off liver abscess, nor does he consider that hepatic abscess is necessarily or usually preceded by general hepatitis. Many of those who took part in the discussion upon Cantlie's paper took the view that operative measures were not nearly so frequently needed. Chronic dysentery in an advanced condition is, however, in most instances practically hopeless of cure, and in such cases an operation may do good.

A resolution which was brought forward at the International Congress at Budapest and unanimously adopted was to the effect that dysentery in any of its forms should be added to the list of compulsorily notifiable diseases in all countries, as it is at present in some, since it constitutes one of the grave epidemics that may appear in any country.

Camphor in Pneumonia.

The idea that pneumonia is a self-limited disease and not amenable to treatment is widely held by many excellent practitioners who regard with great scepticism the testimony offered from time to time concerning the value of certain remedies which are suggested as of service in cutting short or aborting the course of the disease. The latest offering to the list of drugs recommended in the treatment of pneumonia is made by Seibert, who, in the *Münchener medizinische Wochenschrift* for September 7, 1909, reports his results in treating a number of cases of pneumonia with hypodermic injections of camphor. The author believes that the action of the camphor is twofold—stimulating and bactericidal. Until two years ago Seibert had used the camphor solely for its stimulant effect. Since that time, however, he has used the drug regularly in all cases of pneumonia in the hope of killing the pneumococci circulating in the blood. He has used it not only in cases of frank uncomplicated pneumonia, but also for pneumococcus empyema and pericarditis. The treatment was used in twenty-one cases of pneumonia, all of which terminated in recovery. Besides this the author calls attention to the facts that in none of the cases treated with camphor was there a crisis; that a slow steady improvement began immediately after the first injection and continued with further injections; and that the duration of the illness was shortened. The camphor was administered in the form of a twenty-per cent. camphor oil in doses as large as 12 c.c. at a time, and repeated every twelve hours. Such doses of camphor given subcutaneously would seem at first sight to be distinctly heroic, but the author claims that he has had no bad results and that all of his patients have recovered. One hundred per cent. of recoveries in pneumonia is certainly a result of which one may be proud. Considering, however, that the series consists of but twenty-one cases and that they occurred during a summer service in a hospital in New York, it would be somewhat premature to accept camphor as a specific for pneumonia. The work requires confirmation on a greater number of cases during the cold season.

The Liquor Traffic and the Drug Store.

Apropos of the popular discussion on alcohol in the newspapers and magazines and the so-called "wave" of temperance reform, it is interesting to note the firm stand taken by the American Pharmaceutical Association and the National Association of Retail Druggists against the sale of liquors over the drug store counter. And this especially in view of the fact that the drug store as such is fast becoming an unknown quantity, inasmuch as very few pharmacists can earn even a fair not to say good livelihood by restricting themselves to the sale of drugs pure and simple. The temptation to dispense port, sherry, and brandy along with soaps, perfumes, and candy, in order to make business pay, has been too great, for a few pharmacists at least, to withstand; hence the resolutions passed by the two national druggists' societies. In the language of the resolutions, it is admitted that "a small minority of druggists" do a general business in the sale of liquor, while nondruggists are employing registered men to conduct saloons under the protecting cloak of pharmacy. Further, the feeling was expressed that any pharmacist or pseudopharmacist who would take advantage of temperance legislation for personal profit was a disgrace to his profession and should be ostracized by it, and a general demand was made upon the city, country, and State pharmaceutical associations to assist in carrying out the laws pertaining to sales of liquor. There may be some doubt as to the exact interpretation of the phrase "legitimate medicinal purposes," since it is by no means rigid enough to satisfy the exacting qualifications of the law. It would seem that there can be very little necessity for dispensing liquors except upon a prescription written by a physician. In fact, it may be a matter of the greatest importance to a physician who is treating inebriety, for instance, that no medicine of any kind should contain alcohol; and quite obviously the drug store ought to aid the physician in preventing the patient from procuring "a tonic" without a written order signed by the doctor in charge of the case.

News of the Week.

Harvard Dental School opens the new year in its magnificent new quarters. The new building, which is at the corner of Longwood avenue and Wigglesworth street, adjoining the Harvard Medical School, is called the finest building in the United States in structure and equipment. It is in Georgian style, and is constructed of rough water struck brick and marble. The double purpose for which the building is intended is indicated by the inscription, cut in marble over the entrance, "Harvard University Dental School and Hospital." Passing the entrance door, there is a spacious lobby, from which a marble and iron staircase leads to the upper floor. Near the entrance is an inquiry office and a telephone station. At the right of the hall is the administrative board room and the dean's office. At the left is the library and the students' room, these two rooms being so arranged that on special occasions they may be thrown together into one large assembly room. Back from the main part of the building runs a long, well-lighted wing, which, on the first floor is occupied by the prosthetic laboratory, the supply room, and the waiting-room for patients. The laboratory is equipped with the latest and most approved apparatus. The second floor is devoted largely to operative work. The infirmary, the supply room, and the waiting-room correspond to the prosthetic department below. The portion of the second floor facing Longwood avenue is occupied by the oral surgical department, and contains

two operating rooms, each with its anesthesia room, recovery room, and small ward. Closely connected with this department is a room equipped for *x*-ray work. On this floor is also a museum containing over 3,500 specimens. The dental school is connected with the buildings of the medical school by a subway, which, in addition to serving as a passage, also carries pipes from the power house of the medical school, which supply heat, compressed air, and power. The dental school building is to be used wholly for hospital purposes. The lectures are to be given in the lecture rooms of the medical school.

A Typhoid Epidemic Due to Milk is reported from Salt Lake City. The epidemic is not extensive and has been traced to a certain dealer who has been arrested for selling dirty milk. A recent localized outbreak in this city has also been traced to milk, which may or may not convince the sceptics that inspection alone is not so safe as inspection and pasteurization.

Diarrheal Diseases in Chicago.—Investigations of 130 deaths from diarrheal diseases among children under two years of age were reported by the Milk Inspectors during the week ending September 25, the summary of their observations being as follows: Thirty-four, or 26.2 per cent. of the total, had been taking mother's milk; 77 were fed cow's milk, and the other 19 were fed a variety of things from the table. Of those taking mother's milk, only one was under one week of age. Of the 77 using cow's milk, 5 had taken it raw; 18, milk heated in the home; 7, commercially pasteurized milk; 15, milk commission milk; 1, certified milk; 3, milk from town cows; 19, condensed milk, and 9, malted milk.

Train Sanitation in Michigan.—Dr. F. W. Shumway, Secretary of the State Board of Health of Michigan, has announced that he will in the near future call a meeting of the representatives of all the railways doing business in the State to discuss the provisions of the new law giving the board authority to require certain sanitary precautions on all passenger trains for the protection of the traveling public.

The Illinois Central Railroad is aranging to place individual drinking cups in all coaches of every description over its entire system. These cups will be placed in slot machines beside the water cooler, but will not displace the glass or free cups heretofore in use.

Conference of Health Officers of Iowa.—The annual conference of the State and local boards of health of Iowa will be held at Des Moines October 26 and 27. The prominent feature of the meeting will be the discussion of the new health laws enacted at the last Legislature.

Unclaimed Body Law.—According to a new law in Michigan the bodies of strangers, of those unclaimed by relatives or friends, and of those dying in prisons and public reformatories are to be turned over to certain medical institutions instead of being buried at the expense of the State.

Forced Feeding in Jail.—Legal proceeding have been instituted in England in a case of some interest to the medical profession. Several women suffrage advocates belonging to the radical suffragette party were arrested and sent to jail for disturbing conduct during Mr. Asquith's speech in Birmingham. They declared that they would not eat while in the jail, and seemed intent on starving themselves to death. Thereupon the authorities interfered and fed the prisoners by means of the stomach tube. They have begun action for assault, declaring that forced feeding is legal only in the case of the insane.

The Radium Mines of Austria.—The Austrian Government has received the entire output of the mines at Sankt Joachimsthal consisting of 154 grains of radium chloride, equivalent to 15.5 grains of pure radium. This will be distributed to the various Austrian medical and scientific institutions.

Dr. Charles J. Montgomery has been elected Professor of Hygiene and Medical Jurisdiction in the University of Georgia.

Removals.—Dr. B. Sachs of New York has removed to 135 Central Park West, Dr. Martin B. Ware to 27 East Eighty-first street, Dr. William Hanna Thomson to 70 East Fifty-fourth street, Drs. W. H. Haskin and J. G. Dwyer to 11 East Forty-eighth street, and Dr. Wm. M. Leszynsky to 145 West Seventy-seventh street. Dr. Smith Ely Jelliffe and Dr. Frederic Peterson of this city announce their return to practice after a long sojourn abroad.

The Chicago Tuberculosis Institute maintains eight free dispensaries for the treatment of tuberculosis and gives advice as to the home care of patients. These dispensaries are: Chicago Policlinic Hospital, Rush Medical College, College of Physicians and Surgeons, Jewish Aid Society, Gad's Hill Center, Northwestern University Medical School, Hahnemann Hospital, and the Stock Yards Dispensary. The Department of Health supplies tuberculin free for diagnostic purposes.

Chicago Laboratories Moved.—The laboratories of the Department of Health of Chicago, the Bureau of Food Inspection, the Recorder of Births, and the Department Statistician have moved to 218 East Washington Street.

The Opening Exercises of the Chicago College of Physicians and Surgeons were held September 28 in the college. The opening address was delivered by Dr. Wm. Allen Pusey.

The Ernest S. Lewis operating room of the Delgado Memorial Annex to the Charity Hospital of New Orleans was opened September 17. In the future all women confined to the Delgado Annex, including those with gynecological troubles, will be attended in the new room, which is thoroughly equipped.

The Children's Aid Society of New York has issued a report on its work of the summer. The Health Home at Coney Island gave outings of from one day to ten weeks to 720 mothers and 1,652 children, and day excursions to 1,652 mothers and 2,351 children; the Chappaqua Convalescent Home signalized its first season by entertaining 25 mothers and 513 children; and the Children's Summer Home at Bath Beach, which gave a week of fresh air to 4,901 children; the Boys' Camp near Stamford with 700 boys and the Martha Home at Ossining, which kept 50 little girls for ten weeks, swelled the total for the summer to 11,530. In addition to this fresh air work, the Sick Children's Mission treated more than 2,000 children in their home in the city.

Charitable Bequests.—By the will of the late Miss Phoebe Ann Thorne of New York $140,000 was given to charitable institutions. Among the bequests were $10,000 each to the following: Miriam Osborn Home Association, Rye, New York, Society for the Relief of Ruptured and Crippled, General Memorial Hospital, Children's Aid Society,

New York Skin and Cancer Hospital, and Women's Hospital; and $5,000 each to the following: New York Infirmary for Women and Children, Manhattan Eye and Ear Infirmary, New York Association for Improving the Condition of the Poor, Colored Home and Hospital, and the Society for the Relief of Destitute Blind.

The American Society of Sanitary and Moral Prophylaxis will hold its regular meeting at the Academy of Medicine, New York City, Thursday, October 14, at 8.30 P.M. The general subject for discussion will be "The Past and Future Work of this Movement."

The American Electrotherapeutic Association at its annual meeting held in New York September 28-30, 1909, elected the following officers: *President,* Dr. Thos. D. Crothers of Hartford, Conn.; *Vice-Presidents,* Dr. T. H. Cannon of Baltimore, Md., and Dr. F. E. Peckham of Providence, R. I.; *Secretary,* Dr. J. W. Travell of New York; *Treasurer,* Dr. R. J. Nunn of Savannah, Ga. The next annual meeting is to be held at Saratoga early in September, 1910.

The American Association of Obstetricians and Gynecologists at its anual meeting at Fort Wayne, Ind., September 23, 1909, elected the following officers: *President,* Dr. A. B. Miller of Syracuse, N. Y.; *Vice-Presidents,* Dr. Charles V. Smith of Toledo, Ohio, and Raleigh H. Huggins of Pittsburg, Pa.; *Secretary,* Dr. William W. Potter of Buffalo; *Treasurer,* Dr. X. O. Werden of Pittsburg, Pa.; *Members of the Executive Committee,* Drs. Wm. H. Humiston of Cleveland, Ohio, and Hugo O. Pantzer of Indianapolis, Ind. The 1910 convention will be held at Syracuse, N. Y.

The American Hospital Association held its annual meeting in Washington September 21 to 24, 1909. The next meeting will be held in St. Louis, Mo., the third week of September, 1910. The following officers were elected: *President,* Dr. H. B. Howard of Peter Bent Brigham Hospital, Boston; *Vice-Presidents,* Dr. J. N. E. Brown of the Toronto General Hospital, Toronto, Canada, Dr. Wayne Smith of the Washington University Hospital, St. Louis, and Miss Mary S. Keith of the Rochester City Hospital, Rochester, N. Y.; *Secretary,* Dr. W. L. Babcock of Grace Hospital, Detroit, Mich.; *Treasurer,* Asa Bacon of the Presbyterian Hospital, Chicago.

The Utah Medical Association at its fifteenth annual convention, held at Ogden, September 22, 1909, chose Salt Lake City as the place for the next meeting. The following officers were elected: *President,* Dr. Joseph S. Richards of Salt Lake City; *Vice-Presidents,* Dr. A. S. Condon of Ogden, Dr. Walter T. Hesler of Lehi, and Dr. E. D. Hammond of Salt Lake City; *Secretary,* Dr. W. Brown Ewing of Salt Lake City; *Treasurer,* Dr. J. N. Harrison of Salt Lake City; *Delegate to the American Medical Association,* Dr. A. C. Bailey.

The Colorado State Medical Society at a meeting held at Estes Park on September 16, 1909, elected the following officers: *Presidents,* Dr. Leonard Freeman of Denver; *Vice-Presidents,* Dr. John Espy of Trinidad, Dr. A. J. McDonald of Leadville, Dr. Ella Mead of Greeley, and Dr. Samuel C. Hadley of Fort Collins; *Secretary,* Dr. Melville Black of Denver; *Treasurer,* Dr. G. W. Meil of Denver; *Board of Councillors,* Drs. E. J. A. Rogers of Denver and George H. Cattemole of Boulder.

The Tidewater Medical Society at a meeting at Urbana, Va., September 20, 1909, elected the following officers: *President,* Dr. W. T. Jones; *Vice-Presidents,* Drs. J. W. D. Haynes, J. N. DeShazo, A. C. Palmer, and Claybrook Fauntleroy; *Secretary and Treasurer,* Dr. G. W. Brown. The next meeting of the society will be held at Saluda, June 12, 1910.

Obituary Notes.—Rear Admiral CHRISTOPHER JAMES CLEBORNE, U.S.N., died at Washington Oct. 3, 1909, aged 70 years. He was born in Edinburgh, Scotland, graduated from the University of Pennsylvania in 1860, and entered the naval service of the United States as an Assistant Surgeon in 1861. During the Civil War he served on the U.S.S. *Jamestown* from May, 1861, to January, 1862, and on the *Aroostook* from September, 1862, to August, 1863. He was promoted to Passed Assistant Surgeon on October 26, 1863, and to Surgeon on November 24, 1863; to Medical Inspector on January 7, 1878, and to Medical Director on September 18, 1887. During the Spanish-American War he was on duty in command of the United States Naval Hospital at Norfolk, Va. His last active duty was performed at the naval hospital in Philadelphia from February to November, 1899. On November 10, 1899, he was transferred to the retired list as a Medical Director with the rank of Rear Admiral. In 1886 he was chosen Vice-President of the International Medical Congress.

Dr. GEORGE EDWARD POST of Beirut, Syria, died September 30, 1909, in that city, aged 71 years. He was a graduate of the Medical Department of the University of New York in 1860, and later of the Union Theological Seminary. Dr. Post's life was given up to missionary work. As a young man he was made Professor of Surgery in the Syrian Protestant Hospital at Beirut, and later was for many years head of the Medical College of Beirut. He was also surgeon in the Johanniret Hospital in Beirut. For his work as missionary and surgeon he received the orders of the Red Eagle and Knights of Jerusalem of Germany, the decoration of Osmanich of Turkey, and that of the Ducal House of Saxony. He wrote books in several languages, on botany, zoology, physiology, surgery, medicine, and the Bible. He also published in the MEDICAL RECORD reports of a remarkable series of vesical and urethral calculi which he had removed at various times during his years of practice in Beirut. In the death of Dr. Post the missionary workers of Asia Minor lose one of their most valued leaders.

Dr. EZRA A. PALMER of Hartford, Mich., died at his home September 18, 1909, aged 62 years. Dr. Palmer was a graduate of the University of Michigan in 1876, and was one of the best known physicians in that part of Michigan.

Dr. CHARLES G. MERRILL of New Haven, Conn., died at his home September 23, 1909, aged 74 years. Dr. Merrill was a graduate of Yale University and a surgeon during the Civil War.

Dr. RICHARD W. ALLEN of Dallas, Tex., died at his home September 22, 1909, aged 68 years. He was a graduate of the Bellevue Hospital Medical College in 1872 and a member of the Dallas County Medical Society and the State Medical Association of Texas.

Dr. FREDERICK C. MCCALLUM of Hersey, Mich., died at his home September 19, 1909, aged 75 years. After graduating from the Toronto School of Medicine in 1866, Dr. McCallum went to Michigan

where he was the pioneer surgeon in the northern part of the State, practising there for over fifty years.

Dr. O. H. Evans of Springfield, Ohio, died at Jackson, Ohio, September 20, 1909, at the age of 35 years. Dr. Evans was a graduate of the Starling Medical College and a member of the Clark County Medical Society and the Ohio State Medical Association. In 1903 Dr. Evans as acting health officer had charge of the sanitary work during the smallpox epidemic.

D. Waller N. Vinal of Baltimore, Md., died at his home September 27 of pneumonia, aged 35 years. Dr. Vinal was a graduate of the College of Physicians and Surgeons of Baltimore and had served through the Spanish-American war as army surgeon stationed in Cuba.

Dr. John Janvier Black of Newcastle, Del., died at his home September 22, 1909, aged 73 years. Dr. Black was a graduate of the University of Pennsylvania in 1862 and a member of the Newcastle County and Delaware State Medical Societies and the American Medical Association, and was for many years President of the Delaware State Hospital for the Insane at Farnhurst.

Dr. John W. Coffin of El Paso, Tex., died at his home September 16, 1909, aged 43 years. He was a graduate of the Western Reserve Medical College in 1889. He served through the Spanish-American War as a major of the Tenth Pennsylvania Volunteers and had charge of the Bilibid Hospital in Manila. After the war Dr. Coffin moved from Pennsylvania to Texas and was soon appointed surgeon in the Texas Guard. He was a member of the El Paso County Medical Society and the State Medical Association of Texas.

Dr. Clifford L. Pike of Saco, Me., died at his home on September 20, 1909, aged 50 years. He was a graduate of the Medical School of Maine in 1881.

Dr. Marshall A. Gilkaith of Selma, Cal., died September 22, 1909, aged 46 years. He was a graduate of the Medical Department of the Vanderbilt University at Nashville in 1891 and was a member of the Fresno County Medical Society and the Medical Society of the State of California.

Dr. Ludwig Kohn of New York died at his home October 3, from accidental carbolic acid poisoning, aged 45 years. Dr. Kohn was a graduate of the University of Vienna in 1887 and came to New York immediately after graduation. Dr. Kohn was a member of the New York County Medical Society, the New York State Medical Association, the German Medical Society, and the East Side Physicians Club.

The Viscosity of the Blood and the Work of the Heart.—Giovanni Galli says that the molecules of the blood are subject to attrition in different individuals, due to the presence of various colloidal substances. These substances are subject to great variability, according to the amount of water in the blood and of fat molecules, and these vary with the distance from a meal. The composition of the blood varies with age, sex, and constitution. In polycythemia and plethora the viscosity is greatly increased and yet health is good. In anemia the viscosity decreases markedly. Compensation comes through the vasomotor nerves and the regulating mechanism of the heart. Increased viscosity of the blood does not produce cardiac hypertrophy. The temperature of the body, especially in febrile conditions, has also an influence on the viscosity of the blood. When with increased viscosity we have a strong heart impulse and inelastic arteries there will be greatly increased heart work, and *vice versa*.—*Rivista Critica di Clinica Medica.*

Correspondence.

SENILE PRURITUS.

To the Editor of the Medical Record:

Sir:—Recently my attention has been called afresh to a means of relief in senile pruritus which served me admirably in my practice in New York. It is so simple and so efficient that I want to recommend it to the readers of the Medical Record. In inveterate cases, after exhausting the whole line of antipruritics with very unsatisfactory results, I have found immediate and prolonged relief to follow gentle friction with a tolerably stiff hairbrush. The effect is almost magical. Not often is so much torment relieved so easily.

Andrew H. Smith, M.D.

Geneva, N. Y.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

INTERNATIONAL POSTGRADUATE ARRANGEMENTS—THERAPEUTICS OF BUDA—PHARMACEUTICAL *v.* PHYSICAL REMEDIES—TRADITIONALLY REPORTED EFFECTS—CARDIACS—ALKALIES AND ALKALINE EARTHS—THE HEALTH OF THE INDIAN ARMY.

London, September 17, 1909.

A new international organization was founded at Buda-Pest. It is called the Comité International Pour l'Enseignement Medical Complémentaire, and will be devoted to the promotion of postgraduate medical work. No less than fifteen countries were represented by delegates at the preliminary meeting, and the constitution was agreed on. An administrative committee of five members was elected, viz.: Professor Waldeyer, *President;* MM. Landouzy, Pavy, von Grösz, Kutner. There will also be a separate body—La Direction—consisting of one member from each country joining the movement. Though advantage was taken of the assembling of the congress to organize the new movement, there is no connection between the two bodies. But it will probably conduce to the success of future meetings held there at the time of the International Congresses. In the intervals there will be meetings of the Commission Administrative, which may be regarded as an executive committee. It will consist of six members, and will be the committee of the business of the Comité.

There seems to be room for the energies of such an association, and with so many eminent teachers supporting it success should be assured.

In London postgraduate work has been established on a firm basis for years. The association devoted to it made arrangements with the leading schools and special hospitals for admitting its members to all the clinical instruction given. The wards, operating theaters, mortuaries, and outpatient departments of London are therefore practically open to graduates who take out the association's ticket. Then there is also the Polyclinic, where lectures and demonstrations in all branches are constantly given, and the library and laboratory are also open for the students. Roentgen apparatus, ophthalmoscopes, and other aids to diagnosis are provided, and separate seats where a dozen patients can be simultaneously examined. The museum, too, is of great value, and contains the beautiful portraits of diseases by Sir Jonathan Hutchinson, who is the genius of the place. To him is due the unique system of consultations which take place here. To these students of the school can bring difficult or interesting cases, either for the sake of seeking the opinion of others or to serve as specimens for demonstration. Another institution is at the West London Hospital, where practical classes, ward work, and laboratory studies have been carried on for graduates during several years. The Northeast London Post-Graduate College is at the Prince of Wales General Hospital, which contains 125 beds. This college is recognized by the India Office, the Admiralty, and the universities of London and Cambridge. The London Clinical School has for many years been recognized as one of the most valuable places for instruction. It is at the Dreadnought Hospital, Greenwich, has 250 beds, and is replete with every convenience for study in the wards and the out-patients' department. The specialties are all represented. There is also an arrangement by which graduates can at the same time follow the practice of the Royal Waterloo Hospital for Women, the General Lying-In Hospital, and the Bethlehem Hospital for the Insane. These hospitals, easily accessible, thus afford the opportunity of wide experience to the students of the Dreadnought, the certificates of which are accepted by the War Office and London University.

I have said enough to show we have abundant provision for postgraduate work in London. I may add other colleges are making provisions of the kind, while for research work the universities of the three kingdoms afford opportunities and guidance.

Therapeutics, according to some reports, did not seem to excite the attention expected, either at Budapest or at Belfast, although there were excellent papers at both. At the former Dr. Colombo of Rome gave a comparative estimate of pharmaceutical and physical remedies, in which he advised that where either seemed equally suitable the physical should be selected, because its nature and effects on the human body were more familiar to us, and the effect was always alike, while remedies acting in the interior of the body through the animal fluids could not be observed in their action. However fully we understood their chemical composition and reactions outside the body, the reactions within were veiled from our tired observation and we could only judge them by inference.

This paper may very well be compared with one by Professor Dixon at Belfast, entitled "Facts and Fancies in Pharmacology." He pointed out how many supposed explanations of the action of drugs did not deserve to be so called. Tradition still attributed to remedies actions to which they had no claim. Opium had no local effect, though three preparations for local application remained in the British Pharmacopeia. Hydrocyanic acid in the doses given could not assuage gastric pain. Modern work had altogether changed our views of digitalis, which used to be thought to depress the heart. So ether and strychnine did not directly stimulate the heart. Belladonna was supposed to restrain or even arrest the lacteal secretion. It could not, as it only affected nerve endings, and the mamma had no nerves. Potash salts were called by many depressants, but this alkali was only toxic in concentrated solution, and when taken into the stomach was excreted more rapidly than it was absorbed, so that there was not much concentration in the blood. Calcium, too, was slowly absorbed and quickly excreted. Though injected subcutaneously it might rapidly increase the coagulation property of the blood in a given time. As to the action of potash, Dr. Curci has long repudiated its alleged depressing influence, and in a paper at Budapest on the physiology and therapeutics of the alkalies and alkaline earths he gave an interesting account of his researches. He went much further than a simple denial of the long received opinion, and declared that, so far from being a cardiac depressant, it has an opposite action, strengthening both the heart and vessels by a direct stimulant action on their muscular elements. Calcium, strontium, barium, thallium, cesium, and rubidium he also classed as cardiovascular stimulants. But lithium he found did not affect muscular tissue, but was a nerve stimulant. All the alkaline earths acted on nervous tissue. Calcium and magnesium might be used to reduce nervous action. But ammonium and sodium increased it.

The health of the Indian army, European and native, is the subject of a Blue book issued this week and relates to the year 1907. Apart from the prevalence of plague, which scarcely affects the statistics of troops, the year was not an unhealthy one for the general population. Among European troops the admission rates were lower than during the preceding quinquenium, lower in fact than at any previously recorded period. The native army, too, presents an equally satisfactory record, both hospital admission and death rates being the lowest recorded. Ague was the leading cause of admissions, September and October being the most malarious months. The admission rate fell to 152 per 1,000 from 176 the previous year; the death-rate from 23 to 13. The after treatment of malarious cases is now more thorough and continued for about six weeks after discharge. In many stations intramuscular injection of quinine is employed and this is said to have reduced the number of readmissions. For prevention of primary attacks in European soldiers the provision of mosquito curtains has become realized as a distinct advance.

THE SIXTEENTH INTERNATIONAL MEDICAL CONGRESS.

(From Our Vienna Correspondent.)

SERUM DIAGNOSIS—DIAGNOSIS OF CHOLERA—HIGH-FREQUENCY CURRENTS—TRANSTHERMIA—APPENDICITIS AND PELVIC DISEASE.

BUDAPEST, September 11, 1909.

In the section on internal medicine Kraus of Berlin presented an extensive report reviewing the present status of serodiagnosis from a clinical viewpoint. He said that the diagnostic value of the immunity reactions depended upon the fact that the organism was changed by infection in its relation to the infecting agent. This change could occur either as a decrease or an increase in susceptibility to the infecting substance. The humoral and cellular alteration which characterized these reactions were usually associated, though one or the other might be the more in evidence. As the specific humoral reactions occurred especially in the blood serum, they were commonly called serum diagnosis methods. The theories accepted the following hypothetical substances: Agglutinins and precipitins, practically void of protective action; complement binding substances without bacteriolytic power, antitoxins, antitoxic immunity; complement binding substances with bacteriolytic power, bactericidal immunity; and opsonins and bacteriotropins, cellular immunity. The value of antitoxins was therapeutic, and they had been of but small aid in diagnosis, though possibly the recognition of an antistaphylolysin in the blood might be an aid in the diagnosis of chronic staphylococcus disease. The antiferments were closely related to the antitoxins. Brieger had found an increase of antiferments in the blood in carcinoma, the cachexia reaction. This must be used with some care. The agglutinins were the keystone of clinical serum diagnosis. They were proved as specific for typhoid, paratyphoid, meningitis, cholera, Malta fever, dysentery, and other diseases. The precipitins, of great value in forensic medicine, in spite of the efforts of many workers, had never given results of value in clinical diagnosis. The recognition of complement binding substances followed the bacteriolytic studies of Pfeiffer, the bactericidal plate studies of Neisser and Wechsberg, and the complement fixation method of Bordet and Gengau. Pfeiffer's test served to control agglutination tests in cholera, typhoid, and paratyphoid, especially in first attacks of cholera. The complement binding reaction occurred in typhoid much earlier than the agglutination test. In epidemic meningitis, studies of the antigens and antibodies in the cerebrospinal fluid, might give a diagnosis in the absence of meningococci. The most important use of the complement binding tests was in the diagnosis of syphilis. Biologically, the Wassermann reaction was somewhat doubted, but clinically absolutely accepted. It was fundamentally a constant sign of active syphilis, and was of value in the differentiation of active and inactive syphilis, in the diagnosis of the primary lesion, in the recognition of asymptomatic and hereditary syphilis, in determining the etiology of tabes, paresis, arteriosclerosis, aneurysm, keratitis, etc., and in the diagnosis of obscure diseases. The opsonins and bacteriotropins had been applied especially in England, but were of value only when the index was exceptionally high. The nonspecific humoral reaction had been but little studied and included the improperly called "lues precipitin reaction" and "psychoreaction." The cellular immunity reaction played but a small rôle in diagnosis owing to lack of specificity, but were of preeminent importance biologically. They included the spontaneous increase of phagocytosis, the surrounding of organisms with cells, as in tubercles, actinomycosis nodules, and blastomycetic ulcers, the increase of special cells in the body fluids, as lymphocytes in tuberculosis and syphilis, pus cells in pyogenic infections, eosinophiles with parasites, etc., and the formation of Guarniri bodies in smallpox, Negri bodies in rabies, trachoma, and moluscum contagiosum bodies, all of which were efforts to wall off the infecting virus. The hypersensitive reactions, like the immunity reaction, were both cellular and humoral. Their mode of action was not clear. They were of clinical value in the various tuberculin reactions. The typhoid reaction of Chantemesse, the syphilis reaction of Neisser, and the diphtheria reaction were analogous to these, but as yet of but theoretical interest.

Dr. Paul Kaufmann of Rome presented a paper giving a new method of diagnosis of cholera. He said that if one inoculated an alkaline and consequently definitely green Jequirity-peptone solution with cholera vibrios, the media became bleached in a short time—in from four to five hours even when not more than 3 c.c. of the culture was added. The cholera vibrios shared this characteristic with various other cholera-like organisms, with the Finkler-Prior bacillus, and others. However, a negative reaction was definite proof that cholera was not present. All those who had had experience in cholera epidemics appreciated the value of such a negative test. The value of the method was increased by the fact that a thermostat was not absolutely necessary and thus the test came within the

reach of all. The test became more complex when, by the use of cholera immune serum, it was changed from a negative to a positive reaction. This was done by inoculating two tubes, each containing not more than 3 c.c. of strongly alkaline medium with the cholera vibrios. To one of these was added about 0.8 c.c. of a cholera immune serum, and the two were placed in the thermostat for six hours. The results were that in tube 1 the medium was decolorized in six hours, while in tube 2, containing the immune serum, it remained green. With all other organisms used both tubes either decolorized or remained green. The author expected to report further studies with the other organisms of the cholera group at a later date.

Dr. Nagelschmidt of Berlin read a paper before the neurological section on the subject of the high-frequency current. He had endeavored for years to give to this therapeutic method the prominence it deserved. To obtain good therapeutic results it was necessary to have a current of an especially high tension, higher than could be obtained from the majority of the instruments on the market. He laid emphasis on the especial value of bipolar applications in the production of deep action of the current. He advised their use in insomnia, melancholia, and angina pectoris. He had seen but little results from autocondensation. The use of douches in connection with the current was of especial value. He had obtained good results in neurasthenia, parasthesias, and especially with the lightning pains and crises of tabes. In some cases he obtained considerable relief and in others complete recovery from the lightning pains. Bipolar applications were indicated in the treatment of arteriosclerosis, intermittent claudication, arteriosclerotic parasthesias, myocarditis, and incontinence. The current might be applied by direct metallic or water contact; in the latter case the smallest possible amount of water should be used. By bipolar applications and the interpolation of a small spark decided muscular contractions might be produced of great service in secondary atrophies and contractures. He did not consider the high-frequency currents to be cure-alls, but on the other hand he did not believe that their action was purely suggestive, for experiments on frogs had shown that decided objective effects were observed if the current was sufficiently strong, effects not observable to the eye when the current was used on man, but none the less effective in the production of therapeutic results.

OUR LETTER FROM COPENHAGEN.

(From Our Regular Correspondent.)

NORTHERN CONGRESS ON INTERNAL MEDICINE—DIAGNOSIS OF INCIPIENT TUBERCULOSIS—TREATMENT OF PULMONARY TUBERCULOSIS BY ARTIFICIALLY INDUCED PNEUMOTHORAX—NORTHERN CONGRESS ON SURGERY—FULGURATION TREATMENT OF CANCER—INTERRUPTION OF PREGNANCY IN TUBERCULOSIS—NEW MODE OF ACCESS TO THE NASOPHARYNX—HONOR TO DR. COOK.

COPENHAGEN, September 19, 1909.

THE most important medical events since my last letter are the two congresses in which the physicians and the surgeons of Denmark, Finland, Norway, and Sweden have taken part.

The Sixth Northern Congress on Internal Medicine was held at the little watering place of the Skaw, in Denmark. The first topic chosen for general discussion was the early diagnosis of phthisis incipiens. The most interesting contribution in this section was formed by the researches of Drs. Ellermann and Erlander on sensitization of the organism occurring in the cutaneous tuberculin test (after v. Pirquet). They had found that this test sensitizes the organism in such a way that the reaction becomes stronger on reiteration of the test. Only in 8 per cent. of the cases was the second reaction a little feebler than the one resulting from the first application of the test; in 8 per cent. no difference was found, but in 84 per cent. the second reaction was the strongest. The sensitization might result in a reaction twenty or thirty times stronger than the one first obtained, and was observed even after the lapse of several months. The sensitization is not a local process, as the second application may be made anywhere on the body surface. It is not observed in an organism that is entirely free from tuberculosis.

Drs. Würtzen and Kjer-Petersen reported on their experience regarding the treatment of pulmonary tuberculosis by production of pneumothorax. Only in seven of their twenty-seven cases they had succeeded in producing a complete pneumothorax, adhesions uniting the lung with the thorax wall in the other patients. In three of the cases the treatment appeared to have been of good effect, and in one case of acutely developed phthisis they considered that the treatment had saved a life that otherwise seemed lost. Professor Langmann said he had used the treatment in forty-two cases and was on the whole satisfied with the results, the patients improving in cases in which the ordinary methods of treatment would in his opinion have failed to bring about any improvement.

During the second half of August the Eighth Northern Congress on Surgery was held at Helsingfors, Finland. Here Professor John Berg and Dr. G. Forsell opened a discussion on the fulguration treatment of cancer. Professor Berg had fulgurated during the last two years a series of cancer and sarcoma, but he believed that the fulguration in its present shape would not have any great future. As to the mode of action of the fulguration, he thought that in the treatment of small tumors a simple necrosis of both the tumor and the surrounding tissue took place. In deeply situated cancer there arose a secondary reaction of the connective tissue, resulting in a sort of strangulation of the cancerous elements. He objected to the hypothesis of a specific action on the cancer cells. Dr. Forsell agreed with Professor Berg, as also he had failed to see any beneficial effect in malignant new growths. On the other hand, he had observed good effect of fulguration in certain nonmalignant cases. For instance, several keloids had responded very well indeed to the treatment, and with a satisfactory cosmetical result.

Another interesting discussion took place on the indications for interrupting a pregnancy in serious diseases of the mother, particularly in pulmonary tuberculosis. Dr. V. Albeck said that undoubtedly a phthisis often first manifested itself or became worse during pregnancy, but he declined absolutely to interrupt pregnancy only because the woman suffered from pulmonary tuberculosis. His reasons were that it was quite uncertain whether an interruption of the pregnancy would have any good effect on a progredient phthisis—nay, it was possible that it might do the mother more harm than good. Furthermore, it might even, if rarely, turn out that a seemingly progredient phthisis became stationary during the course of a pregnancy, and finally the offspring of phthisical mothers is as a rule viable. Dr. Emil Rode took a somewhat different view of the question, and thought it right to bring about an abortus provocatus in some few cases of pulmonary tuberculosis. Where troubles arose during the pregnancy of a mentally degenerate he agreed with Maragliano, and was willing to provoke an abort, followed up by a sterilizing operation on the mother in order to free the State from the degenerate individual that would otherwise be born. Professors Westermark and Engström followed the first speaker and declined to interrupt the pregnancy under the conditions discussed.

Professor Krogens demonstrated a new method of access to the rhinopharyngeal space in operations for rhinopharyngeal fibroma, or hypophysis tumor. After division in the middle line of the lower jaw he severs the soft palate from the hard palate, and has now a very ample and easy access to the operation field.

As you have seen in the daily papers, the University of Copenhagen has honored our American confrère, Dr. Frederic Cook, by conferring upon him the honorary degree of Doctor philosophiæ. In a conversation I had with him Dr. Cook said that his expedition to the North Pole presented also considerable medical interest, and promised to return to Copenhagen and give some lectures on this part of his experiences to the profession of Copenhagen.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 23, 1909.

Laboratory Work by the Country Physician.—M. A. Cummings believes that it is possible for the country physician to do more and better laboratory work than is generally imagined. Every practitioner should have a microscope with an oil-immersion lens. If the question of tuberculosis arises a man having the carbol-fuchsin and acid blue stains can in a few minutes determine the presence of the bacilli. He should always have a few culture sets for diphtheria tests in his office and from that he can make a smear to be examined with the microscope. In regard to giving antitoxin, he employs it only in those cases where the necessity is evident. He has seen urticaria and eczema follow its use, so in patients with asthmatic tendencies it is not free from objections. In the matter of examining the blood one need not be especially expert to roughly

determine the hemoglobin by the Tallquist test or the contour and relative size of the white blood cells or the presence of the leucocytes in excess by means of the Leishmann-Wright stain, which will answer also for the plasmodium of malaria. The author highly commends the text-book of Mallory and Wright. If electricity is installed in the community an *x*-ray outfit is a desideratum. Few are so separated from neighboring practitioners as not to be able to avail themselves of the neighbor's special knowledge or apparatus. The author relates a series of various cases illustrating the importance of being able to make a prompt and an accurate diagnosis of the exact condition present.

Practical Suggestions for the Life Insurance Examiner.—W. E. Porter dwells upon the advances made in the scientific work of life insurance examiners during the last few years, and attributes it largely to their mutual association for the common interests of their companies. Another advantage is the schooling which the larger companies give at their respective home offices to those physicians who are to serve them in the community at large. There are in this country some forty thousand examiners. Probably not more than two thousand of these have had any special insurance training. The author then takes up the questions of longevity, race, environment, occupation, morals, habits, use of tobacco and alcohol, family history, previous history, present condition, etc., all from the insurance examiner's point of view. Nothing new is presented, but the article is a valuable summary from the examiner's standpoint.

New York Medical Journal, September 25, 1909.

Prevention and Cure.—B. Robinson says that we fail to cure the majority of chronic cases of sickness. We simply render them more bearable and at times prevent the occurrence of certain untoward sequelæ. It is far better not to interfere too much either medically or surgically. Apart from a few specific drugs, the author is very strenuous in regard to the point mentioned. Medicines properly and very judiciously given are useful but not strictly curative agents. It is far better to endeavor to make people do what will prevent disease and render the question of operations unnecessary. We cannot as yet prevent the development of cancerous growths, but we can prevent the occurrence of appendicitis and pneumonia very frequently. The first is avoided by sensible dietary and the second by living constantly, as far as may be, in a pure atmosphere and especially by avoiding close, infected places when greatly fatigued in mind and body.

Case of Tetanus with Recovery Following Injection of Antitetanic Serum into the Sciatic Nerve.—The patient of C. M. Stinson was a male of 37 years, who developed tetanus and presented no history of traumatism. It was supposed that he had rheumatism and he was placed on a purge and salicylates. The later course of the case led to a suspicion of tetanus and close questioning revealed the fact that three weeks before he had stepped on a rusty nail, but he at once applied carbolic acid to the wound and thought no more about it. A small scar, entirely healed, was found, the former wound opened and pure carbolic immediately followed by alcohol applied. The salicylates were discontinued and 1,500 units of antitetanic serum applied, bromides and chloral being given internally. Later the dose of serum was increased and repeated. On the fourth day, as his condition seemed very hazardous, general anesthesia was given and an injection of 3,000 units was made directly into the exposed trunk of the sciatic nerve. On the eighth or ninth day a delirium developed, and as it was thought that this was due to the antitoxin its use was discontinued. On the tenth day a general roseola rash appeared, becoming brighter and lasting till the sixteenth day, when it began to disappear. In two days more it was entirely gone and was not followed by desquamation. From this time a gradual improvement ensued and the patient was discharged cured on the thirty-sixth day.

Perforating Ulcers of the Feet in Two Brothers, Caused by Productive and Obliterative Endarteritis.—The patients of W. E. Sanders were aged 48 and 46 years respectively. The older was a man of very low mentality, later becoming insane and confined in a hospital. He had frozen his feet as a boy, and at the age of 20 had his right great toe amputated at the metatarsophalangeal joint for a chronic ulcer on its plantar surface, which had resisted all treatment and led to necrosis of the bone. Healing occurred promptly, and he had no more trouble until in 1903 or 1904, when the same condition developed on the ball of the left great toe. Although the author instituted careful treatment early, the ulcer continued, necrosis of the bone of the terminal phalanx occurred, and he was obliged to amputate at the metatarsophalangeal joint. Primary union occurred except at a small point which opened down to the bone and resisted treatment for many weeks, but finally healed without necrosis of the bone developing. The stumps remained healed until about the first of May of this present year, when the left one opened again. The younger man was of unusual mental vigor. His trouble began when he was 17 with a blood blister on the ball of the great toe, which healed after three months, leaving a callus. The disease progressed with intermissions and exacerbations for a period of years, but amputation of the feet eventually became necessary. The entire duration of the disease was over thirty years, and during this whole time the general health was excellent. Unfortunately the feet removed were allowed to spoil and could not be examined. A toe taken from the older brother showed the following changes: The muscular tunic was of normal thickness and contour. The line of demarkation between the latter and the intima was well preserved. The intima in almost all of these was very greatly thickened, being in some specimens as thick as the muscularis. This thickening was of a hyperplastic character and in some cases even in these larger vessels almost completely obliterated the lumen. It was quite uniform and did not show the eccentric or new moon shaped character so commonly observed in the ordinary arteriosclerosis. The elastica interna was generally well preserved, showing that the hyperplasia was limited to the intima. Although in none of these larger vessels was the lumen completely obliterated, yet in many it was so compromised as to resemble very much the canalization so commonly observed in an obliterating thrombus. The veins did not appear to be affected. The sclerotic process seemed to be proportionately more marked in the smaller vessels, a number of which were completely occluded. In some places patulous and occluded vessels were in close proximity to each other. The adventitia and the vasi vasorum showed nothing abnormal. The author assumed the similarity of the changes in both patients, and emphasized the importance of carefully considering the vascular changes in all cases of perforating ulcers of the foot. In such nervous affections as tabes, syringiomyelia, peripheral neuritis, etc., there is no doubt of its etiology. The ulcers and trophic conditions observed in diabetes are almost always due to associated arteriosclerosis. The erythromelalgias which terminate in gangrene are most likely not neuritic entities, but rather, like intermittent claudication, due to endarteritis productiva (obliterans). Either of these conditions as well as acrosyncope or acrocyanosis immediately suggest the possibility of an underlying sclerotic condition of the vessels. It seems possible that simultaneous sphygmographic records of the pulse in the two extremities might show differences of amplitude and conduction time when only one foot is affected. The etiology of the author's cases is unknown. The vascular changes were not those of syphilitic arteritis or the ordinary senile type. Nothing was found to indicate a thromboangitis such as Buerger has described. It seems quite likely that there was a hereditary predisposition which became manifest in both cases in the period of adolescence when the growth functions were abating. Undoubtedly trauma is the important exciting factor. The results of amputation in his cases fully confirm the opinion of most authors that it should only be undertaken as a last resort.

Journal of the American Medical Association, September 25, 1909.

Rabies.—J. W. Kerr and A. M. Stimson review the data as to the prevalence of rabies in this country during the last ten years and the statistics as to its mortality. They have collected from various sources the facts for 1908, and present a map showing the reported deaths from this cause of human beings, and the outbreaks of the disease among animals. The data presented represent foci of infection actually determined, and not the number of cases among animals. The number of foci would doubtless be greatly increased, they say, if full reports from the various agricultural and veterinary institutions were at hand. Official figures were mainly used, and mere newspaper reports lacking official confirmation were excluded. The human mortality was 111, being largest in

New York, New Jersey, and Pennsylvania. In Arizona the disease was reported among skunks, and a single death of a human being from rabies reported from that territory was due to the bite of one of these animals. The most striking feature brought out by the inquiry is the very general distribution of the disease throughout the eastern portion of the country and its almost complete absence from the extreme western part. (Alaska is not shown to have been included in their inquiries.) A list of Pasteur Institutes is given and the opinion expressed that they have had a powerful influence in reducing the mortality, and since April, 1906, the United States Public Health and Marine-Hospital Service has been sending, by mail, virus to State health authorities on their request, and treating persons at a distance with satisfactory results. The authors also summarize the various State laws in regard to the prevention and treatment of the disease. They say: "To summarize briefly the results of this inquiry, there were 111 deaths in human beings from hydrophobia reported from 30 States during the year 1908. Rabies was reported in the lower animals from at least 462 localities in 39 States and Territories, including the District of Columbia. Evidence has also been secured of nearly 1,500 persons who, on account of exposure to rabies, or presumably rabid animals, were obliged to take the Pasteur treatment. The disease is disseminated throughout the eastern three-fourths of the country, and seems to have been unknown during the past year only in the Rocky Mountain and Pacific slope regions. The suppression of rabies in man is only another instance of the necessity of eliminating a like disease from among animals. This means the destruction of infected animals and the proper muzzling of all dogs in infected areas."

The Origin of Tabes.—J. J. Putnam says that, while the opinion that syphilis is the actual cause of tabes is now almost universally accepted, there still remains a certain percentage of cases for which definite proof of this etiology is lacking, and other causes are sometimes suggested. The most prominent of these is fatigue, not that which is felt, but in Edinger's sense, *i.e.* the physiological overstrain of certain portions of the nervous system carried to the point of damaging its power of nutritive repair. The questions, therefore, as to the part played by fatigue and whether or not syphilis is the sole cause are still debatable, and Putnam attempts to throw some light on them by contrasting the tabetic group of cases with another group, bearing clinically, and also as regards the location of lesions, a certain resemblance to tabes, and which, like tabes, owe their characteristics to certain toxic influences, yet which, when intimately studied, are seen to differ widely from tabes. The cases to which he refers are those presenting anatomically that form of degeneration of the nervous system which sometimes accompanies pernicious anemia, and which occur in conditions of nutritive debility not easily classifiable in one category. The nervous symptoms characteristic of these cases resemble those of tabes in affecting primarily and mainly the sensory or afferent functions of the nervous system and leading to well-marked incoordination and paresthesias, usually with loss or sometimes increase of the knee jerks. While he has seen nearly or quite a hundred instances of this disorder he has never yet encountered a single case of undoubted syphilis among them, thus differing widely from tabes and strengthening the evidence that syphilis in the latter disease cannot be merely a coincidence. The two disorders run true and maintain their special differences without overlapping or even approaching each other, and, in view of these considerations, he thinks that the argument for a special toxin or antitoxin as the essential cause of tabes, while not proved or asserted to be positive in every case, is nevertheless very strong, and deserves special recognition as a guide to treatment.

Hypophyseal Teratoma.—D'Orsay Hecht and Maximilian Herzog report a case of teratoma of the hypophysis, correctly diagnosed as regards neoplasm, but not localized, in an eleven-year-old girl. The tumor was not found at operation because of its deep location. Death followed the operation within six hours. The symptoms, which appeared first about a year before death, were disturbed vision, frontal headaches rapidly becoming more severe and diffuse, and later extending to the nape, but most acute back of the eyeballs and in the ears. Five weeks after the onset, vomiting with nausea appeared, and five weeks prior to admission to the hospital the right eye turned strongly inward and remained so. Sleep was disturbed, especially in the after part of the night, by headache, and nervous irritability was marked at times and induced by the slightest noises. Mentality was not impaired, and convulsive seizures were lacking. There was no weakness of the extremities, no general ataxia. During the last five months of her illness there was increasing aversion for food. Ear examination was negative, but there were bilateral choked discs. Only on the finer tests in a recumbent posture was there some loss of coordination in the legs. The autopsy revealed a tumor, more or less globular, with diameters, respectively, of about three-quarters of an inch vertically and about one inch fore and aft. It had corroded away the sella turcica on which it rested and was fused with and pressed on the optic commissure. It was hard, partly composed of bony tissue with complete bone structure. It was, therefore, of a mixed type, showing epithelial elements derived from the anterior portions of the pituitary body and osteoid tissue, probably derived from early embryonal occlusion. The original tumor parenchyma appeared to be formed by epithelial cells of the anterior portion of the pituitary body.

Radiography of the Mastoid Region.—S. Iglauer has employed radiography for diagnostic purposes in the mastoid region, and publishes brief notes of a number of cases thus examined, with remarks. His conclusions are stated in substance as follows: The most satisfactory Roentgen pictures can be obtained in profile, the rays centering just below the parietal eminence on one side of the skull and directed through the cranium toward the temporal bone on the opposite side, the internal anatomy of which can be thus determined prior to operation to the great assistance of the surgeon. Osteosclerosis of the mastoid secondary to chronic suppuration can usually be diagnosticated in this way, and it is likely the defects in the limits of the temporal bone will appear in the radiogram. Cases failing to heal after operation should be controlled by skiagraphy, as this may reveal the seat of the trouble. The value of the Roentgen examination in cases of acute mastoiditis remains to be determined. The article is illustrated.

Adenoids in Adults.—O. Orendorff says that we are liable to fail to recognize adenoids when they occur in a well-developed healthy adult, of age anywhere up to fifty. The following is the usual history: There was catarrh in childhood, with symptoms of nasal obstruction, perhaps following an attack of scarlet fever with prolonged recovery. During adolescence the symptoms gradually lessened, but left symptoms of chronic catarrh, of which the patient still complains. Inspection shows the usual highly arched palate with the "adenoid fringe" of its remnants, and the fauces or pharynx covered with a slimy, sticky mucus. The lingual papillæ are enlarged, and there are nodules on the posterior walls—"granular pharyngitis." In his experience, Orendorff says he has never failed to find this nodular condition high up on the posterior wall in patients over fifteen years of age. The tonsils are usually sclerotic, and the examining finger or mirror shows the disease to be more fibrous than in children, with less of the fishworm character, but invariably more voluminous than would at first appear. These patients are generally treated for catarrh and what may be called "office suggestion" until they get tired of it. In average practice there should be four or five well defined cases met with in a year. He reports and illustrates a typical case which had been overlooked by several good general physicians, and by at least one specialist of reputation. When recognized it was not relieved by the first operation, and for no other reason than that it seemed too simple to call for a careful technique. The next day the voice was still muffled and the mass in the nasal pharynx was apparently as large as before. Evidently the tumor was bifurcated and the anterior portion was pushed forward into the posterior nares at the first operation. A second operation was successful. Adenoids in adults are not common, as they usually disappear before maturity, but when they do not disappear their character changes from those of childhood. The patients are really sufferers, and there is no good in sprays, or local applications, or internal treatment. Results of complete operation are satisfactory and permanent.

The Lancet, September 18, 1909.

The Open Method of Treating Wounds After Skin Grafting for at Least the First Twenty-four Hours.—In a case in which G. W. Davis had occasion to graft over a granulating surface on the dorsum of the foot, seven small grafts from the opposite thigh were placed directly on the surface of the granulation tissue, and instead of the usual dressing of tinfoil, etc., no dressing of any kind was applied, but the foot and leg were protected by a wire gauze meat-cover, cleaned with methylated spirit and having an opening made to include the leg. The wound was prevented from becoming dry by dropping a saline solution upon its surface. The seven grafts took well, and

appeared to him to be more vigorous than usual. It would be quite easy for any of the leading instrument makers to make wire covers in various shapes suitable for any part of the body and bearing at their upper part a small, flat tank having a capacity of four fluid ounces and covered with asbestos to maintain the warmth of the fluid. A tube of flexible metal would enable the saline fluid contained in the tank to be directed on to the wound, and a tap would control the rate of flow. A layer of cellulose dressing backed by a piece of mackintosh would be amply sufficient to absorb the overflow. The temperature of the part in winter could easily be maintained by a little arrangement to that end.

Peau d'Orange in Acute Mammary Cancer; Its Cause and Diagnostic Value.—A. Leitch objects to the view advanced by Astley Cooper that the pitting and general "orange-skin" appearance in acute mammary cancer is caused by the contraction of the fibrous tissue in the tumor acting through the suspensory ligaments. It is rather caused by the same factors suggested by the identical appearance in the skin of the arm in the "brawny arm of breast cancer." The lymph stasis of the arm is due, not to the compression of the axillary veins, but to the blocking of the lymphatics of the permeating growth. The depressions of the surface giving the orange-skin appearance are the exaggerated pits of the hair follicles. The erector pilæ has its fibers separated like the rest of the corium. In a word, the thickening of the skin is due to changes in the corium. These changes are the result of lymphatic permeation and consequent lymph stasis. The corium is expanded and the overlying epithelium is raised above its normal level by the pressure, except at those places where it is bound down by the insertion of a hair follicle in the corium, where it is, as it were, moored. Taking into consideration the cause, already known, of pitting in the brawny arm and this same explanation already advanced for the similar condition in the breast, it seems reasonable to argue that when we get the condition it must be due to lymph stasis caused by the blocking in the lymphatics. There is no disease in the breast at all likely to produce this condition other than cancer. Thus, even in the absence of other signs, a diagnosis of acute mammary cancer from this alone would be practically certain. The author confirms his views by the result of microscopical examination of the affected skin.

The Temperature as a Guide to the Treatment and Prognosis of Phthisis.—S. V. Pearson emphasizes the necessity of a close study of symptoms in each individual case. This is notably true with regard to temperature. It is recognized (1) that with a miliary tuberculosis it is usual to find a type of temperature continuous or inverse; (2) with an acute caseating lesion a remittant or markedly intermittent type is found; (3) with a chronic fibroid lesion, constantly normal or subnormal is the rule, while (4) with a chronic fibrocaseous lesion either a normal, subnormal, or an elevated temperature is found, according to the state and stage of the disease. The author then passes to consider the method and time of taking temperature and the interpretation of the readings. There is, he says, no such a thing as a normal temperature, unless we take into account the natural daily curve, and in making daily comparisons estimate every attending circumstance, as exercise, diet, etc. He then takes up the peculiarities of temperature in women with reference to menstruation, touches on rare and ambiguous cases, discusses regulation of rest and exercise, and instability and lack of elasticity in temperature. In treating tuberculosis we should always remember the object we have in view. All cases cannot be arrested. We must take a chance with prolonged rest under suitable conditions. The rest must be very complete when the temperature is high and must be continued as long as there is the slightest trace of fever. The patient must be carefully taught how to avoid relapses.

British Medical Journal, September 18, 1909.

Oral Sepsis with Peculiar General Symptoms.—C. W. Smith and A. E. Barnes report the case of a man of 35 years who began to have symptoms which were supposed to be rheumatic as he had the usual arthritic evidences, followed by profuse sweating. A succession of attacks occurred so regularly as to make it necessary to exclude malaria, but he had never been in a malarious district, parasites were absent from the blood, and quinine systematically given did not avert the attacks. A heart murmur appeared during the latter, and naturally infective endocarditis was feared. The definite signs of organic cardiac disease did not appear, and blood cultures were negative. There was erythema combined with the joint symptoms, but the skin lesions were never purpuric, and there were never any visceral symptoms. So the existence of any of the erythemata allied to Henoch's purpura was excluded. When the authors had excluded all other infections they considered the condition of the teeth, some of which were carious and some artificial. It was subsequently learned that a few weeks before the patient's illness he had had his artificial dental plate readjusted and found it uncomfortably tight, but continued to wear it. The quartan occurrence of the attacks could not be accounted for. It suggested infection by some protozoan having a definite life cycle. The carious roots were extracted, but unfortunately not examined. The authors say that if oral sepsis was the cause of the symptoms in this case it becomes of great interest in view of the recent attempts to show that various rheumatic affections are really the result of oral sepsis, a view which they think has much to support it.

Apparently Acute Simple Febrile Erythema Associated with Subsequent Smallpox.—The patient of D. S. Davies was a girl of 16 years who began to have sore throat, fever, headache, and a profuse, soft, papular rash, scattered over the entire body, being most marked on the front and outer side of the upper arm. She was admitted to hospital for observation. Later the rash showed as a deep, dusky erythema, there being no development of the papules. The stomach and bowels were cleaned out and all acute symptoms subsided. The erythema faded away and was followed by a branny desquamation. At no time did even a single papule suggest the most modified or abortic form of the true variola papule. Some time later her brother, with whom she had been spending her convalescence, developed semi-confluent smallpox and recovered, and two days later her father came down with the hemorrhagic variety, from which he died. Later the girl was reexamined, and discoloration was found persisting over the spots where the erythema had been. The association of the three patients raises in the author's mind whether the febrile erythema may have been a manifestation of smallpox in the patient's system. The dull color of the immature papular rash, its failure to form a true papule, and the subsequent dull and persistent staining suggested what is almost a contradiction in terms—a benignant hemorrhagic attack. If this is possible, as it may be in the case of a singularly searching and virulent infection acting upon a highly resistant individual, the case is worthy of record.

Treatment of the Small Intestine in Operations for Intestinal Obstruction.—C. H. Whiteford says that in a patient almost *in extremis* the actual obstructive cause has to be neglected and an enterostomy, that is, the opening and draining of the first distended coil which presents through a small median abdominal incision, is all that is justifiable, and may give the patient a fighting chance. In a patient who can stand a general anesthetic the surgeon must (1) evacuate completely from the distended bowel the quarts of liquid which are poisoning the patient and are paralyzing and causing a succession of partial kinks in the intestinal walls, and (2) restore the potency of the intestinal tract by either removal of the obstruction or, if this is impossible, doing a short-circuiting operation. Details of the latter procedure are given. The following conclusions are emphasized: (1) Excluding those cases which are nearly moribund and in which an enterostomy is all that is justifiable, it is essential that the operation should, in addition to relieving the intestine, empty the small intestine of all poisonous contents, and (2) the most efficient and rapid method of emptying the small bowel is to adopt Moynihan's plan of threading them on a straight tube.

Münchener medizinische Wochenschrift, August 31 *and September* 7, 1909.

Experiments with Intraarterial Anesthesia.—W. A. v. Oppel has carried out a series of experiments in the intraarterial injection of cocaine in animals to find the toxicity of the drug. He found that the poisonous symptoms appeared in inverse proportion to the area of distribution of the vessel into which the drug was injected. An animal would stand twice the dose in the aorta that it would in a femoral. Injection into the carotids was no more dangerous than into a peripheral vessel of the same size. Tying off the carotid, however, so as to cause the drug to shunt through the vertebral arteries into the medulla caused a great increase of toxicity. Subcutaneous injections were two to three times less dangerous than intraarterial and fifteen to twenty times less than intravenous.

A Form of Skin Tuberculosis Among Coal Miners.—Fabry, as the result of twenty years' observation among

the coal miners of Westphalia, reports on the observation of 255 cases of a peculiar and characteristic skin disease which occurs on the back of the hands, fingers, and extensor surface of the forearms of the miners characterized by a warty growth, which microscopically resembles a tuberculide rather than a true tubercle, a small celled infiltration, usually without migratory cells. On the other hand the cases give positive reaction to old tuberculin and are liable to scrofula. The condition is a true occupation malady, due to the excoriation on the hands of the miners. The explanation of the mild character of the disease is that the finely divided coal dust in the wounds tends to weaken the virulence of the tuberculous virus.

Cyst Formation in Appendical Remains.—Stubenrauch points out the fact that occasionally following attacks of appendicitis, whereas the middle portion of the organ becomes gangrenous and sloughs, the tip remains intact, and if the blood supply remains secretions continue and the result is the formation of a cyst. He reports several such cases in which at operation this cyst closely resembled a lymph gland. Hydrops, empyema, or cyst formation could occur in the bit of tissue. In every case of recurrent appendicitis, especially when the appendix stump is short and bound down, such a cyst should be sought, and, if found, removed.

Serodiagnosis of Echinococcus Infection.—Kreuter says that whereas echinococcus cysts can as a rule be diagnosed by a puncture and examination of the contents, cases occur in the brain and in the abdomen where puncture is not possible. Recently an increase of the eosinophiles has been shown to be a valuable symptom of this infection. As, however, the eosinophilia also occurs with many other parasites, it is far from a sure diagnostic sign. The author has therefore investigated the hemolytic reactions of the blood in such cases in the hope of finding a specific complement binding reaction. As antigen he used the fresh fluid from echinococcus cysts, watery extracts of the dried cyst contents, and alcoholic extracts 1 to 20 of the cyst contents. For the amboceptor he used the serum of the patients and controls inactivated at 56° C. For complement fresh guinea pig serum in five per cent. solution was used. He reports the results of his investigations in the form of tables, and concludes that fresh hydatid fluid causes a complement binding in the serum of persons suffering from echinococcus disease; that an alcoholic extract of the dried contents of the cysts gives a similar reaction, but a watery solution does not, while normal serum does not prevent the hemolysis. The researches were confined to two cases, and the author says further investigations are needed to confirm the specificity of the reaction.

Histological Researches of Hypertrophied and Insufficient Heart Muscle.—Lissauer has carried out a histological investigation into the relation between hypertrophy and weakness of the heart muscle. The most noticeable things were the changes in the nuclei of the heart muscles. These were of three kinds, (1) the ridged or lamellar nucleus in which concomitant ridging and flattening occur. The ends of the nucleus are not rounded, but appear to be cut or broken off; (2) the swollen nucleus with decrease in the chromatin; and (3) a nucleus with abnormal lengthening and thickening of the chromatin. Fragmentation has never been proven to be the cause of weakness in the hypertrophied heart. Longitudinal segmentation was observed in a few cases. Vacuolization was also seen in a considerable number of the cases. Fatty degeneration occurred with especial frequency but to only a mild grade. Deposits of round cells were especially rare, while increase in connective tissue was very frequently found. These are probably the result of anemic necrosis. Besides the isolated islands of scar tissue increase in interstitial connective tissue was found probably dependent upon congestion. The author considers all the above pathological changes to be the result, not the cause, of the cardiac weakness.

Further Studies of Scarlet Red and Its Components on Granulations.—Hayward discusses the use of scarlet red ointments in the treatment of open wounds. He then describes his efforts to find the active principle of the scarlet red. Scarlet red is a compound consisting of one molecule each of β-naphthol and amidoazotoluol. An 8 per cent. ointment of amidoazotoluol was placed on the wounds for twenty-four hours and then followed for from one to two days by an indifferent ointment, as vaseline. The results were quite as good as with scarlet red, old wounds granulating rapidly. The amidoazotoluol is a reddish brown powder with a melting point of 100° C. It is insoluble in water, easily soluble in alcohol and ether.

Agglutination for Typhoid in Infection with Gärtner's Bacillus.—Rimpau studied a series of 97 patients poisoned by eating meat infected with *B. enteriditis Gärtneri*, and found that the serum of these patients agglutinated the typhoid bacillus, and *vice versa* the serum of typhoid patients agglutinated the Gärtner bacillus, though that of partyphoid cases did not. This fact is of importance, as the illness from the Gärtner infection is of short duration, but, beginning with acute abdominal symptoms, may easily be mistaken for typhoid fever.

Epidemic of Gonorrhea Among School Children in a Salt Bath.—Bendig reports an epidemic of gonorrheal vaginitis occurring among a crowd of school children sent off to a "saltbath" in the summer. The children bathed two at a time, and those two used a common bath towel. One little girl was infected with the gonococcus, and as by the method of pairing the children for the bath the mates changed each day, the infection spread rapidly to fourteen of the forty children. Permanganate irrigations and organic silver instillation were used in treatment. The author advises as prophylaxis careful supervision of the children and examination at least once a week by a physician of each child during its visit, and on admission not later than the second day. To prevent the spread of contagious diseases the children should also be examined on the day of departure. Each child should bring its own towel, bearing the child's number. These should not be used by any but the owner. More than two children should not be bathed in the same water. During the dressing the overseer should investigate for signs of contagious disease, and if anything suspicious is seen it should be referred at once to the house physician. Each child must have its own bed and use it exclusively. The bedding should be examined carefully daily for signs of disease. The overseer must see that the children do not get into bed together. Contagious diseases must be reported immediately to the house physician.

Deutsche medizinische Wochenschrift, September 2, 1909.

Sources of Error in the Turpentine-Guaiac and Aloin Tests for Blood.—Adolf Ohly discusses these methods of testing for blood in the stools, and lays stress on the following points: The turpentine oil must always be old and well ozonized. This is obtained by allowing the bottle to stand open to the air in direct sunlight. The reaction depends upon a catalytic action on the blood derivatives, which occurs in the presence of ozonized turpentine or peroxide. The ozone acts as a catalyzer and is not changed by the reaction. It is of especial importance that in the shaking of the stool emulsion the test tube be well stoppered with cotton, so that the finger shall not come in contact with the material, as the amidoacids in the sweat may give a positive reaction with the guaiac test. The alcoholic solution of guaiac and aloin must be completely dissolved before it is used. The specimen of stool must be very thoroughly rubbed up with water and glacial acetic acid in order that the smallest particles may be reached by the acid. In using the test one must be careful to rule out hemorrhoids and also a diet containing flesh or blood, as a small particle of undigested meat may give the reaction.

Tuberculin Antibodies During Specific Treatment.—Pickert says as the result of a series of experiments that the tuberculin neutralizing material previously described by himself and Lowenstein as occurring in the course of the specific treatment of tuberculous patients with tuberculin is a tuberculin antibody in the narrowest sense of the word. After the injection of a large dose of tuberculin they observed the same regular phases in the antibody content of the serum as occurs in other immunizing processes, as diphtheria or tetanus. There is unquestionably a definite parallelism between a spontaneous high tuberculin antibody content and a favorable course of the tuberculosis. From this it results that dependance upon the antibody curve is a necessary therapeutic procedure in order that, at least when large doses are being injected, the antibody content of the serum be kept at a level most favorable for the organism.

Physiological Osteoid in the Fetus and New Born.—Wieland concludes from a series of investigations that the youngest uncalcified bone deposits which Pommer first described as occurring in varying places in infants, children, and adults are present constantly in increased amount in the bones of the new born, and the earlier in fetal life the greater their extent. In contradistinction to the variations in the distribution of these deposits, their thickness is fairly constant, and rarely exceeds 8 to 12 microns.

Book Reviews.

Suture of Arteries. An Experimental Research. By E. Archibald Smith, M.B., Ch.B., Victoria University. F.R.C.S., England. London: Henry Frowd, Hodder & Stoughton, 1909.

This small volume begins with a history of the suture of wounds in arteries, giving a list of published cases in human surgery. The development of the method of end-to-end anastomoses is presented, after which the author describes his own method. He agrees with others that the endothelial surfaces should be brought together, and he accomplishes it by means of the "U" or mattress suture, which is modified into a figure-of-eight suture by means of a short piece of catgut; this is passed through the loops of the mattress suture on each side of the wound, thus creating the maximal endothelial contact with the minimal amount of thread inside the lumen. The best part of the author's work is a histological study of the healing process in the vessel walls. The sections from the experiments are described according to the length of time healing was allowed to go on, the first specimen being examined histologically two and a half days after suture, while the last one was prepared fifteen weeks after operation. He concludes that a *restitutio ad integrum* of the vessel wall may occur.

Klinik und Atlas der chronischen Krankheiten des Zentralnervensystems. Von Professor Dr. August Knoblauch, Direktor des städt. Siechenhauses zu Frankfurt a. M. Mit 350 zum Teil mehrfarbigen Textfiguren. Berlin: Verlag von Julius Springer, 1909.

This is a quarto publication of 608 pages and 350 illustrations, many of the latter in color. The general appearance of the book is attractive, and a careful study of the text and illustrations shows excellence in both. The illustrations are placed for the most part in the text, which also contains in detail the explanations. In such a difficult department of medicine as neurology, a suitable atlas provides us with a short cut, as it were, to an accurate understanding of the subject and is second only in usefulness to actual demonstrations by specimens and patients. In this instance, we have a series of clinical lectures on patients affected by the various types of chronic organic nervous disease drawn from the author's twelve years' observation at the Municipal Infirmary at Frankfurt-on-the-Main. There is no attempt to produce a text-book, apparently; but, accompanying the descriptions of cases, we find their photographs, various explanatory drawings, and such charts and classical pictures and microphotographs, etc., as a clinical lecturer might employ to illustrate his lecture before a class of advanced students. The only so-called functional nervous diseases included in the book are epilepsy (now usually classed as an organic disease) and hysteria. Treatment is not touched upon. The author makes special acknowledgment in his preface to Brissand, Edinger, Erb, Hermann, von Monokow, Retzius, and others, for plates, etc., taken from their more recent works; and a full list of authorities quoted or furnishing plates is given at the end of the book. In the latter we do not find any American names. The author employs German names in his original drawings and figures, instead of the customary, and, we think, preferable method of using the universal Latin terms. We were especially interested in the articles on alterations of the pupil in various nervous diseases and the illustrations pertaining thereto. As to the utilization of various up-to-date accessory methods and phenomena in diagnosis, the author is ultraconservative.

Myomata of the Uterus. By Howard Kelly, Professor of Gynecology in the Johns Hopkins University; Gynecologist-in-chief to the Johns Hopkins Hospital; and Thomas S. Cullen, Associate Professor of Gynecology, Johns Hopkins University; Associate Gynecologist to the Johns Hopkins Hospital. Illustrated by August Horn and Hermann Becker. Philadelphia and London: W. B. Saunders Company, 1909.

This valuable work is the result of over ten years of study of the material seen at the Johns Hopkins Hospital. One thousand six hundred and seventy-four cases of uterine myomata have been examined and treated by the authors. The history of each patient was carefully scanned for special points of interest, complete descriptions of the gross and histological appearances of the tumors were made, accurate and detailed illustrations, the work of Horn and Becker, were drawn in the majority of instances. Finally, the results of these researches were used to classify the interesting features of the cases which were gathered under thirty-five different headings that form the titles of as many chapters in the book. It is barely possible to note the main points of interest, brought out by the authors, within the limits of this review. In the chapter on parasitic uterine myomata the endless variety in size, attachment, and blood supply of these tumors is strikingly shown by records and illustrations of actual cases. Hyaline and cystic degenerations and calcification of myomata are considered, the latter of these changes being traced to lack of blood supply and the action of toxic substances formed in the myomatous tissues; the urgent necessity of operating in cases of suppurating myomata is thoroughly accentuated. Of great interest is the study of malignant changes in these benign uterine tumors. About six per cent. of the cases showed adenomyomatous changes at the time of operation; in over one per cent. sarcomatous changes were present, the actual ratio probably being much higher, the difficulty of finding a beginning change of this sort in a large specimen being self-evident. In two per cent of the patients adenocarcinoma was found in association with the benign tumors. The effects upon other organs is treated at length, the tubes, ovaries, kidneys, ureters, bladder, and intestine being described and pictured from a great number of cases. The influence of race is shown by the interesting fact gleaned from the study of a thousand autopsies that the uteri of thirty-three per cent of colored women contained myomatous nodules, while only ten per cent. of white women were so affected. In addition to the pathological studies sufficient attention is paid to the clinical side, the symptomatology and the differential diagnosis being fully considered. Operative technique is discussed, the vast experience of the authors who have succeeded in bringing down their operative mortality to less than one per cent. being a guarantee of the practical usefulness of this discussion. The book is provided with a complete index, containing abundant cross references.

Hydrotherapy, a Brief Summary of the Practical Value of Water in Disease, for Students and Practicians of Medicine. By William H. Dieffenbach, M.D., United States Delegate and Vice-President of the First International Congress on Radiology and Ionization at Liege, Belgium; former Professor of Bacteriology, New York Medical College and Hospital for Women; Professor of Hydrotherapy, New York Homeopathic Medical College and Flower Hospital; Physical Therapeutist to Volunteer St. Gregory's Hospital; Electro-Therapeutist to Flower and Hahnemann Hospitals; member of the National Society of Physical Therapeutics, American Electro-Therapeutic Society, New York Physico-Therapeutic Society, American Roentgen Ray Society, American Institute of Homeopathy, Academy of Pathological Science, etc. New York: Rebman Company, 1909.

This volume contains the author's yearly lectures on the subject of hydrotherapy, and is a valuable addition to the literature of this important branch of therapeutics. The first part of the work contains chapters on chemical and physical properties of water, physiological effects of water, principles of cure involved in hydrothermotherapy, the technique and indications of the principal hydrotherapeutic procedures, the half bath, the full bath, the sitz bath, the foot bath, the hand bath, douches, affusions, ablutions, packs, compresses, bandages, foments, ice bags, ice compresses, coils and tubes, Turkish and Russian baths, etc. The remainder of the book is taken up with the practical applications of hydrotherapy to the various diseases. The first part of the work is of considerable value, and the illustrations are artistic and serviceable. The author gives the results of his own experience; and he also gives due credit to other workers in this branch of therapeutics.

Human Physiology. An Elementary Text-Book of Anatomy, Physiology, and Hygiene. By John W. Ritchie, Professor of Biology, College of William and Mary, Virginia. Illustrated by Mary H. Wellman, Yonkers-on-Hudson. New York: World Book Company, 1909.

This is one of the most satisfactory school books on this subject which we have seen. The text is well balanced, containing sufficient anatomy to make clear the broad outlines of the structure of the human body, and enough physiology to make plain the great laws according to which the body lives. The sections on hygiene are particularly well done, and the parts dealing with alcohol and tobacco are replete with scientific facts, instead of being a mixture of sentiment and ignorance, as is too often the case. There are numerous illustrations, and the type and size of the book are all that can be desired. Both teachers and pupils will find this book one of unusual interest, as it most certainly is one of unusual merit.

Society Reports.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION.

Twelfth Annual Meeting, Held at Atlantic City, N. J., June 7 and 8, 1909.

(Special Report to the MEDICAL RECORD.)

Monday, June 7—First Day.

THE PRESIDENT, DR. JULIUS FRIEDENWALD OF BALTIMORE, IN THE CHAIR.

President's Address: The Development of Gastro-Enterology in America.—DR. JULIUS FRIEDENWALD of Baltimore, in his opening address, traced the development of gastroenterology in America, and reviewed its most important achievements from the beginning of the nineteenth century to the present day. (See page ??.)

Catheterization of the Pylorus and Duodenum.—By Dr. MAX EINHORN of New York. (See page ??.)

On Duodenal Ulcer and Its Treatment.—Dr. MAX EINHORN of New York said that formerly duodenal ulcer was looked upon as a rare disease, which could scarcely be recognized during life. When chronic ulcers of the stomach began to be treated surgically, duodenal ulcers were often met with at the operation, and it was shown that in many cases in which the ulcer was believed to be in the stomach it was found in the duodenum. Until recently, a positive diagnosis of duodenal ulcer could be made only on the operating or post-mortem table, as the clinical symptoms were not sufficiently marked to indicate the condition with certainty. Since using the thread test, Dr. Einhorn said, he believed that the diagnosis of duodenal ulcer could be made clinically with some certainty. The author then reported in detail six cases of duodenal ulcer in which the diagnosis was made by this test. In four, the symptoms pointed to duodenal ulcer with some probability; in two, however, they were in no way characteristic. In all of the six cases a marked hyperchlohydria was present; in two there was slight continuous hypersecretion of gastric juice. Slight peristaltic restlessness of the stomach was found in only one case. Pain was generally present two or three hours after meals, and was alleviated by the ingestion of food. Moynihan called this symptom hunger pain. In nearly all the cases, periods of suffering alternated with periods of perfect euphoria. Hematemesis or melena was found in two of the cases. Constipation was usually present, but a tendency to diarrhea was found in two. Pain on pressure was absent in nearly all of the cases. The symptoms above enumerated (excepting hemorrhages) were all caused by hyperchlorhydria, and frequently occurred without the presence of duodenal ulcer. If, however, in association with the above symptoms, hemorrhages in the digestive tract occurred, the diagnosis of duodenal ulcer was justified. Gastric ulcers generally acted differently, giving rise to pain immediately after meals, to pressure pains in the epigastrium, etc. The diagnosis became more positive if the thread test showed a distinct blood spot at a distance of 58-60 cm. from the teeth. Discussing the treatment of duodenal ulcers, Dr. Einhorn said it should first be medical. In the mild cases it should be limited to a regulation of the diet and an improvement of the general condition of the patient, together with cold sponging, the avoidance of bodily exercise, and the use of alkalies. In several cases olive oil seemed to be of service. In graver cases, with hemorrhage, severe pain, etc., a strict ulcer cure, with rest in bed and rectal alimentation, followed by a fluid diet, must be instituted. In these cases, large doses of magnesia and bismuth were of benefit. If a strict rest cure proved unsuccessful, or if we had to deal with severe hemorrhages, endangering life, or if obstinate spasm of the pylorus occurred associated with severe pains in the pyloric region and slight peristaltic restlessness of the stomach, an operation (usually gastroenterostomy) was indicated. In these cases the operation, fortunately, was usually attended with good results. The ulcer soon healed, as the gastric juice no longer flowed over the ulcerated surface in the duodenum to irritate it, and at all events the dangers of hemorrhage, perforation, and pyloric stenosis were thereby prevented. In duodenal ulcer the clinician must advise surgical treatment sooner than in gastric ulcer, as the former, through its complications—hemorrhages, perforation, and stenosis of the pylorus—endangered life much more readily than the latter.

The Relation of the Islands of Langerhans to Glycosuria.—Dr. W. G. MACCALLUM of Baltimore said it had for some time been a disputed question as to whether the islands of Langerhans alone or the whole tissue of the pancreas were to be looked upon as controlling carbohydrate metabolism, and in order to determine this, if possible, the following experiment was carried out: A portion of the pancreas of a dog was separated from the rest, and its duct ligated. Under such circumstances, the ligated portion underwent atrophy, presumably only the islands of Langerhans escaping the injurious effects of the ligation. Six months later this part of the pancreas was found to be scarcely visible in the mesentery, and at that operation all of the intact portion was removed. The dog then had no secreting pancreas, and was limited to the small fragment presumably containing only islands of Langerhans, and remote from the intestine. After temporary glycosuria and steatorrhea, the dog became able to assimilate fats and carbohydrates nearly as well as a normal dog. The small remnant was then removed, and there immediately resulted an intense glycosuria On section, this remnant was found to consist of distorted tissue, apparently identical with the tissue of the islands of Langerhans, although the masses were increased in bulk beyond that seen in the normal pancreas. The experiment was of interest chiefly in that it seemed more exact than those in which, after ligation of the main duct of the pancreas, there was no glycosuria.

Physiological Aspects of Gastroenterostomy.—Dr. W. B. CANNON of Boston said that the purpose of performing gastroenterostomy was to render the emptying of the stomach into the small intestine possible if the pylorus was closed, or more rapid if there was delay in the passage of food from the stomach. In either case it was assumed that there was a change in the course which the food took in passing from the stomach into the bowel. Two questions of physiological interest might arise with regard to the effect of an artificial opening between the stomach and the small intestine. Under what conditions did this new opening induce an alteration in the course of the food? If the normal course of the food was changed, what were the results of that change? The only power which could carry food forward from one part of the alimentary canal to another was that greater pressure existed behind the food than existed in front, and this pressure was ordinarily exerted by the peristaltic wave. The result that followed from the greater fluidity of the food near the pylorus and the greater pressure upon the food at that point was that the chyme took its normal passage through the pylorus, if the pylorus was patent, rather than through an artificial opening. This fact was first determined by Kelling, who performed gastroenterostomy by all the methods known to surgery. He observed that nothing left the stomach by the new opening; all food, whether solid or liquid, emerged by way of the pylorus, as could be determined through the duodenal fistula. This observation was confirmed in *x*-ray studies by the author and by Blake, and likewise supported by Maury, who traced the course of the food by means of strings attached

to little bags containing lead shot. On the basis of these observations Moynihan concluded that gastroenterostomy was most effective only when gross mechanical obstruction existed, and that under no circumstances should it be done in the absence of demonstrable organic disease. If gastroenterostomy was performed when the pylorus was entirely obliterated, the new opening presented the only outlet from the stomach, and under those circumstances the mechanism operating normally in the duodenum might become to some extent impaired. The effect of acid chyme in causing a flow of pancreatic juice and bile was now a well-known physiological fact. With the pylorus closed and the stomach as the only exit, one might suppose that the admixture of the chyme with the pancreatic juice and bile would be largely abolished, but that need not necessarily be the case, and it was altogether probable that a certain amount of pancreatic juice and bile was carried into the jejunum and ileum, and there mixed with the food.

The Immediate Results and Surgical Complications of Gastroenterostomy.—Dr. Fred T. Murphy of Boston discussed this phase of the subject. He said that as the one definite indication for gastroenterostomy we had some obstruction to the passage of food from the stomach to the small intestine. As a possible indication for gastroenterostomy we had the effect of the operation upon the gastric secretion. Analysis of the stomach secretions after gastroenterostomy showed that the acidity was diminished, either by neutralization from the alkaline secretion of the duodenum, or by some reflex carried by the blood stream. The keynote of recent symposiums on the surgery of the stomach had been to operate only when some actual lesion of the stomach or duodenum could be demonstrated. Gastroenterostomy for undemonstrable lesion of the stomach or duodenum had been a failure. In perforation of the stomach or duodenum, gastroenterostomy, a few years ago, was a universal procedure; it was now advised only when the closure of the ulcer might cause obstruction. The operation upon the ulcer itself, either by infolding or excision, was the essential feature. Gastroenterostomy, in its development, had seen many phases, and as the universally adopted operation we now had the no-loop posterior gastroenterostomy, done with suture and with clamps. The anterior operation remained only as one of necessity. The innumerable mechanical devices which had been brought forward to meet the supposed technical difficulties were now used as routine only by their enthusiastic originators or by surgeons of little experience. In speaking of the possible complications of gastroenterostomy, Dr. Murphy mentioned infection, vicious circle, hemorrhage, peptic perforation, pneumonia, obstruction due to adhesions or to infolding of the mucous membrane, contraction of the anastomosis and hernia through the slit in the mesentery of the transverse colon. They were for the most part but ghosts of the past. Peptic perforation remained as a very rare but apparently unpreventable complication. The vomiting of the so-called vicious circle, once a very distressing and frequent complication, might be considered as an evidence of some obstruction to the passage of the stomach contents into the jejunum. With only partial obstruction the case could be relieved, as a rule, by stomach lavage.

The Clinical Results of Gastroenterostomy.—Dr. H. W. Bettmann of Cincinnati and Dr. F. W. White of Boston, in a joint paper, discussed this phase of the subject. (See page 598.)

The Results of Operations for Malignant Diseases of the Stomach.—Dr. J. M. T. Finney of Baltimore read a paper on this subject, in which he emphasized the following points for consideration: 1. The importance of the earlier recognition of cancer of the stomach by medical men. 2. The importance of turning them over to the surgeon soon after recognition. 3. No medical nor serum treatment should be depended on; surgery was the only hope. 4. Surgery, to be effective at all, must be applied at the earliest possible moment. 5. Our most fruitful effort lay along the line of the prevention of cancer rather than cure.

Dr. Joseph C. Bloodgood of Baltimore said it seemed to him that gastroenterostomy, with our present technique, was an operation that could do no harm. While those who had studied the subject from a purely physiological standpoint might not agree with him, he thought that all surgeons, even those whose experience in surgery of the stomach was somewhat limited, felt that a properly performed posterior gastroenterostomy, with a short loop, had no complications.

Dr. Max Einhorn of New York said he agreed with those who would limit this operation to those conditions where there were strong indications for such a procedure, principally obstruction of the pylorus. With regard to cancer, he also agreed that the earlier we could make the diagnosis and the earlier the operation the better. That view, he ventured to say, was held by almost all physicians, but one practical difficulty we had to contend with was that the diagnosis was not easy and could not, as a rule, be made very early—even for two or three months after the onset of the disease—because the symptoms of early cancer of the stomach were frequently very obscure.

Dr. C. G. Stockton of Buffalo said he wished to enter a mild protest against the position taken by one of the speakers as to the innocuousness of gastroenterostomy. He would exclude from this category those cases in which it was undertaken for the relief of mechanical obstruction. He agreed with Dr. Einhorn in regard to the comparative infrequency of cancer of the stomach following upon previous ulcer.

Dr. Franklin W. White of Boston said that in the paper which had been prepared by Dr. Bettmann and himself the figures, which dated back seven years, represented largely the posterior operation. This operation, with the Finney operation, included all but 8 per cent. of the total number. In a general way, therefore, these statistics represented the modern type of operation. As to the duration of the symptoms, almost the entire number of these patients were chronic cases. In only four of them was the illness four months or less in duration, and in the bulk the history dated back from two to fifteen years. They were cases that were not likely to change much without operation. In 93 per cent. the indications for operation were clear, pointing to pyloric obstruction, chronic ulcer, or cancer. In only 7 per cent. was the operation done for symptoms alone, without any lesion being found at operation. The immediate mortality was 10 per cent. In part, at least, this high mortality must be due to the fact that quite a number of the cases, certainly in the East, were hospital patients, people in poor circumstances and in poor condition at the time of operation. The worst results were reported in the class of neurotic cases in which no lesion whatever was found; only 40 per cent. of these improved, and it was a question whether the improvement was due to the operation. This was the type of case which the surgeon would probably let alone in the future.

Dr. Arpad G. Gerster of New York City said the high mortality after gastroenterostomy which had been shown in these statistics did not necessarily depend upon the operation itself. There were extraneous fac-

tors that influenced the final result, and one of extreme importance was the dietary treatment of these patients after operation. If the surgeon who performed the operation did not supervise the diet of his patient for ten days or a fortnight afterwards, he would be very apt to see disturbances occur that would lead to hemorrhage and other complications. The very early application of the stomach tube after gastroenterostomy or other plastic operation was sometimes extremely beneficial to the patient, in spite of the contrary view generally prevailing among medical men. In many instances leakage and hemorrhage following operation were the result of permitting large quantities of slime and blood and liquid to collect in the stomach.

Dr. S. J. Meltzer of New York City, discussing the newer methods for the earlier recognition of cancer, referred to that devised by Dr. Charles A. Elsberg of New York, which consisted essentially of injecting washed human blood corpuscles subcutaneously into a patient who was supposed to have cancer. Within six hours a characteristic local reaction occurred. The underlying idea was that the serum of the cancer patient hemolyzed the red blood cells of the normal human being.

Dr. Henry L. Elsner of Syracuse, speaking of cancer of the stomach, said that these patients, unfortunately, did not, as a rule, present themselves early to the physician; hence, they did not come early enough to the surgeon. This was the case with Mikulicz himself—a man who had given his life's energy to this very subject. He had cancer of the stomach, and when he presented himself for operation the condition was so far advanced that it was impossible to relieve him. If a man, after 50, who had never before had any symptoms referable to the stomach began to complain of digestive troubles, one should be suspicious of carcinoma. The speaker said that in his clinical work he had not met with many cases of ulcer of the stomach that were followed subsequently by the development of carcinoma.

Dr. William J. Mayo of Rochester, Minn., said that surgeons started out with the idea that chronic indurated ulcer of the stomach was surgically curable, and the question naturally arose, why should ulcer patients wait so many years to develop obstructive lesions? Why could we not relieve them surgically at an earlier period? Clinical observation, notoriously unreliable, was responsible for the commonly accepted views concerning ulcer. These were: (1) That the ulcer was in the stomach in 90 per cent. of cases; (2) that it was a disease of women; (3) that ulcer did not necessarily show on the peritoneal surface of the organ involved, and therefore the fact that the site of the ulcer could not be located did not eradicate the theory that it was present. Based on this unreliable information, surgeons began to operate on women who had clinical symptoms which were thought were due to ulcer, and who had the text-book symptomatology. Naturally, a number of patients were operated on unnecessarily.

Dr. John A. Lichty of Pittsburg said he had had some thirty gastroenterostomies without a single death, so that the immediate mortality of 10 per cent. given by Drs. Bettmann and White after the operation for benign conditions did not refer to his cases. In one of his malignant cases the patient died of cerebral embolism within four weeks after the operation. He believed that the fault of the high mortality figures quoted by some of the speakers rested with the surgeons. Only competent men should be selected to do these operations. Referring to the lateness of the development of cancer in some instances, Dr. Lichty said that one of his cases died four and another five years after gastroenterostomy. In both of these there was malignant disease, and in both of them, at the time of operation, they were fairly certain that they were dealing with malignant disease, but the condition of the patient did not warrant them in taking the chances of doing a resection of the pylorus.

Dr. A. J. Ochsner of Chicago said we should look upon the entire apparatus as a digestive machine, and try to get it back into its normal condition, if possible, without operation. If that could not be done, then we should overcome the obstruction and the causes of the irritation by gastroenterostomy. The opening should always be made at the lowest point, and should be sufficiently large. By doing this we had a machine less perfect than the original, but better than it was in its impaired condition.

Mr. W. Arbuthnot Lane of London, Eng., said the location of the ulcer of the stomach or duodenum was usually at the points of greatest strain, namely, on either side of the acquired attachment of the pylorus and first section of the duodenum, and between that attachment and that of the esophagus. The associated autointoxication resulting from intestinal stasis in all probability rendered the mucous membrane more liable to undergo ulceration. The difference in the form of the abdomen in the two sexes, and the probable consequent variation in the character of the acquired fixation of the pylorus, were responsible for the varying frequency of the locality of the ulceration in the male and the female.

Dr. John P. Sawyer of Cleveland said we should recognize the value of gastroenterostomy when the indications for it arose. He tried to induce his patients to have it done early, and it ought to be done safely. As to the question of cancer of the stomach and the "precancerous" stage, the speaker said he had seen several cases where the cancer was indubitably grown on the base of an ulcer, but he had seen a great many more which did not appear to have any relation to previous ulcer. It was not to the point, however, whether this or that particular case developed from an ulcer or not. The fact remained that a considerable number of cases of ulcer of the stomach did develop into cancerous growths, and this emphasized the importance of thoroughly treating every case of ulcer in order to prevent, if possible, the development of cancer at a subsequent period.

The discussion was continued by Dr. Ludwig Kast of New York and was then closed by the readers of the papers, Drs. Cannon, Murphy, Bettmann, and Finney.

Tuesday, June 8—Second Day.

Gastric Symptoms and Gallstone Disease.—Dr. Harry Adler of Baltimore read this paper. (See page 599.)

Dr. H. W. Bettmann of Cincinnati said it was hard for him to see any connection between bile absorption and ordinary attacks of pain originating in the gall-bladder. He did not see why there should be any absorption under those conditions, and even if there was absorption of bile it did not necessarily point to gall-bladder trouble. In regard to the difficulty Dr. Adler mentioned in studying the relationship of gastric symptoms to obscure or undiscoverable gall-bladder disease, the speaker said he believed that as we became more experienced we would take it as a pretty good guiding principle that when the stomach analysis and examination did not reveal gastric conditions which accounted for the symptoms of the patient we should look outside of the stomach for the seat of the disease.

Dr. JOHN A. LICHTY of Pittsburg, referring to the bile test spoken of by Dr. Adler, said the presence of bile in the urine might not necessarily be indicative of gall-bladder trouble. We could only say that the presence of bile in the urine was significant of something, and it was for us to learn its true meaning and search for the source of the trouble.

Dr. D. D. ROBERTS of Brooklyn said he thought the time was coming when gastroenterology would be on a far better basis through giving up a great many of our ideas regarding functional disturbances of the stomach. His experience had led him to believe that many of these so-called functional disturbances had a deeper underlying cause if we could but find it. This might lie in the gall-bladder or in the appendix, or in an ulcer of the stomach or duodenum, or perhaps the lesion was in the large intestine.

Dr. JOHN P. SAWYER of Cleveland, discussing the Rosin test, said he had for many years resorted to it as a routine measure, and with it he had found bile in the urine in such a surprisingly large proportion of cases that he could not believe it indicated the presence of gallstones in every instance. He had frequently found it in patients who had no symptoms or suggestion of gallstone disease. He believed it had some significance, and when found it should lead us to question the patient carefully for symptoms of cholelithiasis, but he had also found it in cases of catarrhal gastritis, pure and simple, which cleared up under treatment.

The discussion was closed by Dr. Adler.

Foreign Body Associated with Carcinoma of the Pylorus.—Dr. I. HARRIS LEVY of Syracuse showed this specimen, which had been found at operation. It consisted of a large mass of vegetable fiber, which had either taken root and grown in the stomach, or else it was some vegetable that the patient had eaten at some previous time and which, owing to the obstruction, had been forced back against the fundus. The speaker said he was inclined to the latter explanation.

Demonstration of a Corset for Visceroptosis.—By Dr. CHARLES D. AARON of Detroit.

AMERICAN DERMATOLOGICAL ASSOCIATION.

Thirty-third Annual Meeting, Held at Philadelphia, Pa., June 3, 4 and 5, 1909.

(Special Report to the MEDICAL RECORD.)

THE PRESIDENT, DR. THOMAS CASPAR GILCRIST OF BALTIMORE, IN THE CHAIR.

First Day—Thursday, June 3.

President's Address.—Dr. T. CASPAR GILCRIST of Baltimore, in his opening address, referred briefly to some of the more recent advances in dermatology. He mentioned first the striking advance which had been made in the etiology of syphilis in the serum deviation test of Wassermann and Noguchi, and in the dark-field illumination for the detection of the spirochæta pallida. Since Schaudinn's discovery of its origin, only about three years ago, confirmatory evidence had accumulated to such an extent that the spirochæta pallida was now accepted by practically all authorities as the cause of syphilis. Neisser's wonderful work on the investigation of syphilis in apes ranked with Schaudinn's discovery. The speaker also referred to the value of the von Pirquet test in cutaneous tuberculosis, especially in children, which had proven to be reliable and had received confirmation from a number of sources. He regarded the use of the acne vaccine as a valuable addition in our treatment of acne vulgaris, and stated that the etiological relationship between the *Bacillus acnes* and acne vulgaris was now being confirmed by various investigators. The fact that the bacillus was usually present in large numbers in the skin did not weaken its causal relationship to acne; like the tubercle bacillus and many other microorganisms which were normally present in the human body, the *Staphylococcus albus* was normally present in the skin and only became pathognomonic when the occasion arose. In closing his remarks Dr. Gilcrist said that the epidemic of pellagra in some of the Southern States should receive more attention from the dermatologists in that section of the country, as it offered such a good field for investigation into the etiology of the disease.

A Tumor of the Hypophysis (Pituitary Body) Associated with Adipositas Cerebralis.—By Dr. GEORGE PERNET of London, Eng.

The Psychological Aspect of Feigned Eruptions.—Dr. PERNET said that for many years he had been interested in feigned eruptions under the various names by which they had been known, and he thought that the dermatologist had rather neglected the psychological aspect of these cases. In many of them he believed that we were dealing with an altered personality, and that that was the correct attitude in which to regard them.

Notes on the Treatment of Alopecia Areata and Dermatitis Exfoliativa.—Dr. GEORGE T. JACKSON of New York said that during the past four or five years he had treated eight cases of alopecia areata with the Piffard iron spark lamp, and a study of these cases had convinced him that the use of this lamp was of decided benefit in the treatment of this affection. Even in long-continued general alopecia it had brought the hair in, although not permanently. In all the usual cases recovery had taken place. The hair, when it returned, was of normal color and texture. The only objection to the treatment was that it required the expenditure of a good deal of time. Dr. Jackson also reported a number of cases of dermatitis exfoliativa in which the eruption was favorably influenced by large doses of quinine.

Lymphangioma Xanthelasmoideum.—Dr. WILLIAM S. GOTTHEIL of New York read a paper on this condition, which he described as a capillary lymphangioma, with colloid degeneration of the elastic tissue. It appeared in the form of faint yellowish or brownish-white plaques, of very slow growth, so slightly raised above the general surface as to be impalpable as a tumor, and of a soft, velvety consistence. Each plaque was composed of a multitude of closely aggregated angular lesions. There were no vesicles and no fluid was obtainable by puncture. The microscope showed dilatation and minute cyst formation of the most superficial and subpapillary lymphatics, with degenerative changes in the elastic tissue. There were no other abnormalities; no fat and no xanthoma cells. The clinical appearance resembled some forms of xanthoma planum. Dr. Gottheil said the only other case he could find recorded was that by Thibierge, in the *Ikonographia Dermatologica*, Fasc. II., Tab. 15. The abnormality was probably less rare than this fact would seem to indicate.

Erythroderma Squamosum (Parapsoriasis).—Dr. A. RAVOGLI of Cincinnati said that this affection, which had been known only recently and was of rare occurrence, was a variety of *erythrodermie pityriasique en plaques*, consisting of patches formed by licheniform papules aggregated and covered with thick scales. The microscopical examination showed that the lesion was not very superficial, as reported in some cases, and was capable of causing atrophic spots in the site of the primary lesion; the disease was chronic, improvement being followed by relapses. Thus far the remedies internally given and externally applied had produced very unsatisfactory results. Injections of a 10 per cent. solution of cacodylic acid were the only means with which he succeeded in producing a visible improvement in the eruption. In conclusion, Dr.

Ravogli said that after studying this obscure disease in its hybridity we could not refuse entirely the opinion of Civatte that tuberculosis might have some influence in the production of the eruption, and that with successive studies and more observations the disease might finally be ranged among the tuberculides.

Some Observations on the Results of the Wassermann Test in Scleroderma.—Dr. Henry H. Whitehouse of New York in this paper reported five cases of diffuse scleroderma. Three of these gave a strongly positive Wassermann reaction, one was faintly positive, and one was negative. The two latter, however, had been under antisyphilitic treatment, the first for over a year, and the second for six months, a sufficient length of time in each instance to negative the test had both been cases of undoubted syphilis. In two cases of the band-like morphea type the reaction was negative in both instances. These seven Wassermann tests were made by three different investigators, and in each instance the original Wassermann and the Noguchi modification was done, in some instances more than once, and in all with numerous control experiments. Dr. Whitehouse said that while the facts here presented could be little more than suggestive, the possible results of further observations along this line might well excite our interest. If, as most believed, the vascular changes were primarily the seat of the trouble in scleroderma, it was not improbable, in view of the histological similarity of these changes to those in syphilis, that, should the Wassermann observations here recorded be later confirmed, syphilis might be found to be an etiological factor in this disease.

Result of the von Pirquet and Wassermann Tests in Twenty-nine Orthopedic Cases (Osteopathies of Quarternary Syphilis, Gaucher).—By Dr. James M. Winfield of Brooklyn. In age, these patients ranged from six months to fourteen years. Ten were suffering from Pott's disease; in eleven the hip joint was involved; three had disease of both hip and spine; two had suppurating sinuses of the ankles, and two had disease and sinuses of the wrist and fingers. Ten of the twenty-nine presented somatic evidence of inherited syphilis, while sixteen had no bony malformations suggestive of hereditary lues. All of the twenty-nine were tested for tuberculosis by the von Pirquet method, and in all, excepting one, the result was positive; some, however, reacted more positively than others. The Wassermann and Noguchi tests were made at different times and at long enough intervals between to prevent either from modifying the other. Four of the cases that showed syphilitic stigmata were positive to the Wassermann test; six who did not show any such evidence were also positive. Those that were most markedly positive were the cases that had two or more dystrophies. Since all of the cases reacted to the von Pirquet test, it was strong presumptive evidence that all were suffering from tuberculosis, and if the Wassermann test was to be relied upon it brought up the question, was it possible for tuberculosis and syphilis to exist simultaneously in the same individual, and could you always get a positive Wassermann reaction in all cases of inherited syphilis, provided, of course, that the child had received no mercurial treatment? From a study of these cases it was safe to conclude that syphilis was an important factor in many of the suppurating osteitides of childhood. Perhaps it would be questionable to assume that all cases of suppurating bone disease in childhood that had the somatic evidence of syphilis and were positive to the Wassermann test were examples of quarternary syphilis; but one would be justified in assuming that in many cases the underlying etiological factor was syphilis, and that the inherited taint had rendered the resistance of the individual so low that he became an easy victim of tuberculosis.

Dr. Howard Fox of New York said that so far as he knew Dr. Winfield's paper was the first one relating solely to the Wassermann test in orthopedic cases. He congratulated the author on having taken up this line of work, which might lead to valuable results.

A Comparison of the Wassermann and Noguchi Complement-Fixation Tests.—By Dr. Howard Fox of New York.

Exhibition of Dermatoses by Lumière Plates—Stereopticon.—By Dr. Howard Morrow of San Francisco and Dr. M. B. Hartzell of Philadelphia.

Second Day—Friday, June 4.

Meralgia Paresthetica.—Dr. Samuel Sherwell of Brooklyn gave a brief report of a typical case of meralgia paresthetica, occurring in the person of the author. For about the past ten years, in the outer and lower two-thirds of the left thigh, after strenuous and long-continued exertion, as of walking, riding, or cycling, there occurred in the region supplied by the external femoral cutaneous nerve the following symptoms: The region became the seat of a variety of perverted sensations, as of tingling, tenseness, or still more acute superficial tearing and darting pain, with numbing of sensation just above the patella. The rest of the limb or its cutaneous envelope was unaffected and entirely normal, and the symptoms enumerated soon subsided on resting, but could be brought on readily by resumption of exertion. The painful sensations were like nothing so much as those of zoster, and in the writer's belief they were caused by the same mechanical means, namely, pressure on the nerve in its continuity, although probably not from the exudative pressure which occurred in zoster. No objective phenomena accompanied the attacks. As regarded treatment, rest and perhaps slight massage brought on rapid though, unfortunately, only temporary relief.

The Etiology of Psoriasis.—Dr. Sigmund Pollitzer of New York opened a general discussion on this subject. He reviewed at length the various hypotheses that had been advanced concerning the nature of psoriasis, and said that our knowledge of the subject at the present time might be summed up in the following conclusions: 1. That rheumatism, gout, neuroses, and heredity were not direct etiological factors in the production of psoriasis, but in the present state of our knowledge it could be neither denied nor affirmed that they might have some bearing on the obscure conditions of the system which rendered it more or less susceptible to infection. 2. That psoriasis was one member of a group of parakeratoses to which seborrhea corporis, and (in part) eczema seborrheicum belonged. 3. That it was most probably due to an external microbic infectious agent.

Parasitism of Psoriasis.—Dr. Jay Frank Schamberg of Philadelphia, in discussing this subject, said that three propositions might be formulated for consideration: 1. That psoriasis might be the result of the circulation in the fluids of the body and deposition in the skin of a microparasite, analogous to what was observed in syphilis and variola. 2. Psoriasis might be due to the implantation upon the skin of an exogenous parasite, as was observed in ringworm, favus, and tinea versicolor. 3. The disease might be due to one of the common facultative parasitic organisms ever present upon the skin in individuals in whom a constitutional predisposition rendered the soil favorable. After discussing each of these propositions in detail, and reviewing the literature and experimental work that had been done on the subject, Dr. Schamberg said it might be argued that the failure to autoinoculate psoriasis in the vast majority of subjects operated against the assumption that it was a local parasitic disease due to exogenous organisms. It might, furthermore, be argued that if the lesions of psoriasis were due to the implantation of a parasite upon the skin of a susceptible individual,

inoculation with lymph, blood, and scales from a diseased patch upon the healthy skin in the same patient might be reasonably expected to reproduce psoriasis lesions. Our lack of knowledge, however, concerning possible conditions of immunity in this connection made it unwarranted to deduce any positive conclusions of the character indicated. The inability to autoinoculate psoriasis patients would not at all affect the hypothesis that psoriasis was a constitutional, infectious disease. From what had been stated it was obvious that no definite conclusion as to the parasitism of psoriasis was warranted. The mode of growth and configuration of the patches, the occasional instances of apparent communication of the disease, and the Destot inoculation were arguments in favor of parasitism which could not be decisively brushed aside. On the other hand, the general behavior of the disease, the common experience of observers as to the absence of contagion, and the almost uniform failure of inoculation experiments constituted strong evidence against parasitism. Wisdom should prompt us, in the light of our present knowledge—or, more accurately speaking, in the dimness of our inadequate knowledge—to commit ourselves neither to positive affirmation nor to uncompromising negation.

Dr. James C. White said that psoriasis might be called a family disease, or, to a certain extent, a hereditary disease. We knew that it succeeded quite a number of other cutaneous diseases, but that did not necessarily imply any etiological relationship between the two. When we mentioned these two factors as having some direct influence on the production of psoriasis he thought we had told the whole story, so far as we had any direct knowledge of the nature of this disease.

Dr. Louis A. Duhring of Philadelphia said that up to the present time we had no convincing proof of the parasitic origin of psoriasis.

Dr. L. Duncan Bulkley of New York said that all were ready to acknowledge that there was something back of psoriasis that we did not know anything about. There was no question that there was something on the skin which produced these lesions on a favorable soil. He had some patients under his care for many years in whom recurrent attacks of psoriasis were clearly traceable to errors in diet, resulting in faulty metabolism.

Dr. James Nevins Hyde of Chicago said that in collecting statistics of the disease in this country the figures from one part of the country must be dissociated from those of other parts. For example, in the Northwest, where he lived, the percentage of these cases greatly exceeded that in the South. He referred to the relative infrequency of the disease in the negro, and to the fact that it never appeared in the lower animals, which shared most of the parasitic diseases with the human family.

Dr. E. B. Bronson of New York spoke of the relative importance of the local causes from parasitism, and the causes which existed in the constitution of the skin. He thought there was no question that psoriasis was a dermatological disease, due to a local parasite. There was no more reason for regarding it as a constitutional disease because it was influenced by gout or rheumatism or improper diet than it would be to regard acne as a constitutional disease. The parasites that produced it were probably omnipresent, but in addition to these we had to have a receptivity of the skin.

Dr. Henry W. Stelwagon of Philadelphia said the consensus of opinion was that the lesions of psoriasis were due to a parasite, but that underlying that we had a peculiar susceptibility of the skin or of the general system, and that the latter could be evoked by various causes, such as shock, faulty metabolism, etc.

Dr. Douglass W. Montgomery of San Francisco said he was decidedly skeptical in regard to the parasitology of psoriasis or eczema. As far as the appearance of the lesions of psoriasis after scratching was concerned, we could get the same effect in urticaria and lichen.

Dr. Samuel Sherwell of Brooklyn said that during his forty years of practice he had seen many thousands of cases of psoriasis, and he had never seen but one case, so far as his memory carried him back, that was associated with tuberculosis, and in that instance the tuberculosis was of a fibroid character and the patient lived for a long time. That spoke in favor of the general good health of the psoriatic patient. In regard to the treatment of psoriasis, he could corroborate what had been said as to the efficacy of a change of climate or the beneficial effects of a sea voyage, and he recalled one case where a woman who was sent to London for treatment recovered before she arrived there.

Dr. Hermann G. Klotz of New York referred to the tendency of many cases to get well, or almost well, spontaneously during certain seasons of the year. In some the eruption broke out in the summer; in others in the winter. He believed that this phase of the disease could easily be reconciled with the parasitic theory.

Dr. George Pernet of London, Eng., said he had many times observed that psoriasis cases exhibited a primary patch—perhaps two—which remained for some weeks or months before there was any generalization of the disease. Such an extension of the eruption was in favor of the parasitic theory. With regard to the effects of diet in psoriasis, Dr. Pernet said he had not been able to satisfy himself that it played the slightest rôle in the evolution or development of the affection, excepting, perhaps, the use of coffee or alcohol in acute or subacute cases.

Dr. M. B. Hartzell of Philadelphia said he had never been able to convince himself that a meat or vegetable diet had anything whatever to do with the affection. The one theory that appealed to him was the parasitic view.

Dr. James C. Johnston of New York, discussing the parasitic theory of psoriasis, with which the speaker was in considerable sympathy, said the controls to prove it had to be numerous—in fact, almost wasteful. The experiments must be done on the individual himself and on members of his family, both on those that seemed predisposed and upon completely healthy individuals, as well as on laboratory animals.

Dr. Thomas C. Gilcrist of Baltimore said the work to prove or disprove the parasitic origin of psoriasis must be carried along experimental lines, and would doubtless be greatly aided by Schaudinn's introduction of the dark-field illumination, which might make it possible to find the parasite.

The discussion was then closed by Drs. Pollitzer and Schamberg.

Further Observations Upon the Elastic Tissue in Epidermolysis Bullosa.—By Dr. Martin F. Engman and William H. Mook of St. Louis. In 1906 the authors reported the histological study of two cases of epidermolysis bullosa, in which they found the elastic tissue absent in the upper part of the derma, both in the region of the bulla and in the normal skin. One case was more marked than the other. They now wished to submit the histological study of the normal skin of two additional cases of the same disease, in which they found sufficient evidence to strengthen the assumption that the disease was due to congenital deficiency, or absence of the elastic tissue in the derma.

The Elastic Tissue of the Skin.—Dr. Charles J. White of Boston read a paper on this subject, which was discussed by Drs. Engman, Schamberg and Pusey.

Notes on Certain Diseases of the Skin Observed in the Far East.—By Dr. L. Duncan Bulkley of New York. This paper gave the result of the writer's observations during recent extended travels in the far East, and included studies of cases of leprosy, syphilis, frambœsia,

epithelioma, cancer, Madura foot, tinea imbricata, tinea favosa, acne, eczema, etc. Dr. Bulkley said the first thing which struck him everywhere was what seemed to him the relative infrequency of diseases of the skin throughout the East. Although he visited very many hospitals in outpatient clinics in Japan, Korea, China, the Philippine Islands, Siam, Ceylon, India, and Egypt, and made constant inquiry and search for them and saw hundreds of patients, there were relatively few with dermatological troubles, and this in spite of the fact that one was constantly told that in all Eastern countries diseases of the skin were very prevalent. He could hardly explain this contradiction, except that as affections of this class were pretty troublesome and rebellious, and were relatively little known or studied by the general physician, such cases as did occur made more of an impression and gave rise to the idea that diseases of the skin were especially frequent. There were, however, many cases of vegetable parasitic disease of the skin seen everywhere, to which no attention seemed to be paid.

Treatment of Some Chronic Inflammatory Diseases of the Skin.—By Dr. Louis A. Duhring of Philadelphia. In this paper the author said it was his purpose to deal with certain underlying principles, rather than with details pertaining to drugs and formulæ. Important and valuable as the latter might prove in suitable cases, yet of much greater importance was an understanding, where that was possible, of the general and specific etiological factors that occasioned the cutaneous lesions. It pertained to the manifold causes which were actually the *fons et origo* of the cutaneous lesions of many diseases of an inflammatory nature, especially those characterized by chronicity, rebelliousness to local treatment and a tendency to persist and recur. Thus, eczema and psoriasis afforded instances that illustrated the fact that the methods of therapy commonly employed for their amelioration or cure were often wholly ineffectual. It might be pertinently asked why it was that some cases of eczema, psoriasis, or acne were readily amenable to treatment, local or internal, or both, while others did not respond to the same line of treatment. The reason might be found in the fact, not sufficiently recognized, that while the cutaneous manifestations might be the same, or closely similar in many cases, the causes producing them were varied and different, and it was the latter that, if possible, we should detect, treat, and remove. For nearly all, if not all, of the chronic persistent or recurrent cases of eczema, psoriasis, and other diseases, there existed internal etiological factors, specific or general, that must be found and relieved if the patient was to be permanently cured of the cutaneous disease. Most of the authors of works on skin diseases did not lay sufficient stress upon this phase of the subject. Dr. Duhring said that each year he was more and more impressed with the importance of this principle and its practical application; more and more did he recognize the intimate relation in many cases of the diseases under discussion to the general economy; in short, of the relation of such cutaneous diseases to general medicine. It naturally followed that only by treating such internal conditions, whatever they may be, could such cases be satisfactorily and successfully and permanently relieved of the cutaneous disease.

Cases of Bromide Eruption Mistaken for Blastomycosis.—By Dr. Oliver S. Ormsby of Chicago. The paper embraced a clinical description of three cases, the patients' ages, respectively, being seven, sixteen, and twenty-nine years. The lesions in each case were practically situated in the same region of cutaneous surface and closely resembled each other, the group being almost wholly indistinguishable from blastomycosis. Each of these three patients was the subject of epilepsy, and had been given bromide. Blastomycosis was ruled out, etiologically, in each case. From the foregoing it appeared to be essential in any case suspected to be one of blastomycosis in which bromides had been exhibited to positively demonstrate the presence or absence of the causative organisms (blastomycetes) before drawing final conclusions.

Preliminary Report Upon a Case of Multiple Benign Cystic Epithelioma and Multiple Fibroma in the Same Patient.—By Dr. E. Wood Ruggles of Syracuse. The case presented several variations from those previously described. In the first place, multiple epithelioma in this location was infrequent, and had never been found associated with multiple fibroma. The disease developed at the age of six or seven years, which was at a much earlier period of life than any other case, excepting Jacquet's, which developed at eight years. There were no central depressions, telangiectasia, or milia upon any of the lesions, nor were any of the dark bodies described by Phillippson and Brooke present. Marked improvement in the appearance of the lesion had occurred under application of carbonic acid snow, the effect upon the larger and also upon the smaller contiguous lesions having been most striking. In connection with this case, Dr. Ruggles demonstrated an improved applicator for the use of carbonic acid snow.

A Case of Pemphigus Vegetans, with Special Reference to the Cellular Elements Found in the Lesions.—By Dr. M. B. Hartzell of Philadelphia. The paper embraced the clinical history of a case of pemphigus vegetans that had recently come under the author's observation and a histopathological study of the lesions. The speaker said his attention was especially directed to the bullous lesions chiefly because these presented features which, while not altogether new, were extremely interesting and somewhat different, at least in degree, from those commonly described as belonging to this variety of pemphigus. The great number of eosinophiles found in the blebs, in the papillæ, and in the subpapillary part of the corium was so extraordinary that this feature seemed to him especially deserving of atttention.

The Increase of Certain Contagious Diseases Following the Great Fire in San Francisco.—By Dr. Douglass W. Montgomery and Dr. Howard Morrow of San Francisco. In this paper the authors limited themselves to the consideration of impetigo contagiosa, typhoid fever, and plague, because the behavior of these infections, following the great fire, showed some very interesting points in the etiology and correlations of all three. Until recently they looked upon impetigo contagiosa as being preeminently a disease of childhood and a contact disease, and if a case was seen in an adult it was regarded as exceptional. A study of the cases seen between May, 1906, to the end of June, 1908, showed that instead of there being more children than adolescents and adults affected, there were ninety-five adolescents and adults and only twenty-seven children. These figures showed that there were three and one-half as many infections in the balance of life as in childhood. In connection with these cases two striking facts were noted: that the increase of infection occurred among the members of the class that frequented barber shops, namely, the adult males. The increase in impetigo was found to be coincident with the increase in typhoid fever, and practically coincident also with the development and increase in plague. From April, 1906, the time of the fire, to the end of December, 1906, a space of eight months, 1,215 cases of typhoid fever were reported, and because of the disturbed conditions many were unreported. During the following six months less than 200 cases developed, although inspection was much more strict. During all this time frequent examinations were made of the city water and milk supplies, always with negative results, so that the city authorities were forced to the conclusion that the spread of this disease was by flies in the same manner as shown by Reed.

Vaughan, and Shakepeare in their able investigations in the military camps during the Spanish War. The first reported case of plague after the fire appeared in May, 1907, and up to February, 1908, 160 cases were observed. Since that date no case of plague had been found. Such a surprising good result was accomplished by a series of measures taken by the Marine Hospital Service. The rat was the point of attack, as he and his accompanying flea were the bearers of plague. Inspection was severe and in accordance with the will of the people. Buildings were rat-proofed with concrete floors, and poison and traps were used in the sewers. Typhoid fever and impetigo fell away instantly almost to nothing, and plague was wiped out. In conclusion, the authors stated that, while impetigo contagiosa must be a filth disease, in many instances it was a fly-borne disease and not altogether a contact disease.

Granuloma Annulare, with Report of Case.—Dr. Grover W. Wende of Buffalo reported this case. The patient was a man, forty-nine years old, whose skin eruption dated back about two years, and had a deep-seated node upon the nape of the neck as its initial lesion. It was in the form of a flat, red-white nodule, without itching or burning. Other similar lesions appeared, and in two or three months they had extended to the hair-line back of the ears and to the front of the neck. The inception of some of the lesions was abrupt, somewhat resembling urticaria. Some nodes would disappear without change; others assumed figure formations. The eruption gradually extended to the cervical region and the upper chest and hands. Clinically and histologically, the case bore a striking similarity to those reported by Dr. E. Graham Little as granuloma annulare (*British Journal of Dermatology*, July, 1908, p. 213). Dr. Little had examined a photograph of Dr. Wende's case, and expressed the opinion that it might be one of granuloma annulare, although the multiplicity of the lesions was opposed to that diagnosis. Nevertheless, he had seen a case showing as many.

The last day's session of the association was devoted to the exhibition of patients and the demonstration of microscopical sections.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Vermont State Board of Medical Registration.

July, 1909.

ANATOMY.

1. Describe the bony pelvis, and state what bounds the cavity of the true pelvis above.
2. Give the anatomy of the hip-joint.
3. Give origin, insertion, nerve supply, and action of the pronator radii teres muscle.
4. Describe the circle of Willis.
5. Describe the peritoneum and its reflections.
6. Bound the axillary space, and name its contents.
7. Describe and bound the fourth ventricle.
8. Describe the prostate gland and give its relations.
9. Describe the male urethra.
10. Name the coverings of femoral hernia.

BACTERIOLOGY.

1. Classify bacteria, and name the two most common pyogenic bacteria.
2. Differentiate the gonococcus from other diplococci.
3. By what culture characteristics may the colon bacillus be distinguished from the typhoid bacillus?
4. Describe the bacillus of Eberth, and give Widal's test for typhoid fever.
5. What bacteria are liable to be mistaken for the tubercle bacillus, and how may this error be avoided?

PHYSIOLOGY.

1. Describe ciliated epithelium and (*a*) state where it is found most abundant; (*b*) what is the function of ciliated epithelium?
2. Name some of the bodily states which lessen the alkalinity of the blood.
3. What is the office of the columnæ carneæ?
4. What post-mortem tests should be applied to prove that air has entered the lungs of a supposedly stillborn child?
5. Describe (*a*) the functions, and (*b*) secretions of the stomach.
6. What is the function in digestion of (*a*) saliva, (*b*) bile?
7. How do the products of digestion find their way into the blood?
8. What is the cerebrospinal system of nerves, and to what parts of the body are its fibers chiefly distributed?
9. State where in the human economy the following substances are found: fibrin, mucin, chondrin, leucin, hippuric acid.
10. Name the structures in the body whose functions are doubtful or unknown.

HYGIENE.

1. Into what general classes are foods divided? Give examples of each.
2. Describe the physiological action of alcohol.
3. What hygienic precautions should be observed by a pregnant woman?
4. If a chemical analysis of water revealed the presence of nitrates and nitrites (*a*) would this condemn it for drinking purposes? (*b*) If so, why?
5. Describe the preparation of patient, surgeon, instruments, and surroundings for operative procedures.

MATERIA MEDICA AND THERAPEUTICS.

1. State properties, action, and preparations of tannic acid.
2. Name four spinal stimulants and state the action of such drugs.
3. Write a prescription for asthma, Basedow's disease, infantile bronchitis.
4. How would you proceed if called to see a child (one year) in convulsions?
5. Name three hypnotics, state action of each, and when indicated.
6. Name varieties of expectorants, name three drugs under each, and give dose of same.
7. How would you manage a case of (*a*) Lobar pneumonia in an adult? (*b*) Catarrhal pneumonia in a child (six months)?
8. How would you manage a case of diabetes mellitus?
9. Give your treatment, prophylactic and medicinal, for a dilated heart.
10. Name three preparations of the following and state incompatibles and indications for same: hydrastis, cinchona, creosote, bromides.
11. Outline the general principles of treatment in a case of poisoning.

CHEMISTRY.

Answer any five questions.

1. (*a*) State the physical and chemical properties of O. (*b*) Mention four methods by which O may be obtained.
2. (*a*) How many oxides of N are known? Which forms acid? (*b*) State composition properties and test for carbonic acid.
3. (*a*) What elements does magnesium resemble? (*b*) Complete $MgCO_3 + H_2SO_4$.
4. (*a*) What are alums and state four important ones. (*b*) Describe and give diagnostic importance of Ehrlich's diazo-reaction.
5. (*a*) State characteristics of the arsenic group of metals. (*b*) Show by equations the formation of dibasic acids from monobasic acid, from alcohol.
6. How is urea formed in the body.
7. What is acholia? What is cystin?

PATHOLOGY.

1. (*a*) What are the causes of fever? (*b*) What are the effects of fever?
2. (*a*) Mention all the pathological conditions which may produce hemoptysis. (*b*) The same of hematemesis.
3. Give the pathology of tubercle.
4. Explain the propagation of tapeworm.
5. Mention the different varieties of goiter and give their pathological differences.

PRACTICE OF MEDICINE.

1. How would you diagnose typhoid fever?
2. Give differential diagnosis between smallpox and chickenpox.

3. Discuss the treatment of pulmonary tuberculosis among the poor.
4. Give treatment for the different pleural effusions.
5. Give treatment for the two commonest of the valvular heart lesions.
6. Discuss prognoses in cerebral embolism and cerebral hemorrhage.
7. Write a short article on epilepsy.
8. Discuss intestinal neuroses.
9. How would you manage a case of nervous prostration in a very poor family.
10. What are the comparative urinary findings in the first stages of chronic parenchymatous and chronic interstitial nephritis.

OBSTETRICS.

1. Describe the changes which occur in the external genitals during pregnancy.
2. Give presumptive signs of pregnancy. Give positive signs. How early during pregnancy would you expect to be able to make a positive diagnosis?
3. Give symptoms and treatment of albuminuria of pregnancy.
4. Describe in detail the preparation of the patient pending labor.
5. How would you resuscitate a child apparently stillborn?
6. Give diagnosis and management of a case of occipito-posterior presentation.
7. In a tedious but otherwise normal labor, what are the symptoms which would lead you to interfere? What would you do?
8. Describe the varieties of placenta prævia. To what dangers does the condition expose the mother and child? How would you manage a case?
9. Give symptoms of impending eclampsia. How would you treat a case? What would be your treatment should convulsions ensue?
10. Name the more common pathogenic bacteria that may infect a woman during the puerperium. To what conditions may such infection give rise?

GYNECOLOGY.

1. Give symptoms of imperforate hymen. How would you manage a case of long-retained discharges due to such conditions?
2. Differentiate simple catarrh from gonorrheal vaginitis.
3. Define rectocele, cystocele, enterocele.
4. Give etiology, symptoms, and treatment of chronic ovaritis.
5. What are the causes of uterine displacements? Which one is of the greatest interest from the obstetrician's standpoint?

SURGERY.

1. Name the different tumors of the breast, and describe Halstead's operation for the removal of carcinoma of the breast.
2. Diagnose fistula in ano and describe operation for its cure.
3. Give the symptoms of strangulated inguinal hernia. What is taxis? How long should it be continued and how soon abandoned? Describe Bassini's operation for the radical cure of inguinal hernia.
4. Give the etiology, pathology, and symptoms of empyema and describe best operation for its cure.
5. Mention the articles you would require in administering ether, the accidents likely to occur, and methods for their relief.
6. Differentiate hernia cerebri from caput succedaneum. Give treatment of the latter.
7. Diagnose fracture of the patella and describe methods of treatment.
8. Describe the various dislocations of the shoulder. Give method for reducing one variety.
9. Give the symptoms and treatment for fracture at the base of the skull.
10. Define osteomalacia and state its significance in surgery.

LEGAL MEDICINE.

1. Define the term railway spine.
2. Describe the general characteristics of gunshot wounds.
3. Differentiate paranoia and dementia paralytica.
4. What postmortem appearance would lead you to pronounce that death was due to drowning?
5. What is rigor mortis, and tell how it is produced; how long after death does it appear, and when does it disappear?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

VERMONT STATE BOARD OF MEDICAL REGISTRATION.

July, 1909.

ANATOMY.

2. The *hip-joint* is an enarthrodial joint, formed by the head of the femur and the acetabulum. The articular surfaces are covered with cartilage. Near the center of the head of the femur is attached the ligamentum teres. The *ligaments* are: (1) The capsular, which embraces the margin of the acetabulum above, and the neck of the femur below. (2) The ileo-femoral or Y ligament, which passes obliquely across the front of the joint, and is attached above to the anterior inferior spine of the ileum, and below to the anterior intertrochanteric line. (3) The ligamentum teres. (4) The cotyloid ligament, which deepens the acetabulum, and bridges over the cotyloid notch, being there called (5) the transverse ligament. The joint has a very extensive synoviol membrane. It is capable of the following movements: Flexion, extension, abduction, adduction, circumduction, and rotation.

3. PRONATOR RADII TERES. *Origin:* Internal condyle and supracondylar ridge of humerus, and the coronoid process of ulna. *Insertion:* Middle of outer surface of radius. *Nerve supply:* Median. *Action:* Pronation of hand, by rotating radius upon ulna; also slight flexion of forearm.

4. The *Circle of Willis* is formed: In front by the two anterior cerebral arteries (branches of the internal carotid), which are connected by the anterior communicating artery; behind, by the two posterior cerebrals (branches of the basilar artery), which are connected to the internal carotid on each side by the posterior communicating artery.

6. The axillary space is *bounded:* Anteriorly, by the clavicle, Subclavius, Pectoralis major, costocoracoid membrane, Pectoralis minor; *posteriorly,* by the Subscapularis, Teres major, and Latissimus dorsi; *internally,* by the first four ribs, first three Intercostal muscles, Serratus magnus; *externally,* by the humerus, Coracobrachialis, and Biceps.
Contents: Axillary vessels; brachial plexus of nerves, and branches; some branches of the upper intercostal nerves; lymphatic glands, fat, and loose areolar tissue.

7. The fourth ventricle is the expanded portion of the central canal of the spinal cord; it is a diamond-shaped cavity situated between the cerebellum behind, and the posterior surface of the pons and medulla in front. It is bounded: *Above,* by the valve of Vieussens and the cerebellum. *Below* by the pons and medulla. *Laterally,* by the superior peduncles of the cerebellum, restiform bodies.

8. The *prostate gland* adjoins the neck of the bladder and surrounds the beginning of the urethra, which is placed nearer the anterior than the posterior surface of the gland. It is said to resemble a horse-chestnut in shape, with the apex directed downwards. It measures about 1½ inches across its base and 1¼ inches in depth, and 1 inch from before backwards, and is held in position by the anterior true ligaments of the bladder.

The gland consists of three lobes, two lateral and one middle, and is perforated from base to apex by the urethra. The common seminal ducts open into the prostatic portion of the urethra, and are placed between the middle and lateral lobes.

Relations:

ANTERIOR OR PUBIC SURFACE.
Symphysis pubis.
Anterior ligaments of bladder.
Branches of dorsal vein of penis.

POSTERIOR SURFACE.
Rectum.

LATERALLY.
Levator ani.

BASE.
Surrounds bladder-neck.
Vesiculæ seminales.
Vasa deferentia.

APEX.
Rests on upper layer of triangular ligament.

10. The *coverings of a femoral hernia,* from without inward, are: Skin, superficial fascia, cribriform fascia, crural sheath, septum crurale, subserous areolar tissue, and peritoneum.

BACTERIOLOGY.

1. *Bacteria are classified:* (1) Cocci; (2) Bacilli; and (3) Spirilla.
Two most common pyogenic bacteria: Staphylococcus pyogenes aureus and *Streptococcus pyogenes.*

2. The gonococcus is Gram-negative, is found inside the pus cells, and will not grow on the ordinary media, but only on serum. All of these will differentiate it from other diplococci (except the meningococcus, and this latter may be differentiated by its growth on ordinary media).

3. *Cultural characteristics that differentiate the colon*

bacillus and the typhoid bacillus: (1) On gelatin plates the colonies of typhoid develop more slowly than those of colon bacillus.

(2) The colon bacillus causes fermentation with production of gas in media which contain sugar; the typhoid bacillus does not.

(3) The colon bacillus produces a strong acid reaction and coagulates milk within twenty-four to forty-eight hours; the typhoid bacillus does not coagulate milk.

(4) In peptone solution the colon bacillus produces indol; the typhoid bacillus does not.

(5) The typhoid bacillus gives the Widal reaction with typhoid serum; the colon bacillus does not.

4. *Eberth's bacillus* is a rod-shaped organism, with rounded ends, is from 2 to 4 mikrons in length, and about three-fourths of a mikron in breadth; it does not stain by Gram's method, but stains with all the anilin dyes; it has flagella, no spores, is aerobic and facultative anaërobic, and is motile.

Widal's test: Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. A positive reaction is obtained when all the bacilli present gather in one or two masses or clumps, and cease their rapid movements inside of twenty minutes.

5. *The bacteria liable to be mistaken for the tubercle bacillus* are: The bacillus of leprosy, the bacillus of the smegma, and Lustgarten's bacillus. "The differential diagnosis between these four organisms depends upon the following reactions: When stained by the carbol-fuchsin method, commonly employed in staining the tubercle bacillus, the Lustgarten's bacillus becomes almost instantly decolorized by treatment with mineral acids, particularly sulphuric acid; whereas the smegma bacillus resists such treatment for a much longer time, and the lepra and tubercle bacillus for a still longer time. On the other hand, if decolorization is practised with alcohol instead of acids, the smegma bacillus is the first to lose color. The bacillus tuberculosis and the bacillus of leprosy are both very retentive of their color, even after treatment with acids and alcohol. If, then, we treat the preparation, stained with carbol-fuchsin, with sulphuric acid, Lustgarten's bacillus becomes almost at once decolorized. If it is not immediately decolorized, heat with alcohol; if it is then decolorized, it is the smegma bacillus. If it is still not decolorized, it is either the leprosy or the tubercle bacillus."—(From Park's *Pathogenic Bacteria.*)

PHYSIOLOGY.

1. *Ciliated epithelium* generally consists of columnar epithelial cells surmounted by fine, tapering filaments or cilia; these latter move to and fro, and produce a current.

(*a*) *They are found* in the upper air passages, Fallopian tubes, ventricles of the brain, central canal of the spinal cord, vasa efferentia, and the tail of the spermotozoon.

(*b*) *Functions:* To keep foreign particles out of the respiratory tract, to assist the ovum in the Fallopian tube onwards to the uterus, to enable the spermatozoa to progress; generally—protection and motion.

2. The *alkalinity of the blood is lessened* by: Muscular exertion, anemia, uremia, high fever, diabetes, and rheumatism.

3. The *office of the Columnæ carneæ* is: To prevent too great dilatation of the ventricles, to regulate their contraction, and to prevent the auriculo-ventricular valves from being turned into the auricles.

5. Stomach. (*a*) *Functions:* To receive the food, to secrete gastric juice, to mix the gastric juice with the food, to digest the proteids, and to absorb such portion of the food as is ready for absorption.

(*b*) *Secretions:* The gastric juice. This is a thin, colorless fluid, acid in reaction owing to the presence of hydrochloric acid, specific gravity 1001 to 1010, and contains about 1 per cent. of solids (pepsin, hydrochloric acid, a curdling ferment, mucin, and salts).

6. The *saliva* (by its ptyalin) converts starches into dextrose. The *bile* assists in emulsifying and saponifying fats, and also in the absorption of fats; it also aids the pancreatic secretion.

7. The products of digestion find their way into the blood by two routes: (1) By the blood vessels of the gastrointestinal tract, which unite to form the portal vein, and (2) by the lymph vessels of the small intestine, which converge to empty into the thoracic duct. The water, inorganic salts, proteids, and sugar go by way of the portal vein to the ascending vena cava; the fats go by way of the thoracic duct to the junction of the left subclavian and internal jugular veins.

8. The cerebrospinal system of nerves consists of the brain, spinal cord, and all the nerves connected with the brain and spinal cord; *i.e.* all except the sympathetic nervous system.

Its fibers are distributed to the voluntary muscles, the organs of special sense, and the parts endowed with sensibility.

9. *Fibrin* is found in the blood and lymph; *mucin,* in saliva and syuovial fluid; *chondrin,* in bone and cartilage; *leucin,* in the pancreas and spleen; *hippuric acid,* in the urine.

10. *Structures of doubtful or unknown function:* Spleen, thyroid, thymus, parathyroids, suprarenals, pituitary body, carotid and coccygeal glands.

HYGIENE.

1. *Foods are divided into:*

I. Inorganic. { Water. / Salts.

II. Organic. { Non-nitrogenous. { Carbohydrates. / Fats. / Nitrogenous—Proteids.

Example of each: *Carbohydrate,* sugar; *Fat,* fat of meat; *Proteid,* flesh of animals; *Salt,* sodium of chloride.

2. Physiological action of alcohol. *Nervous system:* Alcohol is first a powerful excitant, afterward a depressant; it increases the reflex activity of spinal cord, muscles, and nerves; in large doses it produces lack of co-ordination. *Circulatory system:* It stimulates the heart muscle and increases the rapidity and force of the heart beat; there is a rise of arterial pressure. *Respiration* is stimulated by small doses, and decreased by large ones. *Temperature:* Alcohol produces a sensation of warmth, and warms the extremities by causing the heart to pump hot blood from the center of the body to the cold parts. If used in excess the temperature rapidly falls, owing to increase of heat radiation and to depression of vital power. *Bodily metabolism:* Elimination of CO_2 is generally increased; the effect on absorption of O is not known. It adds force but not tissue to the body. *Elimination:* It is largely burnt up in the body, but in excessive doses it is eliminated by the breath, skin, kidneys, and intestines. *Digestion* is aided by moderate doses, but is disordered by large amounts. (From Hare's *Therapeutics.*)

4. *Nitrates* are generally due to the oxidation of organic matter of animal origin.

Nitrites generally indicate sewage contamination. The presence of nitrites should condemn the water; so should a marked amount of nitrates.

MATERIA MEDICA AND THERAPEUTICS.

1. Tannic acid. *Properties:* A light amorphous powder, with slight odor and astringent taste; it gets darker on exposure to air and light.

Action: Astringent and hemostatic; it will precipitate albumins; it is an antidote to antimony and some alkaloids.

Preparations: Glycerite of tannic acid, ointment of tannic acid, troches of tannic acid, and styptic collodion.

2. *Four spinal stimulants:* Strychnine, brucine, ammonia, and thebaine.

The action: They increase the irritability of the anterior cornua of the spinal cord.

5. *Three important hypnotics:* (1) Chloral hydrate; (2) Sulphonal; (3) Trional.

Indications: They are all used to produce sleep (when no pain is present).

Chloral hydrate produces a natural sleep, acts promptly but is of no service if pain is present; it also lowers the body temperature. It can be given for a long time without deleterious effect, but it may irritate the tissues and weaken the heart.

Sulphonal produces a natural sleep, but is of slow action requiring three or four hours to take effect; it is of no use if pain is present, does not irritate the tissues and weaken the heart, but is probably not so good for continuous use as chloral hydrate, though the two may replace each other for a time.

Trional is very similar to sulphonal, but is more soluble and acts quicker. Both sulphonal and trional are supposed to be safer than chloral.

CHEMISTRY.

1. OXYGEN. *Properties:* Oxygen is a colorless, odorless, tasteless gas, slightly soluble in water, heavier than air. It has a strong tendency to combine with other elements, and forms binary compounds with all elements except fluorine and bromine. Oxygen is necessary to the processes of life and combustion.

Preparation: (1) By heating potassium chlorate:

$$2KClO_3 = 2KCl + 3O_2$$

(2) By heating manganese dioxide:

$$3MnO_2 = Mn_3O_4 + O_2$$

(3) By the action of sulphuric acid on manganese dioxide:

$$2MnO_2 + 2H_2SO_4 = 2MnSO_4 + 2H_2O + O_2$$

(4) By the action of water upon sodium dioxide:

$$2Na_2O_2 + 2H_2O = 4NaHO + O_2$$

2 (*a*) There are five oxides of nitrogen known: Nitrogen monoxide, N_2O; nitrogen dioxide, N_2O_2, or NO; nitrogen trioxide, N_2O_3; nitrogen tetroxide, N_2O_4, and nitrogen pentoxide, N_2O_6. Of these, the trioxide and the pentoxide form acids.

(*b*) Carbonic acid, formula H_2CO_3, does not exist free, but is decomposed as soon as liberated into CO_2 and H_2O. Carbon dioxide, CO_2, is often (improperly) called carbonic acid; but this could hardly happen on an examination paper in chemistry.

3. Magnesium resembles zinc and cadium:

$$MgCO_3 + H_2SO_4 = MgSO_4 + CO_2 + H_2O$$

4. (*a*) *Alums* are double sulphates of the alkaline metals and the aluminum or iron group.

Four important alums: Aluminum potassium sulphate; aluminum ammonium sulphate; ferric sodium sulphate, and chromic ammonium sulphate.

(*b*) For Ehrlich's diazo reaction two solutions are required: (1) A saturated solution of sulphanilic acid in a mixture of 50 c.c. of hydrochloric acid and 950 c.c. of water, and (2) a 0.5 per cent. solution of sodium nitrite.

To make the test, 1 c.c. of (2) is added to 40 c.c. of (1), and the mixture thoroughly shaken. Equal quantities of this mixture and the urine to be tested are shaken together in a test tube, and 1 c.c. of ammonia is then floated upon the surface, when, in an affirmative result, a red band is formed at the junction of the fluids.

Its diagnostic value is uncertain. Von Jaksch "disclaims for this test any clinical importance whatever." Others have claimed that the reaction is pathognomonic of typhoid, but it has been found in other diseases besides typhoid—namely, phthisis, pneumonia, measles, scarlet fever, smallpox and malaria.

5. (*a*) The answer to this question will depend upon the text book used by the student (or examiner). Witthaus puts arsenic in the same group with nitrogen, phosphorus, and antimony; Remsen, in the same group with nitrogen, phosphorus, antimony, and bismuth; Simon, in the same group with antimony, tin, gold, platinum, and molybdenum; Holland, in the same group with antimony and tin.

According to the first of these groupings the arsenic group is trivalent or quinquivalent; with hydrogen non-acid compounds are formed, composed of one atom of the element in the gaseous state with three atoms of hydrogen; two oxides are formed, the trioxide and the pentoxide; they are poisonous.

(*b*) $2CH_2Br.COOH + Ag_2 = 2AgBr + C_2H_4(COOH)_2$
(Bromacetic acid) (Succinic acid)

$CH_2OH.CH_2OH + 2O_2 = 2H_2O + COOH.COOH$
(Ethene glycol) (Oxalic acid)

6. Urea is the end product of the proteid metabolism of the body. This metabolism is chiefly carried on in the muscles. It is not known in what form nitrogen leaves the muscles, but it is believed that the final products of muscle metabolism are ammonia and sarcolactic acid. Hence it is probable that nitrogen leaves the muscles as ammonium lactate. The tissues convert combinations of organic acids and ammonia into carbonates; these are dehydrated in the liver, so that ammonium carbonate becomes ammonium carbamate, and this by further dehydration becomes urea. The following formulæ show this relationship, and how the loss of one molecule of water converts ammonium carbonate into carbamate, and the loss of a second molecule of water produces urea:

$CO<^{O.NH_4}_{O.NH_4}$ $CO<^{NH_2}_{O.NH_4}$ $CO<^{NH_2}_{NH_2}$

NH_4 Carbonate. NH_4 Carbamate. Urea.

7. *Acholia* is absence of the secretion of bile.

Cystin is (chemically) diamido-beta-dithio-dilactic acid. It is found in urinary sediments and calculi.

SURGERY.

4. EMPYEMA. *Etiology*: Wounds, injuries, pleuropneumonia, direct extension of a suppurative process in the lung, abdomen, or neck. The bacteria will vary with the cause; *Diplococcus pneumoniæ* is the commonest; tubercle bacillus, staphylococcus, streptococcus, *Colon bacillus* may also be present.

Pathology: The organisms causing it are pneumococci, streptococci, staphylococci, tubercle bacilli, *Bacillus coli*, and actinomycosis.

The physical signs are those of fluid in the pleural cavity; that side does not move well, the percussion note is dull, there is absence of breath sounds, vocal fremitus and resonance are diminished. Left alone, an empyema may burst through an intercostal space, usually the fifth. The lung is collapsed in extent according to the amount of pus. The pleura, at first covered with lymph, soon becomes covered with layers of granulation tissue, the deeper part of which is converted into fibrocicatricial tissue, and the lung itself also undergoes some fibroid change. If the pus is let out early the lung and pleura soon expand, but if allowed to go on the infiltration of the lung and the density of the scar tissue covering it hinder expansion. Nature attempts to remedy this in various ways. (1) The other lung expands and pushes the heart over to the opposite side; (2) the chest wall falls in, the intercostal spaces are obliterated, and the spine is curved, with its concavity toward that side; (3) the abdominal viscera are pushed up; and (4) exuberant granulations form on the pleura. If a cavity still remains an operation is necessary.

Symptoms: Fever, sweats, chill, diminished breath sounds and vocal fremitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis.

Treatment: Aspiration, drainage, irrigation, resection of ribs (Estlander's operation), or resection of chest wall (Schede's operation).

8. The *various dislocations of the shoulder joint* are: (1) Subcoracoid—forward, inward, and downward. (2) Subglenoid—downward, forward, and inward. (3) Subspinous—backward, inward, and downward. (4) Subclavicular—forward, inward, and upward.

The *special diagnostic signs* are: (1) *Subcorocoid*: The head of the humerus is felt below the outer end of the clavicle; there is little or no shortening of the limb; the elbow is directed outward and backward.

(2) *Subglenoid*: The head of the humerus can be felt in the axilla; the arm is decidedly lengthened; the elbow is flexed, and there are signs of pressure on vessels and nerves.

(3) *Subspinous*: The head of the humerus is felt below the acromion process and behind; the arm is rotated inward, and the elbow is displaced outward.

(4) *Subclavicular*: The head of the humerus is felt below the clavicle; the elbow is far from the side, and the limb may be shortened.

Kocher's method of reduction is: to flex the forearm, press the elbow to the side, rotate the arm outward. Bring the arm forward and upward to a right angle with the body, then rotate inward, while the elbow is brought down over the body so that the fingers sweep the opposite shoulder.

10. *Osteomalacia* consists in a softening of the bone tissues; it is found in the fully formed adult bones; there is great possibility of bending or fracture of bones, with considerable deformity. It may prove a serious obstacle to parturition.

LEGAL MEDICINE.

1. *Railway spine* is defined as "the series of nervous symptoms developed from shock produced by a railway accident, or from the concussion produced by constant travel."

5. *Rigor mortis* is the condition of rigidity or contraction into which the muscles of the body pass after death. It begins at a period varying from about fifteen minutes to about six hours. It usually begins in the muscles of the eye, neck, and jaw; then the muscles of the chest and upper extremity, and last of all those of the abdomen and lower extremity are affected. It passes off in the same order in about twenty-four hours. It is said to be due to the coagulation of the muscle plasma.

PATHOLOGY.

1. (*a*) *Causes of fever:* Disturbance of the heat-regulating centers, either directly or by toxic substances circulating in the blood. These latter may come from bacteria, or may be due to disordered metabolism, or to chemical or mechanical injury of the tissues.

(*b*) *Effects of fever:* Loss of appetite, thirst, emacia-

tion, disturbance of function, the alkalinity of the blood is lessened; degenerative changes such as cloudy swelling, fatty degeneration, and coagulation necrosis may occur in the tissues, particularly in the heart, liver, kidneys, and muscles.

2. (*a*) *The causes of Hemoptysis:* Traumatism; certain organic diseases of the lung, especially tuberculosis, lobar pneumonia, bronchiectasis, gangrene, infarct, and cancer. Passive congestion, the result of heart disease, especially mitral lesions; rupture of aortic aneurysm; diseases profoundly affecting the blood, such as purpura, hemophilia, scurvy, and leukemia; ulcers, traumatic, syphilitic, or malignant of the trachea or larynx; and vicarious menstruation (very rare).

(*b*) *The causes of Hematemesis:* Traumatism; gastric ulcer; gastric cancer; venous engorgement of the stomach following cirrhosis of the liver, primary splenomegaly, or chronic heart disease; acute gastritis; blood dyscrasia, as in scurvy, purpura, severe infections, and grave anemias; rupture of aneurysm; swallowing of blood from nose, mouth, or throat; vicarious menstruation; hysteria.—(From Steven's *Practice.*)

PRACTICE OF MEDICINE.

2. (1) Very young children are attacked with varicella, whereas variola usually shows itself in adults. (2) Vaccinated children readily take varicella; not so variola, even in the modified form. (3) Children who have had varicella may contract variola, even soon afterwards; or the two diseases may coexist. (4) Varicella is noninoculable, whereas variola is notoriously so. (5) The eruption of varicella appears in twenty-four hours; that of variola not till the third day. (6) The febrile symptoms continue after the eruption appears in varicella; those of variola subside. (7) In varicella the spots come out in successive crops; this is never seen in variola. (8) The spots in varicella are unilocular, and collapse on being punctured; the spots in variola are multilocular, and do not collapse on being punctured. (9) In varicella the eruption is very irregular, and appears over the body generally; in variola it appears in groups of threes and fives, and is always seen on the limbs. (10) The papule in varicella is soft, and disappears on stretching the skin; in variola it is hard and shotty, and does not disappear on stretching the skin.—(From J. W. Moore's work on *Variola and Varicella.*)

OBSTETRICS.

2. *Presumptive signs of pregnancy:* (1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness.

Positive signs of pregnancy: (1) Hearing the fetal heart sound; (2) active movements of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle.

A positive diagnosis can very rarely be made before the sixteenth week; often not till the eighteenth or twentieth week.

6. A *diagnosis of occipito-posterior position may be based* on: Finding the sagittal suture in the oblique diameter of the pelvis, the posterior fontanelle in the posterior half of the pelvis, the anterior fontanelle is easily accessible; the fetal heart sounds are heard far back in the flank, between the ribs and the crest of the ilium; the fetal head may be felt above the pelvic brim, and the fetal small parts are felt through the anterior abdominal walls of the mother, while the fetal back is not felt.

Subacute Meningitis a Complication of Respiratory Troubles in Children.—Clement Delfosse mentions subacute meningitis as a not infrequent complication of pneumonia and purulent pleurisy in infants. The organisms that most frequently are responsible for this complication are the pneumococcus and the bacillus of Pfeiffer. The child generally gives a history of frequent respiratory or digestive troubles, or of the eruptive fevers. The microorganisms seem to be especially virulent in the cases in which we have this complication. The cerebrospinal fluid is always turbid, the more so in the severe cases, and there are present the microorganisms and polynucleated cells. The cerebral lesions are most marked on the convexity of the cerebrum. The prognosis is very grave, and treatment has little effect on the disease.—*Journal des Sciences Médicales de Lille.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of October 2, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	438	118
Diphtheria	181	13
Measles	78	6
Scarlet Fever	97	4
Smallpox	—	—
Varicella	18	—
Typhoid Fever	170	25
Whooping Cough	82	12
Cerebrospinal Meningitis	10	7
Malarial Fever	—	—
Totals	1,074	185

The Symptomatic Expression Called Exophthalmic Goiter in Its Relation to the Function of Reproduction in the Woman.—A. Pinard, after giving the history of an interesting case observed by him, in which the symptoms of exophthalmic goiter appeared whenever the reproductive functions were disturbed, gives it as the result of his observations that the syndrome called exophthalmic goiter has an etiologic relation with ovulation and not with pregnancy. As soon as the harmonious rhythm of the reproductive functions is re-established the syndrome disappears. It would be premature to say that, engrafted on a nervous soil, we have an autointoxication resulting from a derangement of an internal secretion of the ovaries, not the thyroid.—*Annales de Gynécologie et d'Obstetrique.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended October 1, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
District of Columbia, Washington	Sept. 11–18	2	..
Illinois, Danville	Sept. 11–18	1	.
Massachusetts, Boston	Sept. 11–18	1	.
Missouri, St. Louis	Sept. 11–18	1	..
Ohio, Columbus	Sept. 11–18	1	..
Indiana (8 counties)	July 1–31	61	2
North Carolina (8 counties)	July 1–31	50	.

SMALLPOX—FOREIGN.

Brazil, Bahia	Aug. 6–27	18	9
Rio de Janeiro	Aug. 15–22	3	..
India, Bombay	Aug. 10–17	..	2
Rangoon	Aug. 7–14	..	1
Italy, general	Aug. 8–Sept. 5	18	..
Naples	Aug. 29–Sept. 5	9	5
Java, Batavia	Aug. 7–14	2	..
Mexico, Guadalajara	Sept. 3–9	..	1
Mexico City	Aug. 14–28	..	7
Portugal, Lisbon	Aug. 28–Sept. 4	12	..
Russia, Moscow	Aug. 21–28	5	4
Odessa	Aug. 21–28	11	..
Riga	Aug. 28–Sept. 4	6	..
Spain, Valencia	Aug. 21–28	1	..
Vigo	Aug. 28–Sept. 4	..	1
Tripoli, Tripoli	Aug. 7–28	26	5

YELLOW FEVER—FOREIGN.

Brazil, Bahia	Aug. 6–27	3	2
Mexico, Merida	Sept. 9–16	1	..
Veracruz	Sept. 24	1	1 From S. S. *Mexican*

CHOLERA—FOREIGN.

China, Amoy	Aug. 7–14		12
Chefoo	Aug. 28		5 Among Europeans
India, Bombay	Aug. 10–17		43
Rangoon	Aug. 7–14		2
Japan, Amagasaki	Aug. 14–21	4	..
Netherlands, Rotterdam	Sept. 4–11	..	1
Russia, general	Aug. 28–Sept. 3	520	229
Moscow	Aug. 21–28	1	..
Riga	Aug. 28–Sept. 4	46	19
St. Petersburg	Aug. 28–Sept. 4	171	82
Sumatra, Djambi	July 15–31	170	78

PLAGUE—UNITED STATES.

California, Alameda County	Sept. 24	1	

PLAGUE—FOREIGN.

Brazil, Bahia	Aug. 6–27	8	4
China, Amoy	Aug. 7–14		52
Canton	July 24–Aug. 7	15	12
Hongkong	July 31–Aug. 7	3	3
Ecuador, Guayaquil	Aug. 21–28	.	4
Egypt, general	Aug. 19–Sept. 3	17	6
Alexandria	Aug. 21	1	1
Port Said	Aug. 20–24	1	2
India, general	Aug. 7–14	1,659	1,251
Bombay	Aug. 10–17	.	35
Rangoon	Aug. 7–14		27
Japan, Kobe	Aug. 14–21	1	1

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Original Articles.

ON THE CONSTRUCTION OF AN EFFICIENT AND ECONOMIC DIET IN TUBERCULOSIS.*

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BEFORE formulating a standard dietary for the tuberculous invalid it is obviously desirable that some acceptable conclusions should be reached regarding a standard for the normal individual, and unfortunately there is not at present among physiologists a striking unanimity of opinion in this respect. Thus the practice of dietetics in tuberculosis is of necessity largely empirical.

Most standard dietaries, especially the older ones, are based upon the food values actually consumed by different classes of individuals living under varying conditions as to occupation. Thus in Voit's standard for a healthy man of seventy kg. doing medium work, he gives a protein requirement of 118 grams with a total of 3055 calories—the same man at hard work 145 grams protein and 3574 calories. In Rubner's standard for the same man the protein is 127 grams and 2868 calories at medium work, and 165 grams protein and 3362 calories at hard work. Atwater's standard is higher than either of the former in calorie value, but somewhat lower than Rubner's in protein for the same man under like conditions. (Quoted by Lusk in "Science of Nutrition," page 188).

These standards are at such striking variance with those reached by Chittenden, who gives 50 grams protein and 2500 calories as sufficient for a soldier at work (*Lusk, loc. cit.*, page 185), that one is forced to conclude either that the protein constituent of the average diet is vastly in excess of the body needs and, therefore, very likely harmful or that Chittenden's standard is altogether too low for safety. The fact, however, that Chittenden's men appeared to do very well upon this remarkably low protein diet (Chittenden in "Physiological Economy in Nutrition") is certainly an argument against the need of the relatively high protein value of the older standards. Be that as it may, it is highly improbable that the ordinary individual will, from choice or experience, select Chittenden's standard on the strength of any argument which has yet appeared. In any case in the construction of a ration for the convalescent from a wasting disease it is safer to somewhat overestimate than underestimate the food requirements. To combat the inanition produced by the acute or advanced phases of tuberculosis, hyperalimentation seemed a reasonable and proper measure, while an actual and relative increase in the protein constituent of the consumptive's dietary seemed particularly desirable. That such a practice has in the past been carried to an absurd and harmful excess there can be little doubt. The immediate results of such treatment as shown by weight gain were flattering, but the ultimate injury both to the organs of digestion and elimination has so often proven disastrous that the "stuffing process" has, so far as I am aware, been entirely abandoned in institutions and among physicians who have much to do with the treatment of tuberculosis.

Unfortunately, however, medical tradition lingers a long time in the lay mind and in popular literature, and it is still a matter of common observation to find the tuberculous invalid relying upon his own initiative, forcing down eggs and milk in addition to his three hearty meals long after his weight has reached normal and when there is no possible excuse for a superabundant diet.

The wasting of consumption, it must be remembered, is not the result of lack of food for, as a rule, these patients have been in the habit of taking a sufficient diet prior to their illness, and are sufficiently supplied during the period of their disease, despite all that has been said to the contrary. It is the result rather of the grave functional disturbance incident to the toxemia of the disease. Digestion and assimilation are perverted or more or less interrupted, and until chance or proper treatment has effected an efficient remedy for this condition, all the food in the world will not control emaciation.

It is obviously impossible, even if it were desirable, within the limits of the present discussion to consider the many and various dietetic needs which arise in the treatment of advanced and complicated cases of tuberculosis. I shall, therefore, here confine myself to a discussion of a suitable dietary for the average sanatorium patient who may for present purposes be considered a convalescent—a suitable diet for whom does not vary greatly from that of the same person in health.

It is desirable to consider the subject first from the standpoint of efficiency and second from that of economy. It is plain that to start with we must adopt a working standard of some sort, whether it be based upon experience or purely theoretical grounds. To arrive at such a standard we must take into consideration the following facts which experience teaches.

(*a*) Men of the same respective age and weight seem to require a larger diet than do women.

(*b*) All other conditions equal, a larger diet is apparently required by persons under thirty years of age than is the case after that period.

(*c*) The laboring classes, *i. e.* those who earn their living by muscular work require more food than is the case with those living a more sedentary life, and in a certain measure the dietetic habits

*Read in abstract at the Annual Meeting of the National Association for the Study and Prevention of Tuberculosis, in Washington, D. C., May 13 to 15, 1909.

necessitated in the first place by occupation persist after occupation distinctions are removed.

(*d*) The urban dweller consumes a larger relative amount of animal food and therefore derives a larger percentage of his energy from the protein constituent of his diet than is the case with the country dweller. This, of course, applies only to the higher orders of civilization.

With these points in view and bearing in mind the wide individual variations which occur in all classes, we may assume for present purposes the following standards, applicable to ambulant cases of comparatively quiescent tuberculosis under sanatorium treatment:

(1) For young adult men of the "working class" on very light exercise from 2800 to 3200 calories, of which from 110 grams to 125 grams shall be protein.

(2) For the same class on five or six hours' vigorous exercise (sawing or chopping wood, working with shovels, pickaxes, barrows, etc.), from 3100 to 3600 calories, of which 125 grams to 140 grams shall be protein.

(3) For women of this class 200 calories and approximately ten grams protein may be deducted in each case.

(4) For young adult men, whose occupation has been more sedentary—*e. g.* clerks, bookkeepers, tailors, students, etc., on moderate exercise (walking from one to three hours daily) 2600 to 3000 calories of which not over 115 grams need be protein.

(5) For women of this class not to exceed 2500 calories and 100 grams protein.

(6) For older patients, a slight reduction in calorific value and a considerably lower protein constituent are desirable in each case.

(7) For the country dweller a somewhat larger bulk, without increase in protein value is usually desirable, all other conditions being similar, than is the case with the patient from the city.

Diets constructed on these standards in two divisions of the Loomis Sanatorium during the past year have proven more satisfactory than any which have been previously employed.

During the fall and winter of 1905 and 1906 in the course of some dietetic studies conducted at the Annex of the Loomis Sanatorium, a standard diet considerably larger than any of the above was used. We were still laboring under the tradition that hyperalimentation was desirable in the treatment of tuberculosis. Our standard during that period was protein, 166 grams; fat, 214 grams; carbohydrates, 323 grams; calories, 3955. Patients seemed to do very well on this diet. Weight gains were satisfactory, but digestive disturbances were not uncommon, and when I reported the results of our observations at the 1906 meeting of this Association, I expressed the doubt then that the protein constituent of our dietary was excessive. (Transactions of the National Association for the Study and Prevention of Tuberculosis, 1906.)

In the spring of 1908 we instituted a complete change in régime at the Annex and somewhat later at the Intermediate Division of the Loomis Sanatorium. Competent dietitians were given charge of the ordering and preparation of the food. The dietaries were constructed from prescription and accurate records were kept of all food actually consumed.

Before proceeding with a summary of the dietetic studies, which were based upon this change in régime, I may say in explanation that the Annex is a division of the Sanatorium intended to reach early, favorable, ambulant cases of tuberculosis, financially unable to meet a self-sustaining rate of charge. This division has a capacity of forty patients equally divided as to sex. Of the forty beds twenty-three are entirely free, while for the seventeen remaining a nominal charge of $5 per week is made. During the past year of the patients treated at the Annex there were 15.9 per cent classified as "incipient" upon admission, 47.6 per cent "moderately advanced" and 37.4 per cent "far advanced." Almost all of the Annex patients come from the "working classes" and are accustomed to manual work. In the course of their treatment work requiring considerable muscular exercise is prescribed in graduated doses —primarily as a therapeutic measure on the excellent plan devised by Doctor Patterson of the Brompton Hospital Sanatorium at Frimley, England.

The Intermediate Division of the Loomis Sanatorium is intended to be self-supporting, but on a basis of strict economy. It is intended to reach a class of patients whose means are limited, but who do not wish to accept charitable assistance. Only ambulant and favorable cases are admitted to this division. For the most part the patients are recruited from among convalescents who have taken the first period of their "cure" in the main division of the Sanatorium, and whose financial resources require close economy during the final term of their sanatorium residence. There is a capacity in this division for fourteen patients, also equally divided as to sex. They comprise for the most part, young clerks, stenographers, students, housewives and occasionally young professional men and women. Each of these divisions of the Sanatorium is conducted as a separate and independent unit, thus affording opportunity for comparative studies as to efficiency of diet and economy of administration.

At the Annex the new régime was begun early in June, 1908. It required some time, however, to complete the organization and get into good running order, so to speak, and prior to August 1st I do not consider the data reliable. In the meantime, however, we had determined by experiment that approximately 3000 calories with 130 grams protein was a very safe working standard when the average was considered of all the forty patients, twenty of whom it will be remembered were women, and a few of whom were children. Most of the patients were on from two to four hours' work, some of the men reaching six hours' hard work, while, of course, a certain percentage were always on more or less complete rest.

For the nine months beginning August 1, 1908, the average diet of all the patients actually worked out per capita per day: Protein, 131 grams; fats, 113 grams; carbohydrates, 385 grams; calories, 3166. The patients were made to eat slowly and advised to satisfy their hunger, but not to attempt a "stuffing process." Three regular meals were served, the heartiest at midday. An intermediate diet of about half a pint of skimmed milk was given twice daily, and during the cold weather cocoa took the place of the skimmed milk in the afternoon. No whole milk was used as a beverage, the cream being separated was used with cereals, coffee and desserts.

Somewhat to my surprise neither the fats nor proteins varied as much as I had expected with the seasons. There was a very slight increase in the consumption of fats during the colder months, but no sustained ratio in that respect in the case of proteins, while the total calories remained substantially the same. (See summary Chart I at end of

article). As might be expected there were some wide individual variations from these averages. Some persons are naturally large eaters; others again, absurdly small eaters. For instance, one patient frequently exceeded 4000 calories with 160 grams protein, while his weight remained practically stationary. Again a very well-nourished young woman never exceeded 2000 calories nor 100 grams protein, yet persistently gained in weight.

On the whole, this standard has seemed to meet the requirements of the class of patients treated at our Annex remarkably well. Weight gains have been fully as satisfactory as upon the older and larger standards, while digestive disturbances have been practically unknown. Under the old regime it was the exception to have less than four or five patients at a time temporarily confined to bed from causes usually traceable to dietetic errors, while under the new régime it is the rare exception to have one such case. Because of the different categories under which patients fall in the Sanatorium, as to amount and character of exercise, physical condition and dietetic habit, it was thought wise to separate the patients at the Annex into three groups and to observe and record their diets separately. This plan was carried into effect on November 1, 1908, and has proven both interesting and advantageous. The new comers and small eaters are placed at one table by themselves at which my resident medical officer presides. After their dietetic habits have been observed and, when necessary, corrected and they have been given light exercise they are graduated to another table, over which the nurse presides. The third table is made up of the "working corps" and large eaters, over which the business superintendent presides. The first and second tables do not vary in any marked degree as to the actual average food consumption, while, as might be expected, this average is considerably increased at the "work table."

For instance, the records for February, 1909, show the following average food consumption for the three tables, respectively:

FEBRUARY, 1909

Table I		Table II		Table III	
Protein	120 gms.	Protein	129 gms.	Protein	138 gms.
Fats	106 gms.	Fats	114 gms.	Fats	123 gms.
Carbohydrates	361 gms.	Carbohydrates	390 gms.	Carbohydrates	432 gms.
Calories	2,958	Calories	3,188	Calories	3,444

During February the patients at the "work table" (Table III) were all men working from two to six hours daily at timber thinning, *i. e.* cutting, sawing and piling cord-wood. The patients at Table II were of both sexes on moderate exercise, consisting chiefly of walking and "camp duty." Those at Table I were for the most part, of course, at rest or on very light walking exercise. During that month of a total of forty-one patients all but nine made substantial weight gains.

In our Intermediate Division approximately the same relative percentage of "incipient," "moderately advanced" and "far advanced" cases, respectively, obtained among the patients treated during the past year. The class differences between the patients treated in the Intermediate Division and those at the Annex will be borne in mind.

With but occasional exceptions all of the patients in this division were on moderate exercise, consisting of walking, snow shoeing, etc., from one to four hours daily.

The dietetic data in this division are accurate and reliable from December 1, 1908. (See Summary Chart II, page 637.) The difference in amount of food consumption between these two divisions of the Sanatorium is remarkable. In partial explanation of this difference it may be noted that nearly all of the patients in the Intermediate Division were up to or above their average respective weights when in health. The character of the exercise taken by these patients required the expenditure of less energy, and habitually large eaters were comparatively exceptional. Nevertheless, class peculiarities probably more than any other one factor account for the difference. I may add that in the Intermediate Division much more care was taken to make the table esthetically attractive and the service dainty than was the case at the Annex, and this point is significant in view of the results.

The average food consumption per person per day in our Intermediate Division for the five months from December 1, 1908, actually worked out as follows: Protein, 104 grams; fats, 106 grams; carbohydrates, 306 grams; calories, 2662. Thus it will be seen that the average daily food consumption by each patient in this division was more than 500 calories and 27 grams protein less than was the case at the Annex. So far as they could be attributed to diet, nevertheless, the therapeutic results were equally satisfactory in both cases. Weight gains, wherever weight was deficient, were all that could be desired and digestive disturbances were of exceedingly rare occurrence. Comparing the weight gains of the men with those of the women I found that the former did better than the latter and it occurred to me that it would be of interest and possibly advantageous to ascertain the relative food consumption of the two sexes—accordingly, beginning April 1st, we placed the seven men at one table and the seven women at another. For the month of April, 1909, the daily average food consumption per patient at the two tables, respectively, worked out as follows:

Men		Women	
Protein	114 grams	Protein	94 grams
Fats	102 grams	Fats	79 grams
Carbohydrates	351 grams	Carbohydrates	264 grams
Calories	2,850	Calories	2,201

It will thus be seen that at our Intermediate Division during this month the men consumed daily 646 calories and 20 grams protein per person more than did the women. Of the fourteen patients of both sexes all but one gained in weight during this month, the aggregate gain among the men being 5 kg. and among the women 3.820 kg. Of the patients in this division during April the average age of the men was 23 years and 9 months, that of the women 29 years and 2 months.

With a view of ascertaining the comparative results of differently proportioned diets upon the same individuals under varying conditions of rest and exercise the following experiment was made at the Annex of the Loomis Sanatorium this spring:

Four young men, patients in the Annex, volunteered for the experiment and by their faithful and cheerful cooperation made the conditions of the experiment possible. Following is a description of these patients as to their physical condition just prior to the experiment:

MacKenzie, twenty-two years of age, bookkeeper; normal weight ("Nylic Standard") 70 kg.; highest

known weight, 68 kg.; weight at beginning of experiment, 57.300 kg. Incipient lesion at right apex; sputa non-bacillary. Was on five hours' manual labor daily.

Knox, seventeen years of age; clerk; highest known previous weight, 50 kg.; weight at beginning of experiment, 51.320 kg. Incipient lesion at right apex; sputa non-bacillary. Had reached three hours' manual labor daily.

Fisher, twenty-one years of age; bookkeeper; normal weight, 63 kg.; highest known previous weight, 58 kg.; weight at beginning of experiment, 57.440 kg. Moderately advanced, but quiescent, lesions at both apices. Bacilli present in sputa. Had reached five hours' manual work daily.

Connor, twenty-two years of age; chauffeur; normal weight, 61 kg.; highest known previous weight, 60 kg.; weight at beginning of experiment, 58.380 kg. Incipient lesion at right apex. Sputa non-bacillary. Had reached six hours' manual labor daily.

These patients had the appearance of a very well-nourished and an unusually healthy group of young men. The experiment was begun April 1, 1909. The original plan was as follows:

1st week.—Rest, recumbent except for coming to meals and bathing. Moderate reading permitted. (What we term at the Sanatorium "comparative rest" as distinct from "absolute rest" when a patient is kept wholly in bed and treated like a typhoid patient.) An accurately weighed diet of 100 grams protein, 100 grams fat and a total of not to exceed 2500 calories.

2d week.—Two hours gradually increasing to five hours daily in two shifts of hard manual work. Diet same as during the first week.

3d week.—Work increased to six hours daily. Diet remaining the same.

4th week.—Work the same as in third week, but the diet increased to 150 grams protein, fat remaining the same and total calories advanced to 3000.

5th week.—Work to be increased and an effort made to increase the diet if possible to 4000 calories with 200 grams protein.

Through a misunderstanding of my orders a mistake was made at the fifth week. An attempt was made to increase the diet according to plan, but the men were taken off work and placed on "comparative rest" with the result that the full high diet was never reached and digestive disturbances necessitated the discontinuance of the experiment on the fifth day of this week.

Throughout the diets were varied as much as possible and the men were allowed any article of food desired so long as the day's total was kept within the prescribed limits. The men were weighed every day after breakfast. (Weights are net in all cases.) All urine was saved and accurately measured and examined as to specific gravity, abnormal constituents, indican, urea, etc., and a record of the daily total nitrogen excretion in the urine was kept in each case. (The Kjeldahl-Gunning method was employed in the nitrogen estimation.) As the daily excretion of urine seemed unusually large, especially in the case of MacKenzie, a careful daily record was kept of the fluid taken in each case after the ninth day. Fisher had had a slight albuminuria since his admission and this condition persisted throughout the experiment; otherwise the urines were practically normal. The details of this experiment may be gathered from the Table (Chart III), page 637. Charts showing graphically the daily nitrogen excretion by the urine and the nitrogen intake as estimated from the protein constituent of the food in each case are also appended (Charts IV, V, VI and VII.)

Summarizing the experiment as actually worked out we find that the diet during the *first week* was as follows: Protein, 100.7 grams; fats, 100.6 grams; carbohydrates, 317.7 grams; calories, 2649. No exercise except coming to meals and bathing was allowed. Slight constipation necessitated the use of mild laxatives during the week. At the end of the week Fisher had gained 1160 grams; MacKenzie, 200 grams; Connor, 280 grams; while Knox lost 220 grams. As was natural the men were somewhat restless, but slept well. For two or three days they felt underfed somewhat, but afterwards expressed satisfaction of hunger.

Second week.—The diet was slightly larger, but the protein constituent was the same: Protein, 101.2 grams; fats, 110.5 grams; carbohydrates, 356.7 grams; calories, 2904. Beginning with one and one-half hours' moderate exercise twice daily the men advanced gradually to six hours' hard work daily. All expressed a sense of well-being throughout the week. The food satisfied their hunger and there was no constipation. This week Fisher lost 660 grams; MacKenzie, 20 grams; Connor, 20 grams; while Knox gained 760 grams.

Third week.—No material change in diet: Protein, 100.5 grams; fats, 109.3 grams; carbohydrates, 344.3 grams; calories, 2836. During this week the men worked hard—six hours daily. Fisher lost 240 grams; MacKenzie gained 260 grams; Knox gained 1280 grams, and Connor gained 160 grams. All expressed perfect satisfaction with the diet and said that they felt better than at any time during the experiment.

Fourth week.—Protein constituent of the diet was increased 50 per cent, otherwise the diet remained practically the same: Protein, 150.3 grams; fats, 105.3 grams; carbohydrates, 344.3 grams; calories, 3007. The work was the same as during the third week, *i. e.* six hours daily hard manual labor. All lost in weight during this week—Fisher, 700 grams; Knox, 360 grams; MacKenzie, 440 grams, and Connor, 560 grams. Before the end of the week the men began to express a feeling of repugnance for meat and eggs from which most of the protein was derived. Their appetites were less and they felt overfed.

Fifth week.—The diet was still further increased. For the five days before the experiment was discontinued it averaged as follows: Protein, 151 grams; fats, 149 grms; carbohydrates, 436 grams; calories, 3795. As above stated the mistake was made of taking the men of exercise instead of increasing the work as I had intended, with the result that all were made ill from digestive disturbances (constipation, anorexia, and in one case vomiting and diarrhea). For the five days on this diet and rest Fisher lost 1400 grams, while the others gained as follows: MacKenzie, 600 grams; Knox, 200 grams, and Connor, 180 grams.

It will, of course, be observed that these men were naturally not large eaters, yet I think they represent the average healthy young man in their dietetic habits. It is, therefore, of some significance to note the amount and character of the diet upon which they seemed to do best, and it is further of interest to note that this diet (during the second and third weeks) was in calorific value very slightly

under our Annex Standard Diet, viz.: Annex Standard Diet, 3166 calories; most satisfactory test diet, 2900 calories, while in its protein constituent it was considerably less than our Annex Standard and almost identical with the standard at our Intermediate Division, viz.: Annex Standard Diet, 131 grams protein; Intermediate Division Standard Diet, 104 grams protein; most satisfactory test diet, 101 grams protein.

From a study of the Nitrogen Charts appended it will be seen that in a general way the nitrogen output in the urine diminished gradually for approximately fourteen days from the commencement of the experiment and then increased somewhat, although the protein constituent of the food was not materially increased until the twenty-second day. On this latter date it will be remembered the protein was increased 50 per cent and as would be expected there was an immediate response in the nitrogen content of the urine—somewhat delayed in the case of Knox and less marked in that of MacKenzie, but indicating the metabolism of a larger amount of protein in all cases.

It is worthy of remark that all of the men made substantial and very satisfactory improvements as to their pulmonary condition during the month of the experiment. Fisher lost his bacilli and in all cases the physical signs showed unmistakable betterment in the lesions.

I have already mentioned the wide individual variations from standards which are constantly met with in dietetic studies of this character. Some individuals seemingly require absurdly small diet upon which to maintain or even to increase weight as compared with others who persistently lose weight on just as absurdly large diets. As an illustration—during the winter of 1907-08, a patient in the main division of the Loomis Sanatorium, a young man very much under weight, with an extensive though quiescent infiltration in both lungs, had endeavored on his own initiative to increase his weight by a "stuffing process." Upon investigation his diet was carefully measured for three consecutive days and to my consternation I found that he was consuming daily, protein, 272 grams; fats, 271 grams; carbohydrates, 518 grams; calories, 5235. His weight at this time was 58.300 kg., so that he was taking a diet of 86.7 calories per kilogram of body weight, and still losing weight. His appetite by the way was remarkably good considering his enormous diet and the fact that he was on very limited light exercise. By cutting out the milk and eggs, which he had been taking his diet was reduced to approximately 3000 calories and 130 grams protein. Upon this diet he began slowly to regain his lost weight and needless to say he felt much better.

At the same time a woman with every appearance of robust health, weighing 78.600 kg., with an involvement (arrested) of the left lower lobe, was found to be gaining in weight upon a diet of, protein, 72 grams; fats, 62 grams; carbohydrates, 128 grams; calories, 1381, or upon 17.55 calories per kilogram body weight. In this case careful estimations of the food consumed were made for twenty consecutive days. In view of such apparently con-

SUMMARY CHART I

Showing daily food consumption and cost of raw food material per person per diem at the Annex of the Loomis Sanatorium. For nine months—August, 1908, to April, 1909, inclusive.

Month	Protein	Fats	Carbohydrates	Calories	Daily Rate per Person
August	129	110	377	3,107	$0.2675
September	128	112	353	3,013	.28
October	136	114	379	3,171	275
November	130	109	388	3,138	.296
December	133	116	405	3,284	.28
January	126	112	385	3,136	.33
February	129	114	391	3,192	.33
March	135	113	394	3,219	.31
April	132	115	395	3,230	.29
	1,178	1,015	3,467	28,490	$2.6585
Average	131	113	385	3,166	.2954

SUMMARY CHART II

Showing daily food consumption and cost of raw food material per person per diem at the Intermediate Division of the Loomis Sanatorium For five months—December, 1908, to April, 1909, inclusive.

Month		Protein	Fats	Carbohydrates	Calories	Daily Rate per Person
December		104	105	311	2,624	$0.36
January		101	112	293	2,664	.36
February		104	113	307	2,742	.32
March		107	111	313	2,755	.41
April		104	90	308	2,527	.38
		520	531	1,532	13,312	$1.83
Average		104	106	306	2,662	366
April	Men.	114	102	351	2,850	
	Women.	94	79	264	2,204	

CHART III

Showing Details of Diet Experiments

Diet =	Proteins = 100.4			Fats = 100.8	FIRST WEEK			Carbohydrates = 317.6		Calories = 2639
Name	Lung Condition	Weight at Beginning of Week, in Kilos	Weight at End of Week, in Kilos	Daily Exercise	Fluid Intake in Litre	Total Urinary Output in Litre	Total Nitrogen in Urine, in Grams	Total Nitrogen in Food, in Grams	Nitrogen in Food Unaccounted for in Urine in Grams	Gain + Loss − in grams	Result on General Condition
Fisher	Mod. adv	57.440	58.600	None		14.0	82.46	115.8	33.3	+ 1.160	Slight constipation.
Knox	Incipient	51.320	51.100	None		15.4	85.91	115.8	29.8	− .220	" "
Mackenzie	Incipient	57.300	57.500	None		25.2	138.64	115.8	(a)	+ .200	" "
Conner	Incipient	58.300	58.760	None		13.	73.91	115.8	41.9	+ .380	" "
Diet =	Proteins = 101.2			Fats = 110.6	SECOND WEEK			Carbohydrates = 327.9		Calories = 2777	
Fisher	Mod. adv.	58.600	57.940	3 to 6 hours	12.3[1]	9.1	54.90	116.3	61.4	− .660	Excellent.
Knox	Incipient	51.500	51.860	3 to 6 hours	13.1	10.6	55.10[2]	99.7	44.6	+ .760	"
Mackenzie	Incipient	57.300	57.480	3 to 6 hours	11.2[1]	13.8	65.11[2]	99.1	34	− .020	"
Connor	Incipient	59.300	58.740	3 to 6 hours	13.3[1]	11.3	64.58	116.3	51.7	− .020	"
Diet =	Proteins = 100.5			Fats = 109.3	THIRD WEEK			Carbohydrates = 314.3		Calories = 2810	
Fisher	Mod. adv	57.880	57.700	6 hours' hard work	14.	6.7	61.65[3]	97.4[4]	35.7	− .240	Excellent
Knox	Incipient	52.200	53.140	6 hours' hard work	16.5	8.1	55.10[3]	97.4[4]	42.3	+ 1.28	"
Mackenzie	Incipient	57.920	57.740	6 hours' hard work	16	15.1	60.38[3]	97.43	37	+ .260	"
Connor	Incipient	59.120	58.900	6 hours' hard work	15.4	9.8	68.13	113.6	15.5	+ .160	"
Diet =	Proteins = 150.3			Fats = 105.2	FOURTH WEEK			Carbohydrates = 313.9		Calories = 3010	
Fisher	Mod. adv.	56.980	57.000	6 hours' hard work	13.5	10.2	106.51	173.3	66.8	− .70	Not so good
Knox	Incipient	52.660	52.780	6 hours' hard work	15.2	9.3	68.17[2]	123.9[2]	55.7	− .3	" " "
Mackenzie	Incipient	57.260	57.300	6 hours' hard work	17.9	10.1	93.65	173.3	79.7	− .440	" " "
Conner	Incipient	58.400	58.310	6 hours' hard work	13.8	9.3	64.48[2]	123.9[2]	59.4	− .560	" " "

[1] Six days only.
[2] Record for six days only.
[3] Record for five days only.
[4] Excess of nitrogen in urine over nitrogen in food cannot be satisfactorily explained.

tradictory evidence as these cases present the endeavor to establish dietetic class standards seems difficult to say the least, and yet such sensational variations do not so much indicate different food requirements in different persons as they do the differences in individual capacity for metabolizing what food is eaten. Undoubtedly in the former of the two cases mentioned the great bulk of the food taken passed through the alimentary tract unchanged. That this was the fact indeed a study of the urine and feces demonstrated.

Before leaving this phase of the subject it is of interest to compare our present standard diet at the Annex of the Loomis Sanatorium with our former standard under the old regime, and with that which has been so thoroughly worked out by Bardswell and Chapman in England ("Diets in Tuberculosis," Bardswell and Chapman, Oxford Medical Publications).

Bardswell & Chapman Standard	Former Loomis Annex Standard	Present Loomis Annex Standard
Protein. . 150 gms.	Protein. . 166 gms.	Protein. . 130 gms.
Total calories.. 3,200	Total calories.. 3,667	Total calories. 3,200

It will be seen by this comparison that our present standard diet is in calorific value identical with that of Bardswell and Chapman, and somewhat lower than was the case with us formerly. It will further be seen that the protein constituent of our present standard is considerably lower than that of Bardswell and Chapman, and much lower than that of our former standard. I am convinced that the change which we have effected both in the construction of our dietary and in its total calorific value has been advantageous from every point of view. That we must supply in the food at least as many calories as the body expends in order to maintain health and weight is an obvious fact, but that we need supply greatly in excess of this amount, even in the presence of tuberculosis, is very improbable. Experience seems to teach that the smaller the balance over and above the actual requirements of the body the more satisfactory are the results.

For one unaccustomed to the work of constructing a dietary from prescription it is tedious and a little difficult at first to arrange a menu which shall represent approximately the desired food values. I have, therefore, appended at the close of this article a week's sample menu representing food values substantially such as our Annex standard calls for. I have taken one day's menu from each of seven months and given the average portions as actually consumed on the respective days. These menus (see Chart VIII) may possibly be found helpful to one who is called upon to prescribe a definite dietary for the tuberculous invalid.

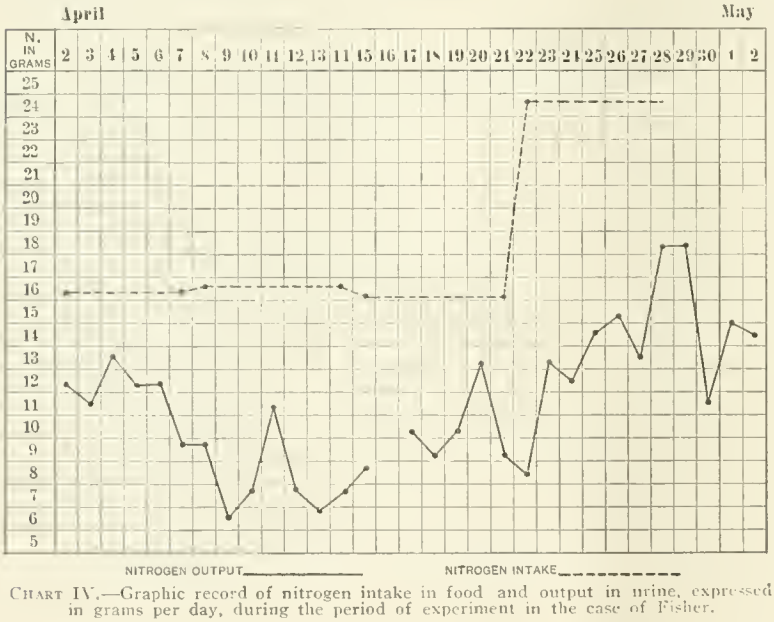

Chart IV.—Graphic record of nitrogen intake in food and output in urine, expressed in grams per day, during the period of experiment in the case of Fisher.

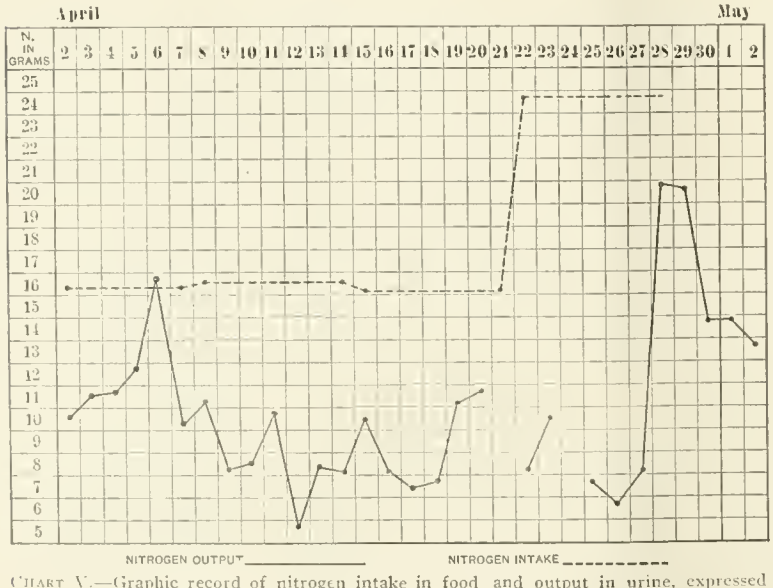

Chart V.—Graphic record of nitrogen intake in food and output in urine, expressed in grams per day, during the period of experiment in the case of Knox.

From the standpoint of economy it is highly important that the Sanatorium dietary shall be not only scientifically constructed to meet the requirements of treatment, but that extravagance and unnecessary waste shall be reduced to the minimum. As every one who has had experience knows full well, the Steward's Department is the chief item of expense in the administration of the Sanatorium, and when means are limited it it absolutely essential to the success of the institution that economy in this respect be practised. It must be remembered, moreover, that a poorly constructed or inefficient diet in such an institution is the worst form of extravagance, for it involves a worse than useless expenditure of means without conducing to the desired result; and in this respect it seems pertinent to observe that the average uninstructed or improperly instructed tuberculous invalid is no more fit to prescribe his own diet than he is to dictate his medicinal treatment. He will, as a rule, either grossly overeat or disastrously underfeed himself, or, what is almost as bad, he will overemphasize the relative importance of certain articles of food in consequence of which his diet is very apt to be greatly disproportioned as to its chemical constituency, and very likely to represent a cost out of all proportion to its therapeutic value.

In a brief discussion of this phase of the subject at the last International Congress on Tuberculosis (Transactions of the International Congress on Tuberculosis, 1908) I attempted to show from our records at the Annex of the Loomis Sanatorium how a dietary representing certain definite food values could be reduced in cost by intelligent dietetic management. Our experience in the Annex and Intermediate Division of the Loomis Sanatorium has proven beyond question that by substituting trained, educated dietitians for ordinary cooks and stewards, a sufficient saving in the cost of raw material and in its preparation for the table can be effected to far more than compensate for the increased salaries incident to such a régime, while at the same time the inestimable advantage is gained of having a much more scientific, wholesome and attractive diet. It will be seen by reference to Charts I and II that the cost of what have proved most satisfactory dietaries at our Annex and Intermediate Division worked out at 29.5 cents and 30.6 cents, respectively, per person per day (raw food material) for the past few months. In each case the saving effected under the new régime was something more than 10 cents per person per day over the previous cost of the same food value. The chief factor in this saving has, of course, been the elimination of waste, but other factors, small in themselves perhaps, have contributed to economy and are worth considering. For instance—eggs, which in America at least, are popularly, though erroneously, supposed to have some extraordinary merit in the treatment of tuberculosis, constitute at certain seasons of the year a most extravagant form of nourishment. For example, when eggs are worth 35 cents the dozen (and this is a very moderate winter price with us) the same amount of assimilable protein and fat can be purchased in the form of good beef for 50 cents as costs $1 in the form of eggs. In other words, eggs are just twice the cost of good beef, food value for food value.

Bardswell and Chapman (to the excellent and practical value of whose work I have already alluded) have admirably shown in how many little ways saving may be effected in the choice of food stuffs without in any way detracting from the nutrition value or attractiveness of the diet. Their work was done in England and of course their suggestions apply to that country particularly, nevertheless, many of the points which they make can be utilized to great advantage in this country. They show, for instance, that margarine has the same food value as butter, costs very much less, and for cooking purposes at least is in flavor and wholesomeness infinitely to be preferred to the ordinary "cooking butter;" that fats can be supplied in a dietary quite as attractively and more cheaply in some other form than cream, and thus separated milk may be used with economic and probably dietetic advantage also as a beverage

When large markets are close at hand it is comparatively easy to purchase with economic advantage. But most sanatoria are located more or less remote from great markets and for this reason it is all the more important that the selection of the food material and the construction of the menus shall be in the hands of competent and skillful dietitians if both sides of the problem are to be satisfactorily guarded.

With a view of ascertaining how the difficulties of the diet problem are being met in the various institutions for the treatment of tuberculosis in America I sent in February, a letter of inquiry to the Superintendents or Physicians in Charge of 214 such institutions in this country and in Canada. Among the questions asked in this letter were the following:

(*a*) In whose hands is the arrangement of the menus?

(*b*) Does the physician in charge control the dietary?

(*c*) Do you employ trained dietitians?

(*d*) Is any attempt made to control the chemical constituency of the food?

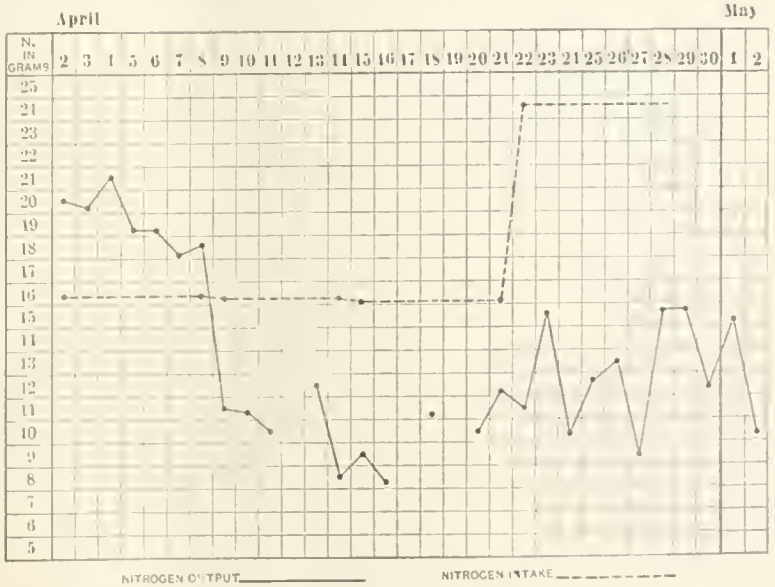

CHART VI.—Graphic record of nitrogen intake in food and output in urine, expressed in grams per day, during the period of experiment in the case of Mackenzie.

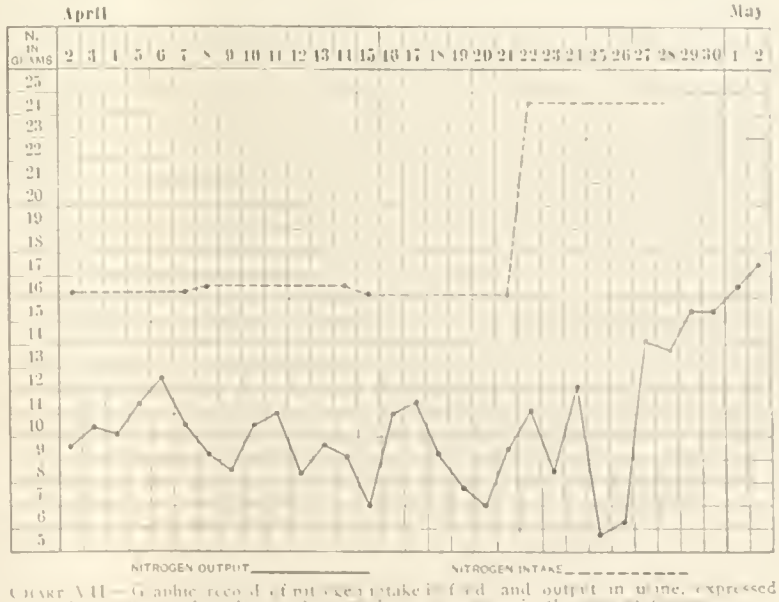

CHART VII.—Graphic record of nitrogen intake in food and output in urine, expressed in grams per day, during the period of experiment in the case of Curtis.

(*c*) What is the cost of raw food material per person (including employes) per day?

From the 214 letters sent out I received 130 replies. Five of these replies stated that for one reason or another the questions could not be answered. Of the remaining 125 in answer to question *a*, 85 stated that the menus were arranged by a matron or superintendent; 17 that the menus were arranged by a dietitian and in the remaining 23 they were arranged by the cook or chef. In reply to question *b*, 91 answered yes; one that the nurse controlled the dietary, while in the remaining 33 the question is not satisfactorily answered. In answer to question *c*, 17 replied that trained graduate dietitians are employed. In the remaining 108 institutions dietitians are not employed. In answer to question *d*, as might be expected, 17 replied that the chemical constituency of the diet is controlled. In 20 cases it is "partly controlled." In 76 it is frankly stated that no effort is made to control the constituency, while the question remains unanswered in 12. The answers to question *e* show that the cost of raw food material per person per day varies all the way from 22 cents to $2. Many of the institutions could not or at least did not answer the question. From those who did so it is learned that the cost of raw food material was found to be from 20 to 25 cents per day in two institutions, from 25 to 30 cents per day in two institutions, from 30 to 35 cents per day in nine institutions, from 35 to 40 cents per day in six institutions, from 40 to 45 cents per day in eight institutions, from 50 to 75 cents per day in eighteen institutions, from 75 cents to $1 per day in eight institutions, from $1 to $1.25 per day in nine institutions, from $1.25 to $1.50 per day in two institutions. Raw food material costs over $1.50 per person per day in three institutions.

In considering the results of this inquiry it must be remembered that these 130 institutions may be separated into several groups necessarily differing one from another both in their functions and requirements. Some of them are purely public charities supported by State, County or Municipality and intended to meet the demand of indigent patients only. Others are private philanthropies conducted on a semicharitable basis. Others again are private self-sustaining institutions, while a few are purely commercial enterprises.

Some admit only early favorable cases; others admit patients in all stages and still others are little more than homes for incurables; and finally a few are solely for the care of tuberculous infants and children.

Obviously, therefore, a fair comparison as to the respective cost of the dietary is quite impossible. One point, however, is emphasized by this inquiry, viz., the subject of the dietary in most sanatoria does not receive the attention which its importance merits, either from a medical or from an economic point of view.

Our ideas as to the dietetic requirements in tuberculosis are still to a large extent chaotic. It is a subject upon which there remains much work to be done and in the meantime we have to combat as best we can with insufficient data the fads and fancies of extremists; the exploitations of the patent food vendor and the absurd prejudices of the ignorant and half-instructed.

In conclusion I desire to acknowledge the invaluable cooperation and assistance in carrying out the above dietetic experiments and in formulating the data upon which this paper is based of my head dietitian, Miss Charlotte Strickland, and Miss Charlotte Young, dietitian at the Intermediate Division of the Loomis Sanatorium, without whose aid I could scarcely have carried out the work.

CHART VIII

SAMPLE MENUS OF ANNEX STANDARD DIET

SUNDAY—

BREAKFAST	Gms.	DINNER	Gms.	SUPPER	Gms.
Oranges	..	Fricassed chicken	200	Boston baked beans, ketchup	82
Pettijohns	24	Sliced tomatoes	98		
Sausage	63	Mashed potatoes	126	Marmalade	15
Corn bread	40	Boiled rice	37	Chocolate cake	67
Bread, butter	.	Vanilla ice cream	120	Prunes	63
Coffee, cocoa	..	Bread, butter	..	Bread, butter	.
Milk, cream	..	Milk	..	Tea, cocoa, milk	

Bread for day	120
Butter " "	28
Milk " "	1,549
Cream " "	155
Cocoa " "	180
Sugar " "	60

	P.	F.	C.	Calories
Average per patient per day	145	123	419	3,456

MONDAY—

BREAKFAST	Gms.	DINNER	Gms.	SUPPER	Gms.
Cream of Wheat. Cream	150	Roast ribs beef. Gravy	59	Corn beef hash	103
Poached eggs	47	Mashed potatoes	140	Sweet and sour pickles	12
Toast	12	Turnips	32	Plain cake	37
Bread, butter	..	Apple tapoica	132	Bananas, cream	85
Coffee, cocoa	..	Milk	..	Bread, butter	..
Milk	..	Bread, butter	..	Tea, cocoa, milk	..

Bread for day	90
Butter " "	28
Milk " "	1,560
Cream " "	170
Cocoa " "	201
Sugar " "	48

	P.	F.	C.	Calories
Average per patient per day	121	105	426	3,212

TUESOAY—

BREAKFAST	Gms.	DINNER	Gms.	SUPPER	Gms.
Quaker Oats, cream	48	Soup	200	Cold sliced beef	50
Minced meat	38	Wafers	12	Creamedpotatoes	112
Graham muffins	32	Roast shoulder veal	84	Sweet and sour pickles	
Bread, butter	..	Mashed potatoes	170	Bread, butter	
Coffee, cocoa	..	Sieva beans	118	Tea, cocoa, milk	
Milk	..	Tapoica cream	115		
		Bread, butter	..		
		Milk	..		

Bread for day	111
Butter " "	29
Milk " "	927
Cream " "	158
Cocoa " "	364
Sugar " "	74

	P.	F.	C.	Calories
Average per patient per day	126	117	369	3,117

WEDNESDAY—

BREAKFAST	Gms.	DINNER	Gms.	SUPPER	Gms.
Cereal, cream	35	Soup	185	Chicken salad	74
Codfish cakes	30	Wafers	10	Macaroni and Cheese	150
Bread, butter	..	Roast leg lamb	60		
Coffee, cocoa	..	Peas	93	Prunes	75
Milk	..	Mashed potatoes	157	Bread, butter	.
		Steamed pudding	100	Tea, cocoa, milk	
		Brandy sauce	20		
		Bread, butter	..		
		Milk	..		

Bread for day	95
Butter " "	34
Milk " "	940
Cream " "	161
Cocoa " "	183
Sugar " "	76

	P.	F.	C.	Calories
Average per patient per day	126	109	370	3,046

THURSDAY—

BREAKFAST	Gms.	DINNER	Gms.	SUPPER	Gm
Figs	70	Soup	173	Cold lamb	67
Oatmeal, cream	43	Wafers	20	Fried potatoes	93
Corn cake	40	Sirloin steak	83	Baked Apples, cream	85
Maple syrup	29	Mashed potatoes	168		
Bread, butter	..	String beans	107	Bread, butter	.
Tea, cocoa, milk	.	Bread pudding with raisins	110	Tea, cocoa, milk	
		Bread, butter	..		
		Milk	..		

Bread for day	94
Butter " "	37
Milk " "	1,075
Cream " "	170
Cocoa " "	347
Sugar " "	63

	P.	F.	C.	Calories
Average per patient per day	130	107	400	3,168

FRIDAY—

BREAKFAST	Gms.	DINNER	Gms.	SUPPER	Gms.
Prune.....	75	Bouillon, wafers	120	Creamed beef ...	89
Quakers Oats, cream.....	25	Baked halibut ..	122	Baked potato....	80
Bacon.....	10	Mashed potatoes.	160	Dutch cheese....	39
Corn muffins....	20	Stewed tomatoes.	150	Biscuit	43
Bread, butter...	..	Lemon jelly	95	Baked apples, cream.....	75
Coffee, cocoa, milk.	..	Cream	..	Bread, butter ..	
		Bread, butter...	.	Tea, cocoa. ..	.
		milk.....	..		

Bread for day.....			80	
Butter " "			32	
Milk " "			1,430	
Cream " "			160	
Cocoa " "			250	
Sugar " "			78	
	P.	F.	C.	Calories
Average per patient per day.....	127	107	372	3,041

SATURDAY—

BREAKFAST	Gms.	DINNER	Gms.	SUPPER	Gms.
Prunes.....	60	Soup.....	135	Cold tongue.....	40
Shredded wheat.	10	Wafers.....	9	Fried potato. ..	96
Hominy, cream..	16	Lamb chops.....	52	Rhubarb sauce	70
Liver.....	14	Mashed potatoes.	148	Bread, butter...	
Bacon.....	10	Lima beans.....	105	Tea, cocoa, milk.	
Muffins.....	28	Boiled custard...	98		
Bread, butter...	..	Bread, butter, milk.....	..		
Coffee, cocoa, milk.....	..				

Bread for day.....			104	
Butter " "			36	
Milk " "			1,600	
Cream " "			210	
Cocoa " "			235	
Sugar " "			69	
	P.	F.	C.	Calories
Average per patient per day.....	133	133	371	3,303

EARLY DIAGNOSIS OF MALIGNANT DISEASE OF THE LARYNX.

PATHOLOGY, PROGNOSIS, AND TREATMENT.*

BY WALTER F. CHAPPELL, M.D., M.R.C.S., ENG.,

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No subject demands or has received greater attention from laryngologists than malignant disease of the larynx. The recent writings of Delavan, Butlin, Glück, Semon, and others, would seem to have been the last words from the greatest authorities, but our "Omnipotent Council" have commanded something further on this important and interesting disease. The writer would not presume to present to this distinguished society a general resumé of the subject, but will ask you to accept his personal views and experiences.

The early symptoms in these cases are vague and the clinical picture obscure, so that the condition frequently remains unrecognized, irrespective of the fact that any hope of arresting the disease depends upon early diagnosis and treatment. How to get an opportunity to observe these cases in their earliest stages concerns us very much, as only too often they are not seen by competent observers until well advanced. Many patients are hoarse for weeks and months without any thought occurring to them that their condition may be serious.

Not unlikely they have consulted their doctor one or more times for a supposed cold before the patient comes under special observation. It is marvelous how casually the usual patient and doctor will treat a continued hoarseness; in fact, it is not uncommon for them to wait until some other symptoms appear before they think it worth while to get further advice. How different it would be if every doctor was able to examine the larynx intelligently and tell the patient at his first visit whether his hoarseness was due to a simple laryngitis, a growth, swelling, or an ulcer. This is exactly the place where very valuable time is lost. I think I can safely state that insufficient teaching of laryngology in most of the medical colleges of the past must bear the blame for this state of affairs. Personally I can state I did not see the larynx with any intelligence until five years after I graduated. About that time I spent six years in London, and on the continent, and had a good opportunity of meeting doctors from all parts of the world. I know positively that, with few exceptions, the physicians I met could not use the laryngoscope, though they had been in practice many years. The same condition of affairs exists to-day, and I do not believe one general practitioner in a hundred, who graduated before 1900, can examine the larynx satisfactorily. It is only two years ago I exhibited a woman before the Laryngological Association who had been treated for asthma by several well-known physicians for five years. A very easy laryngeal examination revealed a tumor as large as a hen's egg, swinging loosely on the top of the larynx. I could relate many similar cases, and believe there is not a man present who has not had some such experience. To my mind, the complete neglect of some practical knowledge of the larynx by all medical colleges in the past is a matter of great regret. When the medical colleges the world over graduate men who can examine the larynx as part of their routine work, we will then have an opportunity to see nearly all these laryngeal tumors in their earlier stages.

I am happy to state that Columbia University and some other medical colleges in New York have undertaken to give this practical instruction to all their students. The fourth year men of the College of Physicians and Surgeons, who come to me for clinical instruction, are made to realize the importance of continued hoarseness in adults and children, and during the past two years all our graduates have been able to describe the condition of the larynx intelligently. I do not believe this influential society could do a greater work than to enlist all its members in a crusade for better education in laryngology among all the medical colleges. In my belief, our brightest hopes must be centered on these lines, and nothing I say in this paper promises better results to the sufferer of laryngeal cancer than the plea for the better training of the general practitioner in laryngology.

Cancer of the larynx represents about one per cent of all carcinomata in general, and its diagnosis in the early stages is conceded by all writers to be especially difficult. According to Semon, not one single sign in the early stages of malignant neoplasm of the larynx is in itself so characteristic that it establishes with absolute certainty the malignant nature of the formation. The contour, the location, the condition of the surface, the color of the new growth, the condition of the surrounding tissue, the mobility of the vocal cord, the age of the patient, and certain subjective symptoms, all may and will assist the experienced eye in making the diagnosis, particularly when several of them jointly raise such suspicion, although none of them may be absolutely characteristic in the early stages. Nevertheless, these signs and symptoms taken together may have in the aggregate an essential bearing on the diagnosis, and suggest the cancerous character of the trouble. The early recognition of the disease in the majority of the cases is possible with the assistance of the laryngoscope. Sendziak says that laryngeal cancer in its very incipient stages may in most cases be diagnosticated exclusively on the basis of the laryngoscopical picture without resorting to the microscope. Certain contributory evidence may be con-

*Read before the American Laryngological Rhinological, and Otological Society at Atlantic City, June, 1909.

sidered in arriving at a diagnosis such as the predisposing factor of heredity. Certain professions and occupations which predispose to chronic catarrhal disturbances, and a history of excessive use of the voice, may turn the diagnosis in the direction of cancer before the process is far advanced.

For convenience of description we will follow the usual division of intrinsic and extrinsic cancer. We will discuss the diagnosis of the intrinsic variety first. Sex and age are recognized by all writers as having an important bearing on the nature of the growth, and will be accepted as generally understood and described in the leading text books of the present time. Hoarseness is by far the most frequent symptom in intrinsic cancer which leads the patient to seek advice. While preparing to make a laryngeal examination, the observer will likely make mental notes of the age and general condition of the patient and also the condition of the mucous membrane on the pharynx before the larynx comes into view. His chief interest will, in my opinion, then center on the location in the larynx of the trouble which is causing the hoarseness. If a tumor is found confined strictly to the true vocal cord the color, contour, and surface appearance will be noted. The color may be pink, red, bluish red, grayish white, or white in appearance. The benign growths may also present this same variety of colors. Therefore, too much dependence should not be placed on color alone, in deciding the nature of the tumor. The shape of the tumor may be round, flat, lobular, irregular, and dentated, and yet no variety of shape have any special significance as to its malignancy or non-malignancy; neither is there any special character to the surface form which might give us further information. Location on the cord should next fix our attention. The anterior half in a male over forty years of age may be favorable to non-malignancy; the posterior half to malignancy. The next point to consider is the attachment of the growth to the cord. Does it sit on the cord without seeming part of it, with a base possibly smaller than the crown and with no surrounding redness and infiltration, or does it seem to form part of the cord with a thick base, the immediate parts being red and infiltrated? The former description is suggestive of a benign growth; the latter of malignancy.

Our next consideration should be the mobility of the affected cord. This, in my experience, is one of the most important symptoms in our diagnosis, as I have never seen a malignant growth on the true vocal cords which did not, even in the earliest stages, produce some loss of motion in the affected cord. This may not be apparent at the first examination, but I am not satisfied on this point until a number of examinations have been made, and some at the latter part of the day, after the patient has been working, or using the voice. At this point I would like to state that in these early cases we cannot be expected to give a final verdict in a doubtful case after one examination. It is my custom in doubtful cases to keep the patient under observation for a week before giving my final decision. Considerable diagnostic significance is attached by some to a slowly and constantly increasing dyspnea, which depends upon the more or less impeded mobility of the affected vocal cord. Sendziak considers this symptom as pathogenic, to a certain degree, of cancer of the larynx. It is a fairly early symptom if the cancerous infiltratum begins in the region of the arytenoid cartilage, or cricoarytenoid articulations.

Our next step in diagnosis would be a microscopical examination of a piece of the tumor. This should be easily obtainable in the class of cases I have described. If the report is positive as to malignancy, taken with the clinical symptoms I have described, I would be satisfied that we had a malignant tumor to deal with; if, however, the clinical symptoms, signs, appearances, etc., did not support the microscopical diagnosis, I certainly consider the clinical picture much more important and would be guided by it in the treatment of the case.

I have had a number of cases where numerous examinations of sections of the tumor were made by different observers, who all gave a positive diagnosis of laryngeal cancer. The clinical symptoms did not support these reports, and the subsequent histories have proved them to be wrong. I will tax your patience with the report of one case. We have the history, opinions of consultants, reports of microscopists, and, lastly, the present condition of the patient.

Mr. Blank, age sixty, consulted me in June, 1903, for a hoarseness of six weeks' duration, which had come on rather gradually during the excessive use of his voice, in directing men fighting a forest fire. Laryngeal examination disclosed a white growth, about the size of a French pea, on the margin and upper surface of the right vocal cord at the junction of the anterior and middle third. The surface of the growth had a granulated appearance and there was no thickening or infiltration of the neighboring tissues. One small red vessel could be distinctly seen running backward on the upper surface of the cord, which was otherwise perfectly white. The growth seemed to hang or sit on the cord, and did not seem to be part of it. The movement of the cord was not interfered with, in my judgment. There was no cough, pain, or any other laryngeal symptoms. The personal and family history was excellent and the patient had not been a heavy smoker. I made a diagnosis of laryngeal papilloma and this opinion was indorsed by Dr. Jonathan Wright, but Dr. Charles Knight, who saw the case at the same time, believed the growth was cancerous in nature, and based his report on his belief that there was some impairment of motion in the vocal cord. Dr. Wright and myself could not see that there was any difference in the movement of the two cords.

Mr. Blank was a man of unusual judgment, and, having thoroughly mastered all the writings on laryngeal growths, decided not to have the growth removed at once, fearing that operative measures might convert his innocent tumor into a malignant one. I offer no criticism on this decision. Later, Dr. Dundas Grant of London pronounced the growth a papilloma. About two years after I first saw the growth, I removed it at Caux in Switzerland. Two weeks previous to the removal, a well-known laryngologist of Lausanne pronounced the growth as surely malignant. As the tumor had increased very slowly and only from the free surface, with no infiltration of the surrounding tissues, I held to the original diagnosis of Dr. Wright and myself, of innocent papilloma. The removal was made with a Sajous scissor-handled snare, a laryngeal canula having been made for the purpose.

The tumor was sent to London to the Laboratory of the Medical Graduates College and Polyclinic.

Report ——— herewith some slides from the laryngeal growth of Dr. Chappell's patient. I think you will find them interesting. At first sight they appear to be sections of a simple and innocent pa-

pilloma. Careful examination, however, reveals the presence of epithelial "cell nests" in various places, and although it is true that such "cell nests" are occasionally seen in benign papilloma, I am inclined to the belief that the growth is a malignant one, in a very early stage.

(Signed) A. E. Hayward Pinch.

Dr. Wyatt Wingrave reported at the same time that the structure was that of a squamous papilloma. In New York the slides were examined and reports received from the following gentlemen: Dr. Jonathan Wright, who pronounced the specimen a simple papilloma. Dr. T. Mitchell Prudden said in a large part of the section both the epithelial cells and the connective tissue are much shrivelled, so that their minute characters cannot be made out. So far as the condition of the section permits of an opinion, which must be based largely on the topographical features, the growth is a simple papilloma. Mr. L. B. Goldhorn of the University and Bellevue Hospital Medical College says: "I return herewith the slide sent to me for diagnosis. From a purely morphological point of view, the specimen is an epithelioma, which, however, shows no evidence of active proliferation, and is therefore either at a standstill or of slow growth. After receiving the history, I first became a little doubtful. In many places the growth is simple papilloma, but there are areas which are unmistakably epithelioma. I have made a photomicrograph of the most typical infiltrating area, and shall consider it a favor to have you accept a copy."

The history of this case is a good sample of the different views which may exist from a clinical and microscopical standpoint in an early case of laryngeal tumor. I am glad to be able to report that there has been no return of the growth, now nearly four years since the operation. There is a small scar on the cord, hardly noticeable, but otherwise the entire larynx has a normal, healthy appearance.

My remarks, so far, have been confined to intrinsic cancers as observed on the vocal cords. The other situations for intrinsic cancers are subglottic, ventricular bands, ventricles of the larynx, and anterior surface and base of arytenoid cartilages. Malignant deposits in these situations often progress to a considerable degree before they are discovered. In many cases hoarseness is not an early symptom, and there is nothing else which is definite enough to cause the patient to seek advice. Possibly a little persistent stiffness or discomfort is the only early symptom noticeable. Slight localized pain or soreness is, in my experience, one of the earliest symptoms of cancer in the situation just described. On a laryngoscopic examination we usually find a fair sized bulging mass, varying in color, size, and shape, according to the location. The color, shape and appearance of malignant growths in these situations resemble very closely early syphilitic deposits, and I consider it very difficult to make a diagnosis and know that mistakes are not infrequent. Any focus found to be deeply imbedded in the mucosa and indistinctly outlined from the underlying tissue should awaken a suspicion of its being cancerous in character.

Jackson's bronchoscope has been of great aid to me in making the diagnosis. You can not only get a much better view of the tumor, but can also touch it and move it about, to a more or less degree. This increases your knowledge of the whole situation and enables us to remove at pleasure a piece sufficiently large to make certain that it will be representative of the tumor. In my opinion, the use of these tubes does away with the necessity of exploratory thyrotomy for diagnostic purposes.

A brief report of the following case will prove interesting. Mr. D., age fifty, consulted me in November, 1905. Personal and family history good. Three months previous had a severe cold and hoarseness that continued until he saw me. Loss of weight had been great, and the general condition was very bad. Laryngoscopic examination revealed a large mass involving the right aryteno-epiglottic fold and all the tissues above the ventricular band and posterior surface of the right arytenoid hung back into the esophagus. Numerous deep ulcerations appeared on the surface, several severe hemorrhages had occurred, and there was a great deal of dysphagia. The tumor, as a whole, had every appearance of an ulcerating epithelioma, but the history was so short and so many changes had taken place in the mass in such a short time that I thought at first it was syphilis of the laryngeal cartilages. I kept Mr. D. under observation for one week, running the iodide of potassium as high as six drachms per day, with no improvement. Just at that time the laboratory report of Dr. Jonathan Wright was handed to me, and was as follows: "This is evidently an epithelioma springing from the basal or germinative layer of the squamous lining of the mucosa."

Mr. D. lived in Philadelphia, and, acting on the report of the microscope and his non-response to the iodide treatment, I unwillingly pronounced his case one of cancer, sent him home and placed him under the care of Dr. Braden Kyle. Meeting Dr. Kyle about a year later I spoke of the case, and he said it proved to be syphilis and I made a good recovery.

A recent letter from Dr. Kyle reads as follows: "The case of Mr. D. was one that failed to respond to iodides and mixed treatment. I then used the compound wine of iodine, which further convinced me that the lesion was a specific one. I then used inunctions of mercury with excellent results." This case is of special interest as adding another to those which have been reported as cancer under a microscopic examination, and the subsequent history has proved the report to be erroneous.

Early Symptoms of Intrinsic Cancer. The epiglottis, aryteno-epiglottic folds, and arytenoids are the locations usually involved when we speak of the extrinsic cancers. Of course, the earliest warnings the patient would have depend somewhat on the location of the growth. Implication of the epiglottis causes cough and a little difficulty in swallowing and very early "slips" in swallowing, so that liquid or food enters the larynx at times. The first objective evidence of a new formation on the epiglottis appears on the true margin, and the relatively thin mucosa in the vicinity of this cartilage facilitates the early recognition of the growth, as well as the determination of its depth and its relations to the surroundings; cancer of the epiglottis being relatively easy to recognize. There are especial difficulties, however, attached to the diagnosis of laryngeal cancers growing from the ventricles of Morgagni, or those developing so deep within the larynx that they can be noticed externally only after the parts have been stretched and the tissues separated from each other. It is under these circumstances that disturbances of the mobility of the corresponding vocal cord become especially suggestive.

Implication of the interarytenoid folds causes hoarseness and dyspnea quite early. Glandular en-

largement is one of the earliest symptoms in cancer involving the arytenoepiglottic folds. In fact, it is not unusual that the discovery of a small lump on the side of the neck is the cause of the patient seeking advice. Owing to the lymphatic arrangement in the laryngeal region, glandular enlargement appears early in many extrinsic laryngeal cancers, and very late in intrinsic cases.

Pain is a fairly early symptom, due to pressure and not ulceration, which is usually slow in developing. I have nothing new to add to the differential diagnosis between cancer, syphilis, tuberculosis, etc. The greatest difficulty I have experienced has been between cancer and deep laryngeal syphilitic deposits. Every means at our disposal should be employed to exclude syphilis, and even then we may sometimes be mistaken.

Personally I have nothing new to offer on the pathology of this disease, but Dr. Jonathan Wright has given me the following synopsis of a paper he read recently at the New York Academy of Medicine:

Cancer of the larynx has the same structure in its various forms as cancer elsewhere. Neither in the larynx nor elsewhere is structure a sure guide to malignancy, because the structure is dead matter and malignancy is a living force which causes death. Malignancy depends upon vital dynamics. Structure is their incidental or by-product. Certain structure usually accompanies malignancy, but not always nor necessarily. Recovery from cancer is repeatedly reported, and more often observed clinically than microscopically, and has been demonstrated in the experiments on animals. While this is true of cancer everywhere, it is especially true of cancer of the larynx, as seen by laryngologists, because laryngologists more frequently have the opportunity of observing nascent cancer, tiny excrescences, or small ulcers of the cords causing hoarseness and alarm. Such growths usually present in miniature, if examined in their entirety, all the minute structure of larger growths, but because they less frequently prove fatal than the further advanced growths meeting the general surgeon, mistake in diagnosis is more frequently charged upon microscopist than clinician. The fallacy lies, not with them, but with the orthodox conception of the nature of cancer. Added to this, liability of error of a general nature, the preliminary microscopic diagnosis of laryngeal cancer has to be based on the exceedingly small fragments usually secured for microscopic examination, and upon pictures obtained through rapid hardening and staining. Such small fields offer no opportunity for the study of topography, but we have to depend on one or two suspicious appearances and the relation these bear to the clinical history and gross appearances *in situ*. If, then, as I have said, the complete picture in well-advanced cancer is not always a sure guide to prognosis, the one or two features present in a small bit of crescent-shaped tissue from a nascent cancer are, of course, still more fallacious guides.

Carcinomata in any part of the body cannot be considered as offering a cheerful outlook. In spite of the somewhat optimistic statement of one writer (Semon) "that he considered intrinsic cancer of the larynx, when discovered early, and radically treated, as offering a more favorable prognosis than cancer in any other portion of the body," I regret to say my personal experience has not been so favorable. Clinical cancer of the larynx is always serious, but a "microscopic cancer" may give a more favorable prognosis. In view of the constantly increasing evidence of the total unreliability of the microscope alone as a means of diagnosis in cancer of the larynx, one cannot but wonder whether it is not possible that some of the complete cures that have been reported were not, after all, cases of microscopic cancer. When such a man as Dr. Jonathan Wright expresses his doubts about the microscope and says, as he has to me, that he would not think of performing any serious operation on a growth in the larynx without positive clinical evidence of its malignancy, it is certainly time that this subject should receive more consideration at the hands of all our special societies.

Various degrees of malignancy are recognized in all cancerous growths and must be important factors in the prognosis. Heredity is another factor bearing on rapid or slow recurrence. The original site of the growth has a bearing on the prognosis, as does also early discovery, age of patient, and nature of operation.

Passing to the treatment of laryngeal cancer, which we are to consider only in its early stages, I wish to state that I do not propose to consume your time reciting the opinions of others, or the details of the various operations, as they are matters of record and well known to all. Some writers, in discussing the treatment, have made no distinction between the intrinsic and extrinsic cancers, which is an important division, not only from the standpoint of treatment, but also diagnosis and prognosis. This division allows a much clearer description and treatment of the whole subject. When a positive diagnosis of intrinsic laryngeal cancer is made, operative measures are the only means we should employ; all others fail to cope with the gravity of the disease. Thyrotomy, in my experience, possesses the greatest therapeutic significance in the management of the disease. It is suitable when the growth is limited to the vocal cords or the soft parts in the interior of the larynx. In regard to the postoperative security from recurrence, it is nearly equal in value to laryngectomy, whereas the safety of the operative intervention as such renders it infinitely superior to total or even partial resection of the larynx.

In a doubtful or suspicious case of laryngeal tumor, an exploratory thyrotomy is justifiable, although, as already stated, Jackson's tubes have, in most cases, removed the necessity of explorative measures. Personally, I would not consent to, or recommend laryngectomy in an early case of intrinsic laryngeal cancer.

Extrinsic laryngeal cancer is an entirely different matter, and must always be considered serious. In a patient under fifty-five years of age, when the cancerous tumor has been discovered early, total extirpation of the larynx should be advised, excepting when the new growth is confined to the epiglottis. Of course, the serious risk of the operation should be explained to the patient, and also the discomfort of wearing a tube, which he will be obliged to do.

From the point of view of recurrence, total resection of the larynx is superior to all other operative measures. After the patient is fifty-five years of age I do not advise the radical operation, even in early cases of extrinsic cancer. I believe the partial extirpation promises more for the patient. The kind of partial removal would depend on the location and size of the tumor. Complete extirpation of the

larynx has no attractions for me. It must, however, be recommended in certain cases, and when successful is a brilliant surgical triumph. A life may be saved, but I know of no more pitiable object than a person without a larynx.

7 East Fifty-fifth Street.

PRECOCIOUS TERTIARY SYPHILIS: REPORT OF A CASE WITH MANIFOLD MANIFESTATIONS.*

By H. FRED LANGE ZIEGEL, M.D.,

NEW YORK.

While justification for the use of the terms which have been selected for the title of this report can be found in the works of Alfred Fournier, Eduard Lang, and Robert W. Taylor, nevertheless it is admitted that the phrase "precocious tertiary" is objectionable, because its use implies that the course of syphilis can be divided by time-rules into stages; whereas, what the successive phenomena of syphilis really represent is an evolution or progression. But the case to be reported corresponds so closely with a type-form accurately described by Robert W. Taylor that this somewhat objectionable terminology is retained.

After having defined a form of precocious tertiary syphilis in which cutaneous gummata and ulcerations develop immediately after the secondary symptoms, the American Syphilographer goes on to say that "tertiary syphilis may be rather less precocious than in the form just described. Toward the end of the first year of the infection, after the evolution of secondary manifestations, some patients become weak, anemic and lose flesh. One, several or many ulcers may appear on the scalp, the face or the extremities, and run an active and rapid course, showing great rebelliousness to local and general treatment and careful hygiene. In some of these cases there are concomitant bone, joint, pharyngonasal, and testicular lesions. The patient is and continues to be a sick man upon whom destructive lesions appear at short intervals. In most of these cases, after a very severe ordeal the patient gradually gains health and strength, and may be cured in the end."[1]

Conforming closely with this description is the case of G. F. B., 37 years old, infected postnuptially by his wife three and a half years ago. When first seen two years ago the patient stated that treatment during the year and a half following infection had not been thorough or methodical, and that for three months there had been present an ulcer of the leg. Examination showed on the postero-external aspect of the lower third of the right leg a circular, sluggish-looking ulcer with sharply defined edges and a dirty-yellowish purulent base. This ulcer healed promptly as a result of deep injections of the salicylate of mercury and local surgical cleanliness.

There next appeared a scalp manifestation diagnosed by Dr. Sigmund Lustgarten as a "precocious papular syphilide." This was very resistant to treatment and persisted for a long time in spite of active mercurialization and local treatment under Dr. Lustgarten's direction.

At this time the patient's general condition was not good, there being considerable loss of flesh and strength; and there were present deep ulcerations of the pharynx and on the tonsils. These throat manifestations reappeared from time to time, generally during intervals between courses of mercurial treatment. In fact, attempts to suspend even temporarily the exhibition of mercury always resulted in the appearance of new lesions.

If we continue, now, to enumerate chronologically the various manifestations, the fourth was a syphilitic stricture of the left nasal duct, with distention of the lacrymal sac, tearing, and unilateral conjunctivitis. Dr. Martin Cohen, who diagnosed and treated the local condition, reported that at this time fundus examination showed pallor of the disc on the temporal side, edema on the nasal side; dilatation of the veins; and some opacity of the vitreous humor.

Fifth, there appeared protuberances on the forehead—superficial gummata which ulcerated. These ulcers healed, reopened some months later, and healed again.

Sixth, there was a periostitis of both nasal bones.

Seventh, the patient came complaining that nasal breathing on the left side was obstructed; examination showed a swelling springing from the nasal septum and occluding the left nares. This gumma soon broke down, resulting in abscess formation, and a large perforation of septum which can readily be seen at the present time.

Eighth, bursitis and synovitis. The left ankle became swollen, impaired in function and very painful at night. Soon afterwards both knees became similarly affected. The patellar bursæ were considerably enlarged, and there was dancing patella. These hydrarthroses coresponded closely with Levin's description of "Synovitis of the Knee-joint as a Late Manifestation of Acquired Syphilis."[2]

Ninth. Periostitis of the heads of the tibiae, first on the right side and then on the left. This latter was very severe, totally incapacitating the patient for two weeks. During this time severe nocturnal pain was complained of: there were marked tenderness over the inner tuberosity of the head of the left tibia and severe pain on the slightest movement. The circumference of the legs, which was measured 4 cm. below the lower border of the patella, was 3½ cm. greater on the left side than on the right.

At this time, as on several occasions previously, inunctions were given instead of the injections, because of the large number of nodosities in the buttocks. Palpation of the gluteal regions gave the feel of bags of nuts.[3] So far sixty-eight deep injections have been given.

Tenth, there developed six months ago gummatous infiltration of the right testicle which was hard, nodular and twice its normal size. This, like the other manifestations, has been favorably influenced by the treatment.

Eleventh, synarthrositis. Six weeks after this report was submitted for publication, there appeared —following a month's intermission in the administration of mercury—tumefaction and tenderness over the first, second, and third chondrosternal articulations. The prominence of the first joint was considerable. Gratifying evidence of the specificity of mercury were the prompt retromorphous and ultimate disappearance of these swellings on resumption of the treatment.

A modified Wassermann test, performed by Noguchi about one month ago, was positive. Of course treatment is being continued.

The patient is now steadily gaining in weight and he has no complaint to make. Though he looks

*Patient presented before the Harlem Medical Association, June 2, 1909.

very pale, his hemoglobin is 84 per cent.; it has never been less than 60 per cent. In spite of the enormous dosage with mercury and the iodides, his teeth, gums, and gastrointestinal tract have remained in good condition. There has never been any albumin in the urine. Constitutionally, therefore, he has been tolerant to mercury. But the local reactions after injections have at times been very severe; however, only indurations and no abscesses have resulted.

Conclusions.—A patient with syphilis which had not been systematically treated began to exhibit, fifteen months after infection, tertiary manifestations which appeared in the following order: (1) Ulcer of the right leg; (2) papular syphilide of scalp; (3) deep ulcerations of tonsils and posterior pharyngeal wall; (4) stricture of the left nasal duct; (5) ulcers on forehead; (6) periostitis of nasal bones; (7) gumma of nasal septum, suppuration, and perforation; (8) bursitis and synovitis; (9) periostitis of heads of tibiæ; (10) gummata of right testicle; (11) synarthrositis.

Eduard Lang says that "when the gummatous deposits in early periods of syphilis are markedly conspicuous as regards both their number and rapid course, it is certainly proper to express this character of the disease by the term syphilis 'precox.'" Accordingly, the case just described may be spoken of as one of precocious syphilis.

In tertiary syphilis, as is well known, the lesions usually involve the deep-seated organs and tissues; not so in this case, in which the lesions have been superficial, involving chiefly the skin, mucous membranes, ocular appendages, cartilages, bursæ, periosteum, the testicle, and chondrosternal articulations.

The two noteworthy features of this case are, therefore, the early appearance of the tertiary manifestations and their superficiality.

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2. MEDICAL RECORD, Nov. 14, 1908.
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8 WEST EIGHTY-SIXTH STREET.

THE CARE OF THE NURSING BREASTS—THEIR DEVELOPMENT DURING NEURASTHENIC PUBERTY.*

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ON the one hand breast feeding seems so simple, so natural, so physiological, that no special interest is aroused by its consideration. On the other hand, its relations and complications are widespread and test the acumen and medical skill of the most experienced, necessitating the study of the past and present clinical history of the father and mother, the persuading of the fashionable mother to give up her selfish social obligations, in justice to the little stranger, and many other tasks.

Pardon me if I break away from the usual course of a conventional stated paper on Breast Feeding, and bring you some disconnected clinical pictures of its anatomy, physiology, pathology, and psychology, and find, if you can, anything of interest in them.

Picture to yourself, if you will, how carefully nature guards the vital points of our anatomy. Brain, heart, lungs, and reproductive organs are all encased or surrounded by bony bulwarks. The spinal cord is carried along a bony tunnel with spinous processes projecting in four directions. The main arteries, veins, and nerves are placed on the inner surface of the limbs, exposed, it is true, in the biped, but well guarded in our original quadruped existence.

Now the breasts are not vital to the mother, but are to the child and to the continuance of the race. Therefore, in order to protect and maintain at all hazards the nourishment of the child, nature tapped the subclavian artery and carried the main blood supply of the breast by the internal mammary artery down within the bony chest wall, then out through the intercostal spaces, and into the base of the glands, and thereby hang the following clinical pictures:

Some years ago I delivered a mother of her third baby. Her first child had good nursing; the second child had practically none; the mother complained of this to me, and said she hoped she would be able to nurse the coming baby. On examination I found the nipples well formed, breasts unusually good, glandular tissue abundant, but I also observed that the breasts were heavy and sagged downward and backward; so much, that on placing a straight edged ruler on the sternum, as she lay in bed, it touched neither breast.

It then occurred to me, that as the patient lay upon her back—as many mothers do much of their parturient period—the heavy, pendulous breasts carried the perforating arteries firmly against the ribs and thus cut off their arterial supply.

I explained this to the mother, and told her that if she would lift and constantly support her breasts and allow the blood to flow freely into them, I believed that she would have all the milk she needed. She had an abundance of milk and nursed her baby to full time. It is true that this was an extreme case, but in a minor degree it is a not infrequent clinical experience.

Allow me to add this suggestion also: A case in psychotherapy, which I am studying in Pasadena wherein the blood supply has been explained to another mother, with a request that instead of sitting up while nursing her child, she should lie upon her nursing side, giving the circulation the best possible advantage, and at the same time mentally direct the flow of the blood toward her breast for the sake of her little babe. I do not know as yet what the outcome will be.

Here is still another clinical picture in my anatomical collection. Some weeks since, I told a mother and her nurse, both easy-going housekeepers, that I would like her to nurse both breasts each time. She replied that "Dr. Blank's little book said it was not necessary, that one breast at a time was sufficient." It is always refreshing to have one's patient quote some high authority in contradiction to your orders; nevertheless, with as good grace as I could, and without knowing whether she quoted correctly or not, I asked her to leave me out of the question entirely, and allow Dr. Blank to remain in New York, and then use her own common sense, and judge for herself. That if she nursed her babe every two hours, as Dr. Blank and everyone else

*Read before the Pasadena Medical Society, May, 1909.

advised, in one case she would have one breast empty and close to her chest, while the other would be full, distended, and hanging as a heavy weight on her chest for from two to four hours. The next nursing would reverse the conditions. The second breast would be empty, while the first would be distended, heavy and drooping, with the result that in time she would have two large heavy, pendulous breasts to drag upon her the rest of her life.

If she nursed both breasts each time she would have two small, active, well-formed breasts, well placed, close to her chest, and a good physique all her life; she could take her choice.

At times, in the case of a small, undeveloped breast, I believe it is wise to allow the breast to become overdistended—now and then to secure a certain amount of hyperemia. The same is true of hot applications, and especially of the Bier vacuum glasses.

As you pass along my clinical picture gallery, I must call your attention to these two companion pieces, which so often make breast feeding possible or impossible: The first is a demonstration of the illogical application of breast massage, as almost invariably practised, and, I am sorry to say, taught by some of our latest text books, where, in order to relieve the congested and overdistended milk ducts of a "caked breast" the nurse is instructed to begin at the periphery of the gland and gradually force the milk to and out of the nipple. If we had to clear a house of its furniture, and the front hall was already crowded full of furniture, we would not begin in the rear rooms and press tables, lounges, and chairs harder toward the front door. We would first relieve the packed hallway, and then with ease clear one room after another.

The second picture shows the deft fingers logically massaging the nipple first, then the region of the areola, following this the body of the gland, and finally the periphery, and all done with a gentle touch and with a minimum of pain. Let the nurse try one breast one way, and the second breast the reverse, and let the patient be the judge of the best method.

Next to these are two other companion pictures, one of a mother presenting her breast to her child. The nipple is erect, congested, distended, hard, and covered with stiff, dry epithelium; the eager baby seizes the nipple, crushes it between its little gums, the epithelium cracks, and thereafter follow infection, pain, painful nursings, solutions of nitrate of silver, lead shields, ointments, and perhaps abscess. The companion picture shows preparatory care, gentle massage of the nipples with lanoline cream before each nursing; the nipples are now as soft and pliable as new rubber, yield readily to the gum pressure of the child, while the mother delights to welcome her baby again and again.

Somewhere here, there is a picture of a nursing mother berating her dairyman for allowing his cows to eat the wild turnips in the pasture or giving them sour silo, which she tastes in the milk, while at the same time she is cooking on the stove corned beef and cabbage, turnips and garlic. "What's good for the goose is good for the gander," but it isn't always good for the goslin or for the breast-fed child.

There is an interesting phase of breast feeding in the elective selection of breasts, in the single, as contrasted with the multiple fetus-bearing animals. The dog, cat, and swine have their many breasts arranged in a slightly diverging row along the abdominal wall, near the median line.

The single fetus-bearing quadruped, with the sternum comparatively near the ground, and with the intestines falling toward the diaphragm, as the mare, cow, goat, etc., elect to develop the last or pelvic gland and carry it well up between the hind legs, where there is the most room, while the biped, as man and the kangaroo, have developed the gland at the upper or sternal end of the multiple breast chain, where the infant may be carried in arms and nursed at the same time. The whale also, which uses its tail as its only weapon of defense, must have its baby near its head and away from danger during a battle, and therefore selects a sternal gland.

Physiologists tell us that the breast of the little child remains undeveloped and dormant until puberty, and even then, although the breasts develop it is almost entirely a matter of connective tissue, while the true gland tissue still remains practically infantile until conception takes place.

One can hardly believe this to be the case, when one sees every other reproductive organ, vagina uterus, and ovaries, all gradually developing, both automatically and physiologically through a series of years and gradually fitting themselves for functional duty. We know that the blood and nervous systems have a marked influence upon the breasts and breast feeding, and that these communicating channels also must be developed before maturity.

Is it possible to increase their development psychologically? I cannot expect you all to agree with me in the following psychological thought and practice, but hope that I may find one or two who may at least care to think about it. As one sees our school children come and go, one easily recognizes that this child and that, and that, are normal, well-developed children, their love goes out to their parents, to each other, to their dolls, to animals, to everything. They are already little mothers in physiological prophecy. Leave them alone; they will need no help in their development.

Here is another group that have all the "ear marks" and every other mark of an "old maid." I dislike extremely that term, but I use it to bring to your mind a psychophysiological portrait, well known to those who have studied the young. Almost of necessity, and without exception, they are destined to become "old maids," not "bachelor girls," that variety of genus homo, without whom life were hardly worth the living, and whose royal, generous mother hearts (mothers in every sense save in the physical definition) do more than their share of caring for and educating the little children of the world. These "old maid" children, unnourished, overstrung, nervous, dyspeptic, cranky; these little neurasthenic bundles of suffering humanity ought to have our kindliest sympathy and our most skilful care. Now, how can you better practise preventive medicine and, as it were, prevent neurasthenia, than by bringing these little girls' physiology up to the normal standard.

And when and how can one better bring their physiology up to normal than by seizing the opportunities of their period of puberty, when their whole system is to reconstruct itself, causing many of the tissues to struggle upward into healthy action or degenerate into aborted and irritating centers. Puberty is an elective period, a strategic point for the family physician and the specialist, the physiologist neurologist, and psychologist, the ramification of its opportunities would fill a long paper.

In closing, I have but one suggestion to make. Let the thoughtful physician counsel the mother to

be wise and warn her little girl of the change that will come upon her, encourage her to be glad of the coming development, and its possibilities of future motherhood; explain her menstrual periods; but otherwise leave the pelvic organs undiscussed until a later date. Secure the development of the pelvic organs by the reflex influence of the breasts.

Curiously enough the little child's mind may be in total ignorance of the logical step of cohabitation, impregnation, and parturition, and she may at once imagine herself the fully developed mother of her dolls; she has done this for many years already, in a childish way. But now we have an opportunity to produce a psychic effect of great value in our little menstruating girl, by encouraging her to nurse her tiny imaginary child. I said "imaginary child." Do not give her a cold, china-headed doll, nor one of those celluloid fetuses, nor even her rag baby, there is no possible opportunity for imagination with them. Let the mother make a long, narrow fold of a soft Turkish towel, warm it thoroughly, especially the doubled end, that will represent, in the little girl's imagination, the baby's head, and then place the warm towel inside the night robe against the little girl's breast, and tell her to nurse her baby and then go to sleep. Go away now and leave the little girl to her own thoughts.

Repeat this one or two evenings at each menstrual period for a year or two, and then if you see the overwrought nerves relax, the nervous reflexes lose their sting, the child's temper soften, her neck and limbs develop, and her whole physique round out, you will know that you have practised preventive medicine in that best of all medical fields, the childhood of the human race, and, in all probability, have added another "breast-feeding" mother to our national motherhood.

THE GREAT IMPROVEMENT IN MANY ADVANCED CASES OF PULMONARY TUBERCULOSIS UNDER SANATORIUM CARE.

By HORACE GREELEY, M.D.,

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The general rule among sanatoria is to accept none but early cases of pulmonary tuberculosis, adjudging the care of the more advanced to be too unsatisfactorily and to rarely yield good results. But as it is known that a certain percentage of even those cases classed as incipient fail to improve and even decline under the best conditions, and as it is capable of proof (some of which I have now to offer) that at least a majority of patients with extensive pulmonary lesions and great constitutional depression resulting therefrom may be greatly benefited, and some have their disease more or less permanently arrested by a comparatively short period of sanatorium care, it may be that improvement under ideal conditions depends more upon the individual's resistance to the disease than upon the exact extent of his pulmonary lesions.

It is certainly known that many an early-stage case has steadily declined, in spite of the best care, while some apparently near the last gasp have rallied and even recovered a fair degree of health and activity. So far as immediate results in sanatoria are concerned (and they are, in my opinion, being consequent upon controlled treatment and known conditions, better gauges of this contention than uncertain after-histories, where even the actual physical state of the far-away patient is unknown) the last reports of the two principal sanatoria in New York State that receive both early and advanced cases show in a general way the usual outcome:

Table showing result of treatment in two principal sanatoria in cases staying at least three months.

	No.	Condition Upon Admission	Apparently Cured	Disease Arrested	Improved Only	Total Benefited	Unimproved or Failed
Adirondack Cottage	60	Incipient	20	23	14	57	3
Loomis	31	Incipient	23	4	3	30	1
Totals	91	Incipient	43	27	17	87 or 96%	4
Adirondack Cottage	97	Advanced	5	67	18	90	7
Loomis	91	Advanced	19	38	20	77	14
Totals	188	Advanced	24	105	38	167 or 89%	21

Here, aggregating, from the two institutions, the results obtained into improvements and failures we find that 96 per cent of the incipient cases improved and 89 per cent. of the advanced; surely the difference is not great enough to justify the abandonment of efforts to save the latter, yet upon the plea of doing the greatest good in the least amount of time, all the large sanatoria turn away thousands of indigent patients whose lives might be prolonged and even be made active again with a few months, or even years, of proper care and instruction.

All that the most vigorous of us are doing is to extend our lives for a little time; therefore, why should not the consumptive be encouraged to do likewise, especially if circumstances make it possible for him to live in comparative comfort?

Many of us have seen patients who were riddled with the disease, without apparently a square inch of perfect lung, in excellent physical condition and able to pursue a fairly active existence, and again others with involvement of barely the half of one lung who sank rapidly under the best of care. As has been said, lack of resistance, or of the ability to develop it, accounts best for the last mentioned, while the opposite, as exemplified in fibroid cases, explains the first, who, if they successfully run the gauntlet of the ever-threatening pus-germs, may survive indefinitely.

It is this last mentioned danger that engulfs so many of the advanced cases, for while the surgeon hesitates (as well he may) the abscesses poison and consume.

How remarkably and unexpectedly some cases improve under sanatorium regime was never brought to the writer's attention so forcibly as in his experience with the inmates of a small local sanatorium during the past year which, having no credit with those of the profession and laity nursing the old superstitions as regards the necessity of a special climate, was limited in patients to those well advanced cases for which I am begging sanatorium care.

The institution in question (a private one) only accommodating twenty-five, I have but the histories of twenty patients to present which were cared for therein during the past year. These, I think, will well repay perusal by any one who doubts the great constitutional resiliency of some of these patients when protected from everything except rest, good food and fresh air.

For brevity's sake and to offer nothing concerning antecedent conditions, often merely speculative, the institutional history is alone presented, and this without further comment.

Patient	Time Treatment, Mos.	Sex	Age	On Admission or Discharge	Lung Condition	W'ght	P. M. Temp.	Pulse	Resp.	Cough	Expect.	Bacilli	General Condition
B. H....	11	F.	39	Admission.	Consolidation upper right lobe, with cavity and infiltration middle right lobe and of left apex.	137½	101	100	22	Much	Much....	Many...	Markedly weak.
				Discharge..	All signs gone except of cavity and slight surrounding infiltration.	150	98.4	80	18	None.	None.	None....	Perfect health.
H. H...	3	F.	31	Admission.	Consolidation left upper lobe and infiltration right apex	123¼	99	84	24	Much. ..	Much....	Many....	Very debilitated.
				Discharge..	All signs of active disease gone, except a few subcrepitant rales at left apex.	137	98 3	74	19	None. ..	Little A. M.	Few. . .	Excellent
E. M....	6	F.	26	Admission.	Consolidation right and left upper lobes and infiltration of both lower right lobes.	98½	103	124	26	Much. .	Much....	Many...	Very weak intestinal involvement
				Discharge..	Consolidation extended, softening.	95	100	116	26	Much....	Much....	Many....	Worse.
A. P....	5	F.	23	Admission.	Consolidation upper two lobes right lung, infiltration lower right and left upper lobes Large cavity upper right.	105¼	100	120	26	Much.. .	Much....	Many....	Very weak
				Discharge..	Signs of active disease almost gone.	134½	98.6	79	19	Little A. M.	Little A. M.	Few... .	Excellent
M. B....	1	M.	19	Admission.	Consolidation of upper right lobe .	130½	99.6	85	22	Much...	Much....	Many....	Marked debility.
				Discharge.	Slight diminution of signs of active disease.	142¾	98.4	80	20	Slight.	Slight. .	Few.. . .	Much improved.
G. D....	1	M.	36	Admission.	Consolidation right and left upper lobes and infiltration of middle and lower right lobes.	152½	100	95	22	Much	Much.	Many....	Quite weak
				Discharge..	Little change...	157	98.4	78	20	Much. .	Much....	Many...	Much strong
L. S....	1	F.	23	Admission.	Infiltration of upper lef lobe. ..	116	99.6	90	26	Much....	Little...	Many...	Debilitated
				Discharge..	Slightly improved.... .	118½	98.8	88	22	Little...	Little ...	Many...	Better.
M. N....	3	M.	30	Admission.	Infiltration upper right lobe and of left apex.	125¼	99.6	90	28	Much....	Much....	Many...	Very weak
				Discharge..	Lungs clear of signs of active disease.	151	98.2	78	20	None..	None..	None....	Excellent
J. H....	2	F.	31	Admission.	Consolidation left upper lobe.. . .	105	99.2	86	21	Much.. .	Much....	Present.	Very weak.
				Discharge..	No change apparent.....	108½	99	86	20	Much.. .	Much....	Present..	Stronger.
M. F....	4	F.	31	Admission.	Consolidati.n upper right and left lobes and infiltration of middle right; cavity right apex.	113	101.5	96	22	Very much.	Much....	Present..	Quite weak.
				Discharge..	Signs of active disease much diminished.	128	98.8	90	19	Little....	Little...	Present..	Excellent.
L. F....	2	F.	26	Admission.	Consolidation right and left upper lobes; cavities both sides.	123½	101	92	36	Very much.	Very much.	Present..	Very weak.
				Discharge..	Considerable clearing	128	98.6	78	20	Little....	Little...	Present..	Quite good
S. W....	4	F.	40	Admission.	Consolidation of upper and middle right and of upper left lobes; infiltration lower right lobe.	82½	101	100	28	Much. ..	Much....	Present.	Very weak complete aphonia
				Discharge..	Signs of active disease much less. .	100	98.6	88	22	Little. .	Little.. .	Present..	Quite strong Voice almost normal.
M. E....	12	F.	22	Admission.	Infiltration upper and middle right and upper left; cavaties both apices.	118	100.5	116	28	Much. .	Much. ..	Many....	Very weak & short of breath; unable to walk
				Discharge..	Signs of active disease gone. . .	145	98 6	78	20	None	Little A. M.	None. .	Perfect health.
W. J. L.	3	M.	28	Admission.	Consolidation of upper right lobe and infiltration left apex	130	100	98	23	Much	Little A. M.	Many...	Very weak
				Discharge..	All signs of active disease gone	140½	98.6	80	20	Little.	Little...	Many ..	Excellent
E. N....	2	M.	20	Admission.	Infiltration upper righ and left lobes.	117	99	84	20	Little.	Little....	Many....	Debilitated
				Discharge..	Extent of active signs much reduced.	126	98 6	78	18	Little	Little...	Many.	Very good
M. J...	1	M.	30	Admission.	I ltrati n upper right and left lobes.	125	99 8	94	26	Much....	Much....	Many.. .	Very weak
				Discharge..	All signs active disease gone.... .	151	98.6	80	18	None..	None..	None....	Perfect health.
L. F....	4	M.	25	Admission.	Consolidation left upper and infiltration of right upper lobes Left breaking down.	117½	99	88	20	Much A. M	Much...	Present	Boy-rather emaciated
				Discharge..	Active disease arrested.. . . .	140	98.6	79	18	Little A. M.	Little. A. M.	Present.	Felt perfectly well.
E. H....	4	F.	40	Admission.	Infiltration right and left upper lobes.	95	101	106	24	Much. .	Much. .	Present.	Very weak & nervous.
				Discharge.	Signs of active disease much reduced.	105	98.6	84	19	Little A. M	Little A. M	Present.	Felt strong as ever; nervousn's gone
C. A....	3	F.	17	Admission.	Consolidation of entire left lung and of two upper right lobes, cavity both sides.	104	100	112	22	Much	Much	Present.	Very debilitated.
				Discharge.	Signs of active disease much diminished.	114	99	90	20	Little	Little	Present .	Much stronger, felt well
E. P...	5	F.	28	Admission.	Consolidation of right upper lobe and infiltration of ight middle lobe and left apex.	99	100	96	22	Little	Little. .	Present.	Very debilitated.
				Discharge..	Signs o active d sease almost gone: few rales at right apex.	116	98.6	82	20	None	Little A. M	Present..	Felt perfectly well.

MASTOIDITIS, COMPLICATED BY PURULENT LEPTOMENINGITIS, EPIDURAL ABSCESS, AND SINUS THROMBOSIS.*

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Cases of mastoiditis with intracranial complications are not very uncommon, yet the symptomatology of the various complications has not yet been so satisfactorily worked out, that case reports, especially when accompanied by autopsy findings, are without value. My excuse for reporting the following case is, in the first place, the fact that its clinical appearance and course did not conform to the picture usually seen in this disease, and the fact that it was possible to obtain a very complete autopsy.

Case.—Mrs. M. A., 37 years of age, was admitted to Dr. Berens' service, at the Manhattan Eye, Ear, and Throat Hospital, on July 2, 1908, complaining of a painful, discharging right ear, with some deafness and tinnitus, which had lasted about six weeks. Examination disclosed a moderate sized perforation in the anterior inferior quadrant of the right membrana tympani, through which exuded some seropurulent secretion. There was no tenderness over the mastoid process. Temperature and pulse were normal. Bichloride irrigations were ordered, to be used at home, every two hours, and the patient was advised to return to the clinic in a day or two.

She was not seen again until August 6, 1908, five weeks later. At this time she complained of intense headache over the right side of the head, which had lasted for three weeks. There was a boring pain in the right temporal region. She was somewhat excitable and begged to be taken into the hospital. Examination of the ear showed that the perforation in the drumhead had healed up, but the membrane was slightly pinkish, and thickened, and had not regained its normal luster. There was no tenderness whatever over the mastoid. She could bear very firm pressure over any portion of the mastoid process without wincing. Temperature, 100.2° F.; pulse, 84.

The patient was taken into the hospital. Examination of the eyes showed the pupils to be equal, and responsive to light and accommodation. There was a slight divergent strabismus which the patient says she has had all her life. There was a slight rotary nystagmus when she looked to the extreme right, left, up, or down. Ophthalmoscopic examination showed an old choroiditis in the right eye, with a slight blurring of the edges of the disc, and some fullness of the veins, *i. e.* a beginning optic neuritis. The left eye-ground was normal. The knee-jerks were possibly slightly increased and equal. She walked well. Her sense of position was good. There was no staggering or dizziness. No diminution of muscular power in any part of the body. No Kernig's sign. No Babinski sign. No rigidity of the neck. No areas of hyperesthesia or anesthesia. She answered questions rationally. Was somewhat excited. Blood examination showed 30,000 leucocytes. Differential count showed 92 per cent. of polynuclears. A lumbar puncture was made. About 5 c.c. of fluid was obtained. It was not under pressure, but came out drop by drop. The fluid was slightly turbid. Unfortunately, the specimen was mislaid in the laboratory before an examination was made.

*Reported at a meeting of the Bronx Medical Society, June, 1909.

During the night of August 6 the patient complained bitterly of headache. The next morning she became somewhat violent and attempted to jump out of bed. She was given morphine, gr. ¼, hypodermatically. She was fairly quiet during the day, and was more or less somnolent, with occasional rational periods. On the evening of August 7 she began to get periods of excitement again, and talked about committing suicide. She was given morphine, gr. 1/6, hypodermatically.

It was decided to do an exploratory operation the next day, but on the morning of August 8 her temperature rose to 105° F., her breathing took on a Cheyne-Stokes type, she became comatose, and died about half-past ten in the morning.

The post mortem, performed by Dr. Zabriskie, showed the following conditions:

The middle ear, the antrum, and mastoid cells were full of pus. The mastoid process was reduced to a mere shell of bone. There was a perforation, about one-third of an inch in diameter, through the tegmen tympani, leading to an abscess, in the middle fossa of the skull, containing about a drachm of thick greenish yellow pus, covered by an apparently intact dura. There was a thick purulent exudate covering the pia at the base of the brain, midbrain, and medulla, and extending upward on both sides, especially along the meningeal vessels, reaching somewhat higher on the right than on the left side. There were several clots in the right lateral and sigmoid sinuses.

The points of interest in the case are the following:

(1) The destruction of bone and presence of pus in the mastoid cells, antrum, and middle ear, without any mastoid tenderness and with scarcely any inflammatory signs in the membrana tympani. There were no perforation, redness, or bulging of the membrane. It was merely dull and thickened, and possibly a little pinkish.

(2) The presence of a purulent leptomeningitis, with so few of the cardinal signs. There was no rigidity of the neck, no Kernig's or Babinski's sign, no hyperesthesia or anesthesia, and no pupillary changes.

(3) The extension of the purulent process from the epidural abscess to the pia through an apparently normal intact dura.

156 East Sixty-first Street.

Treatment of Gastralgia.—E. Farroni says that the causes of gastralgia are numerous, and hence the treatment must vary with the cause. Among its causes are the various diseases, organic and functional, of the stomach, diseases of the liver, kidneys, appendix, lungs, and heart. Overeating may cause false gastralgia. All forms of malnutrition which result in intoxication may be added to the causes of gastralgia. Also all the exanthemata and infectious diseases. Hyperchlorhydria and achlorhydria may both be the cause of pain in the stomach. External topical applications in the form of heat, cataplasms, etc., and internal hot drinks are of value. The introduction of the sound to relieve distension when there is spasm of the cardia is of considerable value in gaseous distension of the stomach. Gastroenterostomy may be needed in some severe cases with anatomical changes in the stomach. Acetate of lead and nitrate of silver are useful in gastric ulcers which give severe pain. Alkalies are to be used in hyperacidity and acids in fermentations due to lack of acids. Antiseptics are useful in the fermentative cases. Sedatives may be necessary to relieve pain and relax spasm. Farroni therefore contends that we do not possess any specific treatment for gastralgia, and he says that it is necessary first to diagnose the cause of the pain and then to use such appropriate means of relief of the cause as the practitioner may be able to apply.—*Gazzetta Medica di Roma.*

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THE BORSTAL SYSTEM FOR THE TREATMENT OF JUVENILE CRIMINALS.

ENGLAND, in fact, Great Britain generally, is very backward in so far as the intelligent humane treatment of criminals is concerned. In England punishment is intended to be deterrent, and the life of a prisoner is severe in the extreme. Doubts as to the advisability of excessively strict punishment are, however, beginning to invade the minds of British penal authorities, and it is openly stated by many that such punishment is not deterrent but merely debases and renders callous the men or women subjected to it and very frequently makes them hopeless criminals. Of course it goes without saying that these strictures apply with special force to youthful offenders, many of whom are absolutely made criminals by unnecessarily harsh treatment.

In consequence of the growing appreciation of these facts there has recently been introduced into England the so-called Borstal system which, from a perusal of its main features as set down in the *Lancet* of September 25, would appear to resemble somewhat closely the principles for treating criminals in vogue in the Elmira Reformatory in this State. The Borstal system is based on the principle that punishment in its legal sense, in so far as it is not a mere act of social vengeance, but purports to exercise a reformatory influence, ought to be as far as possible individualized; that, to vary the popular formula, it is more important to make the punishment fit the criminal than to make it fit the crime. This is to say, that the intelligent treatment of criminals is not to lump them together and treat them all with like severity, as has been the case up to the present time in England, but to treat different classes of criminals with different methods, and consequently the first step in devising a rational penal system is to differentiate the various classes of delinquents and to base treatment upon a careful study of the characteristics and natural history of each class.

The portion of the article in the *Lancet* which will appeal most forcibly to medical readers is that which considers the question of the origin and evolution of criminal instincts. The conclusion reached is that the criminal is not like the poet, who is born, not made, but is generally to a greater or lesser extent a victim of his environment. He cannot be assigned to a morbid or degenerate type. The stigmata of degeneracy, so-called, whether somatic or psychic, are rare in the professional criminal, nor does he suffer from the neuroses so commonly met with in the weak-minded offender. Further than this, the writer in our London contemporary states that there is reason to think that definite hereditary taint is not very common in the families of such delinquents. That the brain power of the criminal is more frequently than not above the average of the class from which he springs is notorious, and that he is, as a rule, physically inferior to members of the noncriminal population is again laid at the door of his environment. The final conclusion come to in this consideration is that the professional criminal is ordinarily an individual of fairly average aptitudes in whom the influence of an unfavorable milieu has given a wrong direction to normal tendencies. It is pointed out that acquisitiveness is a perfectly normal human tendency and that theft is merely this tendency carried in the wrong direction through lack of power of control. As the power of control is of slow development, and weak and imperfect during the period of adolescence, a certain predisposition to the crime of acquisitiveness may be looked upon as to some extent normal in the time of youth.

The principle, then, of the Borstal system and of the system in force in many of our reformatories, is to remove the individual at the critical time, that is, when he has exhibited criminal tendencies, from evil environment and to place him under wholesome influences. The system teaches him to use his brains in regular and interesting work; it provides him with a suitable diet and it steadies his unstable nervous system by physical exercise. In a few words, it is claimed for these methods that instead of, as under the former English scheme of penal treatment, really manufacturing criminals, they at least tend to render youths predisposed to bad habits, respectable members of the community. If this is true, reformatories for youthful offenders conducted on these lines are amply justified both from a moral and from a utilitarian standpoint. Perhaps, in England the system has been in practice scarcely sufficiently long to allow of an authoritative expression of opinion. In America, so far as we are aware, properly conducted youthful reformatories have yielded satisfactory results. It seems obvious that the endeavor to lead the young into right paths by precept and example and to nourish the mind and body with fitting food is a more rational proceeding than to brutalize and debase both by too severe punishment. It may be that the writer in the *Lancet* is inclined to ignore the influence of heredity, but that early environment plays a very important part in the moulding of character cannot be denied.

THE ACTION OF NITROGLYCERIN

THE nitrites have enjoyed a great deal of popularity in the treatment of heart disease ever since Lauder Brunton introduced them into therapeutics by advising their use in the spasm of the arteries accompanying attacks of angina pectoris. The *rationale* of their employment was based, of course, upon their ability to diminish arterial tension and thus re-

lieve a heart laboring against an abnormal resistance. The frequent relief met with in employing them in heart disease has, however, led many physicians to regard some of them, nitroglycerin especially, in the light of "cardiac stimulants," and has led to a quite unwarranted use of this drug in conditions of low pressure accompanying cardiac insufficiency. Moreover, extended observations have brought out still another point in the explanation of high blood pressure that accompanies many pathological conditions, whether caused primarily by circulatory, nervous, or renal changes. This symptom, namely, is being more and more looked upon as a conservative phenomenon that tends to supply with blood tissues which in the conditions of low blood pressure would not be thus supplied in the quantity necessary for carrying on their usual functions. Many practitioners, supported by this explanation, have therefore begun to doubt the supposed good effects of nitrites and have given up the use of them altogether in the treatment of circulatory disturbances.

Of course, the truth of the matter lies somewhere between these extremes of practice. Frequently high blood pressure, however conservative a phenomenon, may prove dangerous by itself, and then the effect of the nitrites in lowering it proves helpful, if not in the long run, at least for a short time while the dangers exist. On the other hand, judicious administration of digitalis or other true cardiac stimulants is beneficial in other cases in spite of high blood pressure, which may not be effective in distributing the blood properly or may interfere with the nutrition of the heart. These, in the main, are the conclusions of a recent student of nitroglycerin, L. F. Dmitrenko, writing in the *Zeitschrift für klinische Medizin,* Vol. XVIII, Nos. 5 and 6. In addition, however, he lays stress upon another point in the action of the drug, brought out by the simultaneous use of a Riva-Rocci blood pressure apparatus, registering the pressure of the brachial artery, and a Gaertner tonometer applied to the finger. In sixteen out of twenty-three cases Dmitrenko found that nitroglycerin, while causing a drop in blood pressure in the brachial artery, leads to a simultaneous rise of pressure in the smaller arterioles and capillaries of the finger. The mechanism of these changes remains to be shown, though probably increased blood supply to the small arterioles is in part, if not altogether, responsible for the rise of pressure in them. The fact, however, that nitroglycerin is not simply a pressure-lowering drug is clearly brought out. True, it leads to a dilatation of the blood-vessels; the changes in pressure, however, depend upon the conditions elsewhere at the time. With an efficient or a hypertrophied heart the blood pressure in the smaller radicles of the circulatory system may rise; with a weak or an exhausted heart the pressure may fall both in the larger arteries and in the smallest arterioles. In addition, the condition of the peripheral vessels, or of the "peripheral heart," as Dmitrenko terms them, their irritability, tone, and reserve strength, are the other factors active in the production of therapeutic effects.

Nitroglycerin, therefore, is neither a specific in all cases of circulatory disease accompanied by high blood pressure nor such a useless drug as some practitioners have of late tried to make it out. Its use requires simply the selection of suitable cases, for it affects not the essential cause of the abnormal phenomena but mere proximate results of mechanical conditions. With such judicious selection of cases its effects are evident and beneficial enough to warrant its retention in the group of important drugs in the treatment of circulatory disease.

DUODENAL ULCERS IN MARASMUS.

A FEW years ago the term marasmus was in general use as the name of a disease of infancy, and this diagnosis was considered quite sufficient to explain an illness or even the death of a child. As knowledge advanced, however, an increasing dissatisfaction with the word has arisen, and a general feeling is prevalent that the term is merely a cloak for ignorance; that there is always some definite disease or abnormality underlying these infantile atrophies, and that the physician should not be satisfied until he has done everything in his power to discover the underlying cause in each individual case. The result of this sentiment is an annual decrease in the number of cases diagnosed as marasmus, and a corresponding increase in the diagnosis of tuberculosis, hereditary syphilis, congenital heart disease, chronic colitis, improper feeding, and pylorospasm.

Nevertheless, when we have eliminated all of these from the old group of marasmus, there still remains a considerable number of cases, among the poor of our large cities a tragically large number, in which the children fail to thrive on any variety of food, and, for no cause that can be discovered, gradually waste away. In such cases we are forced to admit our ignorance and call them marasmus. In the *Archives of Pediatrics* for September, 1909, Helmholz of Chicago, writing from Germany, publishes a paper which may be an aid in explaining at least a few of these troublesome and mysterious cases. A few months ago the author reported nine cases of duodenal ulcer in young atrophic infants, and in the present article he adds seven more which he has seen in the clinics of Berlin and Breslau. These ulcers are easily overlooked, and are in fact found only by one who is looking for them with especial care. They may be acute or chronic, and their pathological anatomy closely resembles the gastric ulcer of the adult. In four of the seven cases there were during life no symptoms in any way suggesting an ulcer; in the other three there were hemorrhages.

The occurrence of duodenal ulcers in the infant, although considered as a great rarity, is not entirely unknown, as they have been reported as the cause of melena, as associated with pylorospasm, and as appearing apparently independently in children in fairly good health. The fact, however, that by careful search Helmholz has been able in the course of a few months, to find them in sixteen cases of unexplained wasting, lends a new interest to the lesion. If one man has found so many, it can hardly be considered a coincidence, and must mean that

duodenal ulcer is a far more common affection of infancy than has previously been believed.

These ulcers may be present even where there is no macroscopic evidence of blood in the stools, and this paper should lead the careful pediatrist to a systematic search for occult blood in the passages in every case of wasting of infancy. Such a procedure may add valuable information toward the elucidation of infantile atrophy. In such researches, however, it must not be forgotten that the mere finding of ulcers does not necessarily give us the cause of the wasting. The fallacy of the *post hoc, propter hoc* argument is especially evident in the present case, where the very condition of atrophy and poor tissue nutrition may easily be the cause of the erosions and the resulting ulcers in the duodenum. Then, too, granting that the ulcers cause the atrophy, we have yet to learn the reason for the ulcers. The subject demands further investigation.

Antituberculosis Campaign in New York.

The demands made recently on the Board of Estimate in New York, if acceded to, will insure a more vigorous antituberculosis campaign than ever before. A total of $432,000 is asked for the cure and prevention of tuberculosis. The Board of Health, Bellevue and Allied Hospitals, and the Board of Education have joined in the demand, which is based on a plan of action that involves the committee on tuberculosis of the Charity Organization Society and several other relief and philanthropic bodies. A central bureau on tuberculosis is projected for the Board of Health to centralize the work of tuberculosis clinics in the city, the medical inspectors and house-to-house visiting nurses, the hospitals, and relief associations. The Board of Health now asks for $109,000 additional appropriation to pay the salaries of 118 new inspectors who will be the force of the proposed central bureau. Here all reports of tuberculous cases will be received. The main purpose of the proposed central bureau is to protect the community from further contagion. It will try at once to mitigate this condition by keeping tab on all hospitals open to the tuberculous, and by helping in the distribution of patients to the best advantage and least peril to the city. The second step in the new tactics is the establishment of additional out-patient clinics under the Board of Health. Two new clinics are asked for. Patients attending these clinics will have the attention of visiting nurses, but only those whose home conditions are safe will be allowed to attend either the Board of Health or the other clinics in the city. The total appropriation asked for clinical purposes by the Board of Health is $112,000. At present the out-patient clinics of Bellevue and Allied Hospitals are crowded to double their capacity and $10,800 is asked to relieve the congestion. The Board of Health is asking an increase of $132,088 for the extension of the bureau of child hygiene. Finally, the Department of Education is asking for $3,400 for the instruction of the children recognized as tuberculous, who are now for the first time excluded from the public schools. This instruction, if the budget be granted, will be carried ahead even on the hospital ships where consumptive and otherwise tuberculous children are sent. The sum asked covers the salaries of two teachers now employed on hospital ships and three teachers to be employed on the roof of the Vanderbilt Clinic, the open air class of the Gouverneur and Beth Israel hospitals, and the open air class to be opened at the Greenwich Settlement. An additional $6,500 is asked to build and equip open air school rooms for anemic children.

The Accuracy of the Cammidge Test.

The introduction by Cammidge in 1904 of his urinary test for diseased conditions of the pancreas was hailed by both internists and abdominal surgeons the world over as one of the most important advances of the present generation in the knowledge of pancreatic disease. The test was repeated by others and generally accepted, the criticism tending more against its availability owing to its complicated technique than against its accuracy as a diagnostic sign. In the *Münchener medizinische Wochschrift* for September 14, 1909, however, Schumm and Hegler strike a note discordant to the general song of praise. Following Cammidge's technique, they examined the urine of seventy patients, whom they divided into two classes. The first class consists of twenty-seven cases in which the condition of the pancreas was ascertained either by operation or by autopsy. Of these, seven gave positive reactions. These cases were: one of fat necrosis, two of chronic cholecystitis, one of cancer of the uterus, two of cancer of the stomach, and one of ulcus ventriculi. The cases which gave negative Cammidge reactions, on the other hand, included a case of pancreatic cyst, two of operative injury to the pancreas, and one of pancreatic cancer. The second class of cases consisted of forty-three, both healthy and diseased, in which the condition of the pancreas was judged from clinical evidence only. In these the results were even more variable. Three healthy men gave positive reactions, and three others negative. One case of pneumonia was positive and three others negative. Frequently a case which, on one day gave a positive reaction, on a subsequent day was definitely negative. In short, the test appeared to be quite unreliable, and a positive reaction to be far from definite proof of pancreatic disease or a negative reaction reason for ruling out such a lesion. Whether these results will be confirmed by other investigators remains to be seen. In the meantime it must be remembered that, so far, this new test has stood the test of time and repetition fairly well, that it is a difficult procedure to carry out, and that the unsatisfactory results obtained by Schumm and Hegler may be the fault less of the method than of the investigators.

News of the Week.

Chicago's Mortality.—At the close of the first nine months of the current year the death record for Chicago stands at 23,485, equivalent to an annual rate of 14.12 for each thousand of the living population. For the corresponding period of last year the total deaths were 23,241, and the rate 14.75. This is a decided improvement in the death rate in favor of the current year, and if the deaths for the next three months are no higher than in the last quarter of 1908 the rate for the year 1909 will be 13.84 per 1,000 of population, the third lowest in the history of the city—the lower rates being 13.62 in 1904 and 13.67 in 1905. During the nine months of the current year there have been 51 fewer deaths from typhoid fever, 69 fewer from tuberculosis and 100 fewer from the acute intes-

tinal disorders, including "convulsions." As increased mortality is noted from heart diseases, Bright's disease, diphtheria, cancer, and violence. The three chief acute impure air diseases, pneumonia, bronchitis, and influenza, show a very slight increase—3,872 as against 3,840. The excess in the total actual deaths this year has been entirely among males, all over one year of age and all white. Deaths among males have increased 304, while among females there have been 60 fewer; the baby deaths have fallen off 466, while among those over one year of age there has been an increase of 710; the deaths among colored people show a reduction of 57, while among whites there has been an increase of 301.

The Illinois State Fair, held at Springfield recently, presented as one of its most important features an antituberculosis exhibit prepared by the State Board of Health. Beside the usual graphic representations now so well known in such exhibits and the statistics of tuberculosis in the State and country, there also appear copies of circular communications sent out by the Illinois State Federation of Labor to all trade unionists, showing how the federation and the board of health are cooperating in the fight against the disease.

To Prohibit Sale of Dangerous Hair Dyes.—A bill is being prepared under the direction of the Commissioners of the District of Columbia looking to the regulation or prohibition of the sale or use of dangerous dyes and hair washes. The attention of the Commissioners was called to the necessity of such legislation by a report from the health officer, W. C. Woodward. The report was based on cases occurring in the district in which women were poisoned through the use by hair dressers of a toxic substance in giving a dry shampoo.

Anterior Poliomyelitis in St. Paul.—The Board of Health of St. Paul and the medical profession of the city consider that the epidemic of infantile paralysis is practically over. In all 214 cases have been reported with 49 deaths.

Cholera in Vladivostok.—Since the outbreak of the present epidemic of Asiatic cholera in Vladivostok there have been, up to October 5, ninety-three cases and fifty deaths.

Cholera in Seoul.—Asiatic cholera is spreading rapidly in Seoul. Though great improvements have been made in the sanitation of the city by the Japanese during the last two years, it is still in an extremely filthy condition, and a widespread epidemic is feared. The disease is attacking all classes, the households of both the ex-emperor and the Japanese resident general having been invaded. Physicians of the Dai-Han Hospital, which Prince Ito recently opened, are doing tremendous work in disinfecting, and are ably seconded by medical missionaries.

A Case of Anthrax in Philadelphia.—A butcher in Philadelphia has died of anthrax incurred, it is believed, by being struck on the chin by a piece of flying bone.

The State Civil Service Commission will hold examinations on October 30, 1909, for the following positions: Medical Superintendent, State Tuberculosis Hospital, Ray Brook, $3,500; Woman Physician, State Hospitals and Institutions, usual salary, $1,000 and maintenance. Application should be filed on or before October 23. For information and application blanks address (postal card preferred) State Civil Service Commission, Albany, N. Y.

Clinic for Naval Surgeons.—During the visit of the foreign warships to New York for the Hudson-Fulton celebration the visiting naval surgeons were invited to a special surgical clinic at the Roosevelt Hospital. The clinic was under the direction of Dr. George E. Brewer.

Naturopath Arrested.—A man who called himself a naturopath and styled himself professor was arrested recently in New York for the illegal practice of medicine. This is this individual's third arrest for the same offense.

Prehistoric Skeleton Found.—The discovery is announced of a fossilized human skeleton in the Department of Dordogne in Southwestern France. Accredited scientists declare it to be 20,000 years old. The area in which the fossil was found, where Dr. Capitan, professor at the College of France, has been carrying on researches for three years, is about four miles from Bugue. The skeleton, which is absolutely intact and surrounded by the fossilized bones of animals, was imbedded in the middle of a quaternary formation. Calculations as to its age are concurred in by four well-known geologists.

Hospital Ship Nearly Ready.—Surgeon-General P. M. Rixey of the navy has officially notified Secretary Meyer that the United States ship *Solace*, which is being fitted out at the Charlestown Navy Yard as a hospital ship, will soon be ready for service. Surgeon-General Rixey has recommended also that the *Solace* be placed in commission as soon as possible in accordance with the existing regulations. This recommendation will have the effect of reviving the discussion as to whether a surgeon or a line officer shall command the hospital ship. Under the present naval regulations a medical officer must be assigned to command the hospital ship.

Charitable Bequest.—By the will of the late Mrs. Emily A. Gore of Owego, N. Y., the sum of $30,000 is left in trust, and on the death of the present beneficiaries will revert to the St. Rose Free Home of New York City.

The McPherson Hospital Association was organized recently in McPherson, Kan. The association will let contracts for the construction of a new modern hospital. The lot has been purchased and work will be begun soon on the hospital. The latter will cost about $14,000, and when completed will have a capacity of thirty beds. Among the board of directors appear the names of Dr. A. Engberg and Dr. J. C. Hall.

Resignation of Hospital Staff.—The entire visiting staff of the Elliot Hospital of Manchester, N. H., with the exception of one member, resigned recently. No specific statement as to the reason for the resignations has been made other than dissatisfaction with the present matron of the institution. As in the disagreement the trustees took the part of the matron the medical staff resigned, each man to leave as soon as the patients now under his care are discharged. The members of the medical staff have agreed to stand together to prevent a compromise.

Addition to St. Louis Hospital.—Ground was broken recently for the new wing to the City Hospital of St. Louis. This addition is to cost $800,000, and is expected to be completed within two years.

College of Physicians of Philadelphia.—The new building, just completed at a cost of more than $300,000, will be formally dedicated on November

10. It contains in addition to the library, having a capacity of 300,000 volumes, large and small halls and rooms for lecture and meeting places, as well as the Samuel D. Gross Library and the Mütter Museum.

The American Public Health Association will hold its thirty-seventh annual meeting at Richmond, Va., October 19 to 22, 1909. Dr. Gardner T. Swarts of Providence, R. I., is president of the association, Dr. Charles O. Probst of Cleveland, O., secretary, and Dr. E. C. Levy, Chief Health Officer of Richmond, chairman of the committee on local arrangements.

New York and New England Association of Railway Surgeons will hold its nineteenth annual meeting at the Academy of Medicine, New York City, on November 16-17, 1909. A symposium will be presented on the "Causes of Railway Accidents Individualized." Dr. J. M. Wainwright of Scranton, Pa., is president of the association, and Dr. George Chaffee, 338 Forty-seventh street, Brooklyn, is corresponding secretary.

The National Association of Military Surgeons met at Washington recently and elected the following officers: *President*, Col. Joseph K. Weaver of the National Guard of Pennsylvania; *Secretary*, Major Charles Lynch, U. S. A., and *Assistant Secretary*, Surgeon William H. Bell, U. S. N. The next meeting will be held at Richmond.

The Northern Berkshire Medical Association meeting at Stanford, Mass., September 28, 1909, elected the following officers for the ensuing year: *President*, Dr. Harry L. Holmes of Adams; *Vice-President*, Dr. Philip S. Potter of North Adams; *Secretary and Treasurer*, Dr. L. V. Jones of North Adams.

The Tri-County Medical Society, composed of the counties of Barbour, Randolph, and Tucker of West Virginia, at a meeting held at Davis, W. Va., recently elected the following officers for the coming year: *President*, Dr. L. N. Harris of Mill Creek; *Vice-Presidents*, Dr. A. P. Butt of Davis and Dr. E. M. Hamilton of Belington; *Censor*, Dr. John W. Bosworth of Philippi; *Secretary and Treasurer*, Dr. T. J. McBee of Elkins.

Obituary Notes.—Dr. Pasquale De Cunto of Denver, Col., died in New York, October 6, 1909, aged 43 years. He was a graduate of the University of Naples, in 1898, and immediately after his graduation he moved to Denver. In recognition of his charity toward his fellow countrymen in the West, Dr. De Cunto was made a Chevalier of the Order of the Crown of Italy by the late King Victor Emmanuel. He was a member of the Denver County and Colorado State Medical Societies.

Dr. Leonard W. Arnold of Florence, Ala., died in Memphis, Tenn., on September 25, 1909. Dr. Arnold was a graduate of the medical department of the Vanderbilt University, in 1882, and was a member of the Lauderdale County Medical Society and the Medical Association of the State of Alabama.

Dr. John F. Irvin of Des Moines, Ia., died at his home, September 25, 1909, at the age of 90 years. Dr. Irwin had practised medicine for over sixty years, forty-one of them in Iowa.

Dr. Lewis E. Powell of Waynesboro, Ga., died suddenly at his home, September 20, 1909. He was a graduate of the Atlanta College of Physicians and Surgeons in 1899.

HOLMES MEMORIAL MEETING OF THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

A special meeting of this society was held on the evening of October 9, in celebration of the one hundredth birthday of Oliver Wendell Holmes. The President of the Society, Dr. H. Seymour Houghton, after welcoming the guests, showed why it was appropriate that the Society should commemorate the work of Dr. Holmes. He said that it was fitting that the meeting should be in the hands of those who had known Dr. Holmes, and that he would, therefore, vacate the chair in favor of Dr. A. Jacobi. Dr. A. Jacobi, in accepting the Chair, said that it was not with any sense of mourning over the death of Holmes that they met, for he had died full of years and achievements, but with a joyful reminiscence of his birth which began a career of manifold study, intellectual growth, useful practice, and teaching of medicine, in part new and epoch making, and instructive and entertaining writing beyond what was usually meant by those adjectives. He was a rare combination of the scientist and the poet. The multitude of his gifts of heart and mind was startling and pleasing and warming.

Personal Reminiscences of Oliver Wendell Holmes.—Dr. Maurice H. Richardson of Boston, a student and assistant of Dr. Holmes during the later years of his teaching, described Dr. Holmes as he had seen him in the class room and demonstrator's room. He had to teach a subject repulsive to some, difficult for all, and he had to teach it to the class at an hour when the students were jaded and unfit to be taught anything. In order to make head against these odds he did his utmost to inject a sprightly manner and let no opportunity for a jest escape him. He gave his imagination full sway in comparisons, often charming and always quaint. None but Holmes could have compared the microscopical sweat gland to a fairy's intestine. He likened the mesentery to the shirt front of a preceding generation from which a short line of attachment expanded into yards of complicated folds. Dr. Holmes would introduce his lecture with some bright remark, anecdote, or witticism which served to enlighten the wearied students; he would then plunge at once into his subject. Dr. Richardson said that his method of exciting interest at the beginning and keeping up that interest surpassed that of any speaker, medical or lay, that he had ever heard. Dr. Holmes' enthusiasm and influence put the study of anatomy on a higher plane than that which it had occupied before or after his day. He presented the dry facts of anatomy in such a way that it was impossible ever to forget them. He called to his aid everything that would vividly illustrate his point, the association of ideas, humor, anecdotes, or mnemonics. One point of which Dr. Holmes availed himself offered greater possibilities to-day than in his time, and that was the bringing out of the applications of anatomy. The dissections prepared for him were really works of art, and would be looked upon as remarkable at the present time. His assistants took this unusual care because of the great appreciation that Dr. Holmes showed for their work. They were sure that if they did well they would receive much more praise than they deserved. Many of Dr. Holmes' writings seemed to be prophetic. In regard to what the physician learned from the surgeon he wrote in 1851: "The physician has learned a great deal from the surgeon, who is naturally in ad-

vance of him, because he has a better opportunity of seeing the effects of his remedies." Again, in comparing bedside with laboratory teaching: "I am in little danger of underrating anatomy or physiology; but, as each of these branches splits up into specialties, any one of which may take up a lifetime, I would have them taught with a certain judgment and reserve, so that they shall not crowd out the immediately practical branches." Dr. Richardson related many anecdotes illustrating the wit and resources of this unusual man as a teacher.

Dr. Holmes' Achievements as a Physician.—Dr. Edward O. Otis of Boston, who had been a pupil of Dr. Holmes in the old Harvard Medical School, expressed his fear that the achievements of Dr. Holmes as an author were in danger of causing us to forget the contributions he made to medicine. Dr. Holmes was first a physician and secondly a literary man. In his literary works one was constantly meeting with anatomical, physiological, psychological, or pathological allusions. One felt that it was the doctor who was writing and not merely the literary man. He was a constant deep and independent thinker on medical problems. He recognized and persistently opposed the inordinate use of drugs and insistently advocated the study of causes of disease and the supreme importance of depending upon Nature and Nature's remedies for their cure. He remarked in stating "the case on the side of Nature," that "if every specific were to fail utterly, if the cinchona trees all died out, and the arsenic mines were destroyed, and the sulphur regions were burned up, if every drug from the vegetable, animal, and mineral kingdom were to disappear from the market, a body of enlightened men, organized as a distinct profession, would be required just as much as now, whose province would be to guard against the causes of disease, to eliminate them if possible, to order all the conditions of the patient so as to favor the efforts of the system to right itself, and to give those predictions which only experience can warrant, and which relieve the exaggerated fears of sufferers and their friends, or warn them in season of impending danger." Again he says: "Is not the function of the medical profession regarded as preventive, higher, better, happier than the function of the medical and surgical profession regarded as curative?" Dr. Holmes was an incomparable medical interpreter and critic; he might have been an original investigator had he been less of a literary man. He gave the profession new and clearer ideas upon the great principles of medical practice. His message was ever to the practitioner of medicine, emphasizing its art as distinguished from science. His essay on "The Contagiousness of Puerperal Fever" constituted his greatest claim to recognition as an achiever in medicine. This was a notable contribution at the time it was written and there was something chivalrous in the writing of it. Next in value and importance was the essay on "Currents and Counter-Currents." His essay on "Direct Exploration" was a careful and thorough exposition of the value and use of the methods of direct exploration and their employment in the detection of thoracic disease and was in some respects superior to the unnecessarily complicated modern guides upon the subject. Dr. Otis referred to other medical essays of Holmes and especially commended his excellent literary style to the writer on medical subjects, as much medical work was lacking in this respect.

Holmes—Author, Poet, and Man.—Dr. William Hanna Thomson called attention to the fact that the present year had been remarkable for its centenaries of great men and that the one thing in common that led to the remembrance of these men who had risen above their fellows was that they had all been benefactors of the race. As the world grew better and wiser this title to Fame would more and more take precedence. If so the future would particularly sound abroad the names of the great members of the medical profession. The beneficent aims of their profession took in all mankind. Therefore it was fitting that we should celebrate the birth one hundred years ago of Oliver Wendell Holmes. As an author he could be judged by his inimitable "Autocrat." His lucid, vigorous, terse style was the result of his study of the classics, especially Greek. It was vexing to hear so many weaklings in our day decrying the time spent hitherto in our colleges on the musty old classics. The classics qualified a man for everything, including business, and afforded a wonderful mental gymnastics which trained thought as nothing else did. The man in the medical profession without a preliminary college training rarely arose afterwards above a certain mediocre level. If Oliver Wendell Holmes had not taken the training of that grand old intellectual gymnasium, Harvard, he never would have been the Autocrat. It was difficult to describe the poetry of Holmes. Underneath his wit there was an undertone of deep feeling. There were certain qualities of heart that endeared this man to all who came in contact with him.

Mr. Richard Watson Gilder related a reminiscence of Holmes and recited the following poem, which he said was written for a birthday while the Doctor was still living:

God bless the day; but He hath blest
(And all the grateful world doth know it)
That happy day when, in the West,
Was born the wise and witty poet.

The poet who first to science sought
And to the Merry Muses after,
Who learned what in no school is taught,
The secret of men's tears and laughter.

Be it, O Time, a weary while
Ere, in the land where spirits greet us,
A shade will say (with Shakespeare's smile)
"Here comes the Autocrat to meet us!"

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

SCHORSTEIN LECTURESHIP—ABSCESS OF THE BRAIN ASSOCIATED WITH LUNG DISEASES—PLAGUE, RATS, AND FLEAS—HEALTH OF THE NAVY—HEAT STROKE.

London, September 24, 1909.

The proposal to establish a lectureship at the London Hospital in memory of Dr. Gustave Schorstein, whose death took place on November 16, 1906, has been duly carried out. He was a distinguished student of the University of London and of Oxford, where he took the M.B. and B.Ch. in 1889. Two years later he became a member of the College of Physicians, of which he was elected a Fellow in 1897. At the London Hospital he had served the offices of house physician, house surgeon, and registrar, became assistant physician in 1894, and a full physician in 1905. In the college he lectured on public health and on pathology. He was also on the staff of the Brompton Hospital for Consumption, the Children's Hospital, the Ophthalmic Hospital, and in his time filled other important clinical appointments. His industry, clear pathological views, and great experience secured him a very high regard among his colleagues. On his pre-

mature decease his friends and admirers resolved to establish a memorial and raised above £1,000 for the purpose. Arrangements having been completed, it has been announced that the Schorstein lectures on clinical medicine will this year be given by Professor Osler of Oxford. In the meantime what may be regarded as the introductory lecture is the work of the late physician himself, viz., his "Thesis" for the degree of M.D. at Oxford, which consisted of a careful essay on "Abscess of the Brain in Association with Pulmonary Disease," in which he detailed all the cases at the Brompton Hospital during 1882-1904 (twenty-two years), and at the London Hospital during 1894-1904 (ten years). There were seventeen cases in the former and only two in the latter. The most frequent pulmonary antecedent of cerebral abscess was shown by collating cases from original records to be bronchiectasis, and in this disease such abscess is the second most frequent cause of death. This does not agree with the common idea that empyema is the main pulmonary cause of cerebral abscess. Gangrene of the lung is not often associated with cerebral abscess and did not occur once in Dr. Schorstein's experience, and of recorded cases he found only six, and of these he thought four would probably be regarded now as bronchiectasis. Tuberculosis of the lung is very rarely associated with cerebral abscess; so is acute pneumonia. Böttcher's case of lung abscess associated with cerebral abscess has so often been referred to that it could not be passed over in such an essay as this, especially as he stated that he found lung pigment in the cerebral abscess, though the means of distinguishing this are uncertain and the observation has not been confirmed.

The only recorded case of emphysema and bronchitis associated with abscess of the brain must be regarded as a concidence. Cases of idiopathic abscess in the brain are sometimes recorded and it is possible some pulmonary disease may have been a causal antecedent just as suppuration elsewhere, though undetected, may have determined secondary abscess. But to say, as some have done, that the brain has a special predisposition to suppuration is pathologically inaccurate, for, as Schorstein observed, it is well recognized that in general pyemia, from any cause whatever, the brain is by no means the organ most frequently affected. But though not specially liable to suppuration, it is possible that the brain may not be so fully protected by antitoxins as some other organs, and so cannot resist so effectually the septic emboli from pulmonary suppuration. This is a mere surmise, as Dr. Schorstein himself remarked. But if these cerebral abscesses are embolic, as seems certain, we cannot doubt that similar emboli are carried to other organs also and do not necessarily produce abscesses in them. Many other interesting points are treated in the "Thesis," clinical and pathological observations abound in the nineteen cases, all of which are reprinted at length in the *Lancet* of the 18th, but unfortuntaely in very small type.

A consular report from the Azores, issued this week, shows that the outbreak of plague which began in the Island of Terceira and soon spread to Fayal, was fought with commendable energy by the local authorities. Several of the municipal bodies offered rewards for rats' tails, and in this way endeavored to exterminate the rodents. A medical commission was sent from Lisbon to assist the local authorities as to sanitary measures and advise with the resident doctors on the cure of the cases.

It is not often we hear a good word for the rat, but Mr. Richard Kearton interposed one in a lecture before the Ornithological Society on "Wild Birds That Can Be Observed Near London." He exhibited numerous photographs of shy birds he had taken in various places, and among them one of a number of rats feeding on oatmeal which he had spread for them taking care not to touch it with the hand on account of their keen sense of smell and suspicion. Then he said that the rat was the cleanest animal he knew. It was surmised in early times that the rat had something to do with the spread of plague, but no satisfactory explanation was forthcoming until the rat flea was pronounced to be the carrier. Even admitting this, there is room for differences of opinion. Some of these were expressed at the Congress at Buda, for a correspondent sends word that there were two interesting papers which gave occasion for discussion. Professor Kitasato said there were five varieties of fleas on rats—the pulex cheopis being the most important in this respect: but it did not spread the disease by its bite, but by its feces. It was certain that plague spread from rat to rat, but further proof was needed that it spread from rat to man. Still, rat destruction was the most important method of controlling epidemics. Among means of doing this cats should be kept, but chiefly as preventives. This has been done in India, but if the cats are too well fed they become indifferent ratters. Other means of exterminating rats were mentioned at the meeting. One member had obtained virulent bacilli in large numbers from the intestines of the pulex cheopis, and crushed flea smeared on gelatin would yield free culture. Another member thought there were varieties of plague bacilli which would have to be differentiated and probably other bacilli more or less resembling them.

One more note as to the rat and flea theory. On Friday the question was asked in the House of Commons whether the Indian Government adhered to this theory, and the answer was in the affirmative. The connection between plague and rats was held to be well established and destruction of rats continued to hold a prominent place among the preventive measures adopted in India. In reply to a further question, the Under Secretary said he had not seen a statement in the public press that the theory had been disproved.

Another question in the House was answered by the Home Secretary signifying that he approved the regulations of the College of Surgeons for the admission of women, and he believed all formalities would be concluded in time to admit women to the examinations in January next.

The Home Secretary, replying to another inquiry as to compelling patent medicine vendors to print on every package the ingredients contained, intimated that this question and the form of stamp affixed was under consideration and he was inclined to think it important enough to be the subject of a select committee next session.

The Blue Book of the Medical Department of the Navy for the year 1908 is just issued, and shows a continuous improvement in the health of the fleet. Not only the case, invaliding, and death ratios were lower, but the average loss of service for each man had dropped from 11.28 to 10.36 days. The decrease of invaliding was 2.91 per 1,000, compared with the average of the previous five years. There was a decrease of 0.54 on the death rate average. The causation of heat stroke is the subject of an interesting report by Staff Surgeon Oswald Rees, who says the negro has an advantage over the white in the sun, and also in the stokehold, for the lesser diathermacy of his dark skin is an advantage in the sunshine, and in the stokehold it radiates heat better. He adds that it is curious that workers in the bunkers of ships are not more liable to heat stroke than those firing the furnaces, for the bunkers are often much hotter than the stokeholds, and the air in them almost motionless. He offers as an explanation that the stoker is at once covered with a thick layer of fine coal dust, which will radiate the heat much faster than the uncovered body. The heated engine room, with absence of air circulation, would seem to present ideal conditions to produce heat stroke, but there is a saving condition in the absence of severe muscular exercise as long as the engines are running, the attention then amounting practically to carrying around the oil can. But in the stokehold the conditions are the reverse. The actual throwing of the coal on the fire must be done quickly to avoid the cooling action of the air and consequent loss of steam. So the cleaning of the fire is no leisurely performance. Staff Surgeon Rees thinks the most satisfactory method of treatment is by iced baths.

OUR LETTER FROM THE PHILIPPINES

(From Our Regular Correspondent.)

SPECIFIC TREATMENT OF TUBERCULOSIS—NEW SEWER SYSTEM IN MANILA—PERSONALS.

MANILA, P. I., August 30, 1909.

THE regular monthly meeting of the Manila Medical Society was held at the Philippine Medical School on Monday evening, August 3, at 8.30.

A paper by Captain and Assistant Surgeon E. R. Whitmore and Dr Waldemar Christensen, entitled "Specific Treatment in a Comparative Series of Tuberculosis Cases," was read by the latter. The treatment was begun at the Bilibid Hospital (which is the State Prison of the Philippines) on January 14, and carried out according to the plan outlined in the report of Surgeon Wright, United States Navy, viz., intramuscu-

lar injections of mercury succinimide in .013-gram doses to toleration. Twenty prisoners were placed upon this treatment, and the report shows that on June 30 of this number three, or 15 per cent., had been returned to duty, 35 per cent. died, and the remainder, or 50 per cent., are still under treatment without any marked improvement having taken place in their condition. In one of the cases that was returned to duty it is interesting to note that the weight was ten pounds less than at the time he was placed under treatment; so that the cure would, no doubt, be questioned by many authorities. It may also be worthy of notice to state that the percentage of cures is smaller than that occurring among prisoners who are given the ordinary open air and symptomatic form of treatment.

The installation of the new sewer system for the city of Manila ranks second only to the new water system; it is one of the most costly of permanent sanitary improvements that has been completed since American occupation, and ranks easily among the best installations in the Orient. It also furnishes a most striking example of the different method of sewage disposal in Manila as compared with other large Eastern cities. Here the removal of night soil is a source of great expense to the Government, the installation of the system having cost $1,650,000, and the annual operation charge will be at least $75,000, almost half of which can be credited to night soil; while in cities like Hongkong or Tokyo there was no charge for installation, and there is an annual revenue of about $37,500 and $1,500,000, respectively.

The ordinances which will prescribe the rules and regulations which are to govern the questions as to who, when, and how connections are to be made have been receiving most careful consideration since April. Every effort is being made to have the system universally used without causing actual hardship. It is obvious that there will be many instances in which a person may have sufficient means to construct a house which would comfortably meet his needs, and which would cost perhaps $150; but in order to install the necessary sanitary fixtures which could be safely connected with the new sewer system an additional outlay of a similar, or even greater, amount would be necessary. This is a condition which obviously must be met.

The sewers range in size from 20 centimeters to 1.75 meters, and the slopes are sufficient to warrant a velocity of not less than 65 centimeters per second flowing one-half full. The minimum depth is 1.5 meters, and the maximum depth is 5.4 meters.

Five substations are required to give the system the flow mentioned above, and are located as follows: Ermita, with a capacity of 5,000,000 gallons for 24 hours; Santa Cruz, with a capacity of 12,000,000 gallons for 24 hours; Quiapo, with a capacity of 5,000,000 gallons for 24 hours; Malate, with a capacity of 2,000,000 gallons for 24 hours; and Paco, with a capacity of 800,000 gallons for 24 hours.

These pump the water to the main pumping station, which is located on the beach in the lower part of Tondo, the latter having a capacity of 25,000,000 gallons for 24 hours. The main station has a lift of approximately 8.8 meters, and discharges into the bay through a 1.05-meter cast iron force main laid 3.05 meters below the bed of the bay at a point approximately 1½ kilometers from the shore. This pipe terminates in a vertical position, which was done for the purpose of making the discharge take place above the bottom of the bay. This outlet end is encased in a huge block of cement masonry, which rests upon a timber platform supported by a group of piles.

Branches or outlet pipes have been provided at intervals of 12 meters throughout practically the entire sewer system. The system will be ventilated by omitting the vent pipe and continuing the soil pipe and vent stack of each house connection full size through and above the roof. Flush tanks with suitable connections to the water system supply have been constructed at the ends of the primary lateral sewers for the purpose of keeping them clean and in a satisfactory condition. These tanks have been built to hold about 1,320 liters of water each, and are provided with gates and handles for operation by hand. This feature is unique and has been introduced for the first time in Manila.

The pumping plant consists of centrifugal pumps driven by electric motors, and are supposed to be automatic, the rise and fall of the sewage in the sewer starting or stopping the pumps as occasion may require.

Some idea of the magnitude of the contract may be gathered from the fact that the excavation alone represented 260,100 cubic meters and the iron pipe used weighed 2,180 metric tons and measured 2½ kilometers. Of this there were 1.9 kilometers of 1.05 meter pipe used for the outfall and sewer in the bay and the balance of from 0.2 of a meter to 0.6 of a meter. The concrete used in this construction was represented by 30,600 cubic meters, and in this work over 50,000 barrels of Green Island cement were utilized. All the main sewer was constructed of concrete, as were over 900 manholes and 265 flush tanks for flushing the entire system. The length of the main sewer is approximately 12.87 kilometers, built in egg shape.

Over 1,630 cubic meters of brick masonry were laid in the manholes, in which over 1,200,000 bricks were used. The terra cotta pipe laid covers in all over 68 kilometers varying from 0.2 to 0.6 meter. For bracing the excavations alone the company utilized over 1,000,000 feet of lumber, which gives some idea of the extensive operations under way at one time throughout the city in order to make headway, meet every requirement of the contract, and at the same time not impede traffic in the city streets.

Passed Assistant Surgeon Ebersole of the Public Health and Marine Hospital Service, who has been on duty in the Philippines during the past three years as quarantine officer at different periods at Manila, Mariveles, and Cebu, has completed his tour of service, and has been directed, at the expiration of two months' leave of absence, to report at San Francisco.

Passed Assistant Surgeon McKeon of the Public Health and Marine Hospital Service, who was temporarily detailed to relieve Dr. Hough at Hongkong, has returned to Manila and resumed his duties of quarantine boarding officer at Manila.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 30, 1909.

Nasal and Nasopharyngeal Conditions as Causative Factors in Middle Ear Disease.—G. A. Leland says that all these conditions act by preventing the proper ventilation of the middle-ear cavity. A consideration of the question concerns (1) the structure of the Eustachian tube, its muscles and surroundings, and their physiological movements, and these are all described in full. (2) The influence of normal respiration (respiratory movements of the membrana tympani). That respiratory movements do occur in the latter structure has been demonstrated experimentally by more than one observer. Hence a rational treatment demands continuous free nasal respiration in order to maintain proper circulation of the blood and lymph. The time to cure chronic catarrhal otitis media is before the initial earache has occurred or any exudate has formed which causes drum depression and probably subsequent adhesions in the middle ear. Hence parents must not permit the earaches of their children to go unattended. The middle ear never forgets the attack of pain. Stress is also laid on the necessity of keeping clean the fossæ of Rosenmüller. The author refers to hospital statistics of 127 cases of scarlet fever, of which 43 were free from adenoids. Of the 84 with adenoids 72 were without aural complications, past or present. Of the 12 with adenoids and aural complications, 5 had the adenoids generally distributed over the nasopharynx, while in the remaining 7 they were confined to the fossæ of Rosenmüller.

The Diagnosis of Phthisis and Its Association with Certain Simulating Diseases.—C. Floyd and W. W. Barker discuss certain frequently neglected points in the diagnosis of phthisis, taking up the general symptoms, the accelerated pulse, and the great value of sputum examination in diagnosis. The diagnosis of most cases must be made before the sputum is positive. In many instances if the whole sputum were examined the percentage of positive cases would be greatly increased. With the disintegration of the sputum by sodium hydrate and the use of the centrifugalized sediment, a far larger number of bacilli might be demonstrated on the first examination. The matter of variation in physical signs receives full consideration. The use of tuberculin as a diagnostic measure is of more value in determining the presence or absence of the process than in its localization. With the subcutaneous test, however, the presence of a local reaction may indicate the seat of the disease, and the character of the response will aid us in deciding whether the lesion is quiet or active. Of the conditions which simulate phthisis mention is made of valvular cardiac disease, Bright's disease, diabetes, bronchial asthma, and chronic bronchitis. Acute endocarditis is as baffling as any. Various nervous conditions, as neuras-

thenia, dyspepsia, and even simple debility, often puzzle us for a long time. Certain influenza cases often simulate tuberculosis. The authors make a plea for the exercise of infinite pains and judgment in the early detection and treatment of pulmonary tuberculosis.

Distinction Between the Psychoneuroses Not Always Necessary.—G. L. Walton says that, after eliminating from the cases presenting nervous symptoms without known organic basis those whose features are sufficiently marked to justify their classification under hysteria, hypochondria, or manic-depressive insanity, there remains a large, perhaps a larger, number whose symptoms are not distinctive. The effort to place each of these cases under one or the other category is unsatisfactory. The efforts of the textbooks to distinguish between the minor forms of these conditions are confusing, the symptoms given being practically identical. To apply the term "neurasthenia" to all these cases is neither logical nor satisfactory, since this term implies a condition distinct from the other psychoneuroses, to say nothing of the fact that the term implies the asthenic condition which is far from constant. In the present state of our knowledge and study of these conditions, the most satisfactory solution seems to be to place under the diagnosis hysteria, hypochrondria, and manic-depressive insanity such cases only as have dominant features characteristic of these disorders, and to group the remainder under the general term "psychoneurosis" until definitely diagnostic features appear.

New York Medical Journal, October 2, 1909.

Persistence of the Gonococcus in the Prostate. This topic is considered at length by G. A. De Santos Saxe, who speaks of the method of obtaining prostatic secretion, technique of staining, frequency of prostatitis as a complication of gonorrhea, relation of this complication to posterior urethritis, occurrence of the gonococcus in the prostatic secretion, value of the bacteriotaxis by means of incubation, persistence of the gonococcus in the prostate, mixed infection in gonorrheal prostatitis, relation of clinical data and microscopical appearances, and finally summarizes as follows: (1) Thorough irrigation of the urethra before massaging the prostate is essential in order to exclude contamination of the prostatic secretion by pus and bacteria from the urethra. (2) Injections of 15 drops of a 1 per cent. solution of silver nitrate into the urethra 24 to 48 hours before prostatic massage sometimes reveal gonococci when other means have failed. (3) A double stain of eosin and methylene blue in pure methyl alcohol, after the manner of the well known blood stains, is excellent in the morphological study of prostatic smears. Gram's stain is essential, but is misleading, unless properly applied. (4) Cultures, while desirable, are often unsuccessful, owing to the capricious character of the gonococcus. Negative cultures are not conclusive. (5) Of 150 cases of chronic gonorrheal infection, from six months to eighteen years' duration, 69 per cent. showed prostatitis. The older the infection, the more frequent was the prostatitis. (6) Of the 108 cases of prostatitis studied, 31, or 28.7 per cent., showed gonococci in the prostatic secretion. The older the infection the less probable was the finding of gonococci in the prostate. After three years, gonococci were found rarely, even after most persistent efforts. Many and thorough examinations are needed before we can be at all certain that the gonococcus is absent from the prostate. (7) Mixed infection occurred in 80 per cent. of the cases studied. The gonococcus was found in only 3 cases of 168, and all 3 were cases of less than one year's duration. The older the case the more frequent was the mixed infection. Staphylococci occurred in 74 per cent., bacilli in 28 per cent., Gram positive diplococci in 10 per cent., and streptococci in 7.6 per cent. of cases with mixed infection. (9) The value of microscopical examinations of prostatic secretion was shown by the fact that palpatory signs were absent in 38 cases (35 per cent.), while 13 cases (12 per cent.) showed absolutely clear urine, although the smears showed prostatic infection. (10) Gonorrheal prostatitis is curable by proper treatment in the great majority of cases. (11) Consent to marriage should not be given until all methods of examination have been exhausted, and until the possibility of a postmarital infection is practically excluded, in the present state of our knowledge.

Treatment of Locomotor Ataxia by a Modification of the Reeducational Exercises.—F. V. Fruchthandler says that the most important objection to the practice of this form of treatment is the fact that it necessitates the use of various paraphernalia, so that it could be carried out only in special institutions. He has therefore devised a system of muscular movements which by means of a diagram (given in the paper) can be executed by anyone under any circumstances. They are adapted to bed patients as well as to those who are able to be up and about, and are applied to both extremities and to the eyes. If during a seance there should be a pulse of over 120, remaining over 100 after five minutes, rapid breathing, profuse sweating, sudden weakness, fascinating pains, or stumbling, the exercises should be stopped immediately and the patient rest for fully one-half hour. Directions are also given for cases with vesical paresis, hypotonia, and drop feet. Regarding these exercises the author says that results from their use have been very satisfactory. Under their employment he says that the ataxia will in most of the cases be cured permanently, and in a minority the alleviation of this symptom will be very marked. The length of time necessary for a course of treatment varies in each individual case, but as a general statement it may be said that it takes from two to nine months to effect a cure from the mildest to the most severe type of ataxia. Of course, says the author, there are cases that it would be wise to leave alone. He refers here to those patients that are in the beginning of their disease, where the ataxia has not reached its acme. These cases naturally do not improve because the ataxia is in a rapidly progressive stage. Another set of cases where treatment is contraindicated are those that have a combination of tabes and paresis. In cases of combined sclerosis, where the posterior and lateral columns are affected, no good results have been obtained.

Postoperative Suppression of Urine.—A. B. Cléborne refers to the various etiological theories of this condition, but expresses no preferences for any one of them. He says that further work on healthy animals is necessary to settle this question. We have no definite knowledge as to the nature of the exact pathological changes present. Consequently our present therapy is very vague. It includes hot packs, hot air baths, saline infusions and irrigations, intravenous injection of salines, cupping, dusling the bowel, etc. Sometimes these do good and at other times are entirely useless. The author finds the use of sparteine sulphate hypodermically in doses of one or two grains every four to six hours the most reliable plan, though he admits that it is purely empirical.

Operation for Brain Tumor.—H. Augustus S. P. Kramer gives a full description of the operation in one case. A tumor of the dura was found, and on account of its large size and the shock experienced by the patient its removal was postponed for three days. It was found that the growth sprang entirely from the dura, and was not adherent to the brain. It was readily removed, and weighed 125 grams. The patient died on the fifth day; no autopsy; wound was found clean. Certain variations in the two radial pulses during the surgical period were noted, and were referred to cerebral vasomotor influences. The authors add that in the three days which elapsed between the two operations there was considerable protrusion of the tumor through the opening in the skull, even though the opening proved to be too small to permit the delivery of the tumor at the second operation. Is it not possible that if we had waited a month instead of three days this large tumor might have been gradually delivered by the pressure from behind? The brain would have been allowed gradually to expand, so that the tumor might have become a mass directly beneath the scalp, that might easily have been removed without any considerable shock. Thus we might have saved our patient.

Journal of the American Medical Association, October 2, 1909.

Mental Disorders in Women.—W. P. Manton, after a review of the history of former work on pelvic disorders in the insane, summarizes the results obtained in the last few decades. We have learned, he says, that while the mind may exert a remarkable influence over the bodily functions the reverse is also true, the mental state of the viscera aggravating the existing mental maladies and even causing insanity. The frequency with which abdominal-pelvic disorders exist in insane women has been determined, about 80 per cent. of them being abnormal in this respect. The frequency, or rather the infrequency, of postoperative insanity has been determined. And eclampsia has been shown to be an almost negligible factor in the etiology, though childbed is responsible, according to Kraepelin, for 6.8 per cent. of insanity in women. The delusions and hallucinations of the insane have also been shown often to depend on intraabdominal or pelvic lesions. As regards the curability of insanity by operations on the pelvic organs, he admits the results are not as favorable

as some enthusiasts have made out, but whether a cure is effected or not the relief and cure of bodily suffering is imperative in these cases and may be beneficial, though far short of curative, as regards the mental condition.

Drainage in Gynecology.—H. G. Wetherill says there is a growing disposition to simplify practice in the matter of drainage and irrigation in obstetrical and gynecological operations. The use of the solutions of antiseptic drugs, especially poisonous ones, is steadily losing in favor, and the principles governing the best modern practice would seem to be as follows: "Never irrigate if it be possible to avoid it through gentle wiping or sponging. Avoid poisonous and irritating solutions, as they are both dangerous and disappointing. In the main, use irrigation for its mechanical effect in flushing out débris and always at low pressure." The prevailing opinion at present as to drainage is also strongly in contrast to that of a few years back. The majority of the best surgeons of to-day limit irrigation and drainage to certain specific indications, chief of which are rupture or leakage from some hollow viscus or from some abscess. In many cases pus accumulation of long standing and tubal origin can be broken down and turned out through an abdominal incision without irrigation or drainage, and certain localized peritoneal infections can be treated similarly. Often in such cases the peritoneum will take care of itself though the wound in the abdominal wall may suffer serious infection which, if unprovided for by a superficial drain down to the peritoneum may cause anxiety. Whenever intraperitoneal drainage is really necessary in gynecological surgery, it is better to make it down hill, *i.e.* through the vaginal vault, thus avoiding the risk of hernia and also on account of other advantages. The routine employment of uterine douches is still practised by some physicians, although the weight of authority is decidedly against it, and Wetherill speaks severely of the way some physicians have of clinging to ancient ways. Intrauterine drainage is, under some circumstances, important, but it should be open and free and capable of carrying away thick fluids and adapted for flushing. Such a drain he devised years ago and illustrates it in his paper. One of the most dangerous features of the ordinary intrauterine douche as practised is the danger of infection of the uterine cavity from the infected vaginal, cervical, and vulvar regions, and the patient is to be congratulated if she escapes. Similar retrograde infections of the bladder are of common occurrence. The advantages of an irrigating and draining device that can be placed once, and only once, with due precautions against infection are evident. He mentions the use of his device and its success in uterine and bladder infections.

Traumatic Insanity.—A. S. Brush discusses the traumatic insanities, of which, excluding hysteria, he recognizes three types: psychic trauma causing traumatic hyperchondria, and physical trauma, acute primary traumatic insanity, organic dementia, or idiocy, and imbecility. He holds that the so-called traumatic neurosis or hypochondria may be defined as a fixed delusion on the part of the patient that he has sustained some severe and permanent injury from traumatism, and this is often complicated by hysteria or neurasthenia or both. It may arise from an exaggeration by the patient of the injury, from an error of diagnosis on the part of his physician, or from his exaggeration of the difficulty, or from litigation for damages, and usually more than one of the causes are combined. The prognosis of the condition is of marked medicolegal importance, and the effect of an early and correct diagnosis is equally marked. The effect of litigation in prolonging the psychosis was very evident in the author's cases. Acute primary traumatic insanity is one in which injury is the only recognized cause, and the symptoms of the insanity must be continuous with the symptoms of the injury or connected with them by a definite train of brain symptoms. Insanity is not a common result of head injury, and Brush finds, with Meyer, that it occurs most frequently in those with neuropathic heredity or suffering from alcohol or syphilis. The clinical picture and course of a case of this form of insanity are diagnostic of a severe cerebral contusion. The invasion is rapid and when dementia follows this psychosis it is always the result of epilepsy, arteriosclerosis, or alcoholism, in the author's experience. Recovery may occur, in from two months to two years as he has observed, but death or dementia are frequent results. Organic dementia following the acute primary disease is, of course, permanent. Brush does not credit the ordinary forms of insanity as being primarily due to the traumatism, and, if they occur, it is only the development or exaggeration of a previously existing condition or tendency. He has never seen a case of general paresis from this cause, and regards it most probable that it is an error of diagnosis or an aggravation of an existing condition.

Lake Michigan Water.—W. A. Evans describes the conditions in Lake Michigan as regards pollution from sewage by the large centers of population around it and the means that are being taken to remedy this state of affairs. Twenty miles away from shore it is pure, containing eight bacteria to the cubic centimeter, but the present conditions near the large towns make the shore waters dangerous for drinking purposes. The currents are inconstant and largely influenced by the wind, shore contour, etc., and the intakes being in water less than fifty feet deep are within the zone of peril. A flow of seven miles in Lake Michigan is not sufficient for the purification of a massive amount of sewage, though the greater dilution than in streams is more effective, and a forty-mile requirement of river flow is not equaled by a one mile of lake flow on account of the lesser amount of saprophytic bacteria in the lake water. No town should place its water intakes within one mile of the sewer outfall of a town of 2,000 inhabitants and the distance should increase with the population. Dumping should not be allowed in water less than sixty feet deep, and government navigation regulations should keep shipping at a certain distance from water intakes at all times. Properly controlled, he says, Lake Michigan water will always be safe for drinking purposes, but under present conditions no town is justified in using Lake Michigan water from a point nearer shore than one mile, and large cities emptying their raw sewage into the lake should not take their water any nearer any sewer outfall than ten miles. Evans thinks that the national government should take up and do the work on the chain of lakes which the states and cities on Lake Michigan are trying to do.

Protection of Water Supplies.—H. B. Wood points out that municipalities are not the only factors accountable for the pollution of public water supplies, and that more attention should be given to the influence of small villages and individual homes and factories on stream contamination. Cities produce the most pollution, but the bacterial contamination is apt to be relatively less from a city than is the case with a small town, with its numerous cesspools. The danger from rural contamination has been amply illustrated by such facts as the Ithaca epidemic, and a water pipe laid through a polluted town may become sufficiently disjointed to permit infection, as occurred at Baraboo, Wis. Public wells becoming infected through ground seams have caused epidemics of typhoid. Manufacturing plants are not a danger from their sewage alone, but their liquid wastes, when discharged into water courses, are undoubtedly a damage, not only to individuals using the water, but are a detriment to other mills and are destructive to fish. Even when the discharge of chemical waste is disinfectant or purifying, as in the case of chlorinated lime from paper mills, etc., emptied into a sewage infected stream, it is apt to be so much in excess that a poisoning of the water results. The scarcity of food fish is largely due to stream pollution, not only by sewage, but by factory wastes, containing, as they often do, poisonous chemicals. They also affect the life along the shores and sometimes make it impossible to live near streams or to water live stock from them. Realty values decrease markedly along polluted streams. Since factory pollution is easily visible, it should be reported by the inspectors and should be under the control of the health officers. Too many factory toilets are built directly over streams. No offensive factory discharge should be allowed to go at once into streams without purification. If possible, the waste should be converted into industrial profit, as is done in some instances. The efficacy of sand filters has been shown to be not much below experimental results. Rural contamination of streams should receive more attention than is being given to it, though some still insist that there is no danger if the stream is not used for domestic supply. Such streams are rarities.

The Lancet, September 25, 1909.

Juvenile Myxedema.—D. A. Thomson reports one case, the patient being a girl of 18 years, 40 inches high, and weighing 58 pounds. Her general appearance was that of a child of 6 years. She developed normally until the sixth year of age, when she seemed to cease growing and become fatter. The symptoms of the condition made the diagnosis lie between juvenile myxedema, infantilism, and chondrodystrophia fetalis. Thyroid treatment was immediately begun, two grains of desiccated gland being given for fourteen days and then doubled. No improvement fol-

lowed. Iodothyrine was then given, the dose running up from 2 to 15 grains daily. On this régime she began to grow in height and diminish in weight. On the maximum quantity she began to show signs of overdosage, and finally she was given 1 grain daily. After that she gained no more in height nor lost in weight, but her mental condition improved greatly, and from being a silent member of her family she became an active, intelligent child. Menstruation had not appeared when the case was reported.

Congenital Dislocation of the Hip Joint. Ultimate Results of the Manipulative Operation and Note on a New Open Operation for Relapsed Cases.—J. J. Clarke refers to his previous writings on this subject. In his first series of twelve cases eight were cured and one improved, while three failed. In one case in which he had twice done the Lorenz manipulation and a relapse had followed each time, owing to a deficiency in the ilium and ischium, which form the upper and posterior borders of the acetabulum, he devised and carried out successfully the following operation, which consists in exposing the joint from behind, making a small opening in the lowest limit of the posterior aspect of the capsule, and introducing an elevator to raise the periosteum and with it the cotyloid ligament for a short distance at the upper and posterior borders of the acetabulum. Next three stout silk stitches are passed in turn through the periosteum thus raised into the joint cavity under the cotyloid ligament, out of the capsule again and through a fold of the capsule, then once more through the capsule near its femoral attachment, where the two ends are tied. These stitches remove the overdistention of the back of the capsule and hold the cotyloid ligament over the outer part of the head of the femur. The limb is put up in plaster as after the manipulative operation, which must always have preceded this open operation. The postoperative course was quite like that after the manipulative operation, and there was no evidence of intraarticular adhesions being present when the plaster was removed. The proceeding differs from the open operation of both Hoffa and Lorenz, which involved an excavation of the acetabulum, and when necessary a reshaping of the femoral head through a free opening in the joint capsule.

Arteriovenous Anastomosis for Gangrene.—The patient of D. J. Armour and E. A. Smith was an old man of 69 years with evident thrombosis in the right foot and leg. He was persuaded to undergo an operation for arteriovenous anastomosis, with a view to reversing the circulation in the limb and so attempting to stop the onset of gangrene by conveying arterial blood through the venous channels. The upper end of the femoral artery was sutured to the lower end of the femoral vein, both vessels having been severed in the area between the middle of Scarpa's triangle to the middle of Hunter's canal. The quill suture method was employed. On the fourth day after the operation a line of demarcation began to form at the level of the upper and middle thirds of the leg on the outside, and the lower and middle thirds on the inside. Fourteen days after the operation the leg was amputated by a circular incision a hand's breadth above the knee joint. In two weeks the patient left the hospital on crutches. The authors claim that this is the first application of the quill suture method in human surgery. The authors say that the catgut used in such an operation should be capable of resisting absorption for not less than a month. Although examination of the amputated extremity showed considerable thrombosis in the veins below the level of amputation, it would appear that there must have been some conveyance of blood downwards on the part of those veins which were not completely thrombosed, on account of the increased warmth and fullness of the veins over the front of the knee after the anastomosis and before amputation, and also on account of the marked distention of the vein between its junction with the artery and its ligature in the stump after the amputation. This distention coincided with an increase in strength and blood pressure on the part of the patient, and with the closure of the main outlets for blood from that portion of vein between the suture line and the ligature. Had this distention occurred sooner, the valves of the popliteal vein would have been made thereby incompetent, and their obstruction to the vein taking on the function of an artery done away with.

British Medical Journal, September 25, 1909.

Calomel in Asthma.—C. B. Tivy recommends in asthma a combination of antispasmodics with calomel, giving from one-half to two grains. Other cathartics do not seem to act as promptly. In the author's experience relief comes before catharsis takes place.

A Simple Method of Treating Certain Fractures of the Mandible.—H. P. Pickerell says that for various reasons it may be desirable in cases in which the fracture is at the angle of the mandible or in the region of the last molar tooth to cut down from the outside and wire or screw the fragments in apposition; the only treatment then consists in fixing the mandible to the maxilla in its normal position and maintaining it so until union has occurred. This fixation may be attempted by means of a four-tailed bandage or some modification of the same, which usually fails to immobilize the jaw, and is, moreover, exceedingly uncomfortable for the patient. Interdental splints are practically of no use in such cases, as they fail to secure the smaller fragment and cause too much separation between the upper and lower jaws, which separation may possibly be permanent. The following method has none of the above disadvantages and has the merit of being so extremely simple that no specialized skill is required in its application, and it can be carried out in a very short time and without any special appliances. It consists simply in fixing the lower to the upper jaw by means of horizontal ligatures passing round the crevices of two or more teeth in each jaw, the ligatures being securely connected by a third vertical ligature. Diagrams in the paper make the author's technique perfectly clear. There is no difficulty in feeding these cases or in keeping the mouth clean. The vertical wire ligature may be left on for a month, after which it may be removed and passive movements allowed; it may be replaced by silk ligatures, as being easier to apply. A vertical ligature should be continued until the sixth week, especially during the time or times the patient sleeps, in order to prevent yawning, as the latter does far more harm than even a slight amount of mastication.

Compressed Air Illness Cured by Recompression.—E. R. Thomas relates the history of a diver in the British navy who was working in nearly a hundred feet of water. In such circumstances it is customary to raise him a certain number of feet toward the surface, wait a little while, and then repeat the process until he is taken out. Soon after this man was taken from the water he was found lying down and pale with violent nystagmus. Though intensely dizzy he was able to answer questions and was clear in his mind. He was transferred to another vessel on which there was a recompression chamber, into which compressed air was introduced, and immediately began to revive. Restoration of the air toward the normal pressure brought on a return of his symptoms, and an increase of pressure again brought relief. In about two hours he was removed from the chamber, given some slight stimulant and hot broth, and the next day was all right. In this particular instance, owing to rough weather at the surface, it had been necessary to remove him from the water somewhat more quickly than the tabulated schedule governing such matters allowed. Recompression in such cases is often unsuccessful, owing, says the author, to the fact that the volume of the air bubbles liberated in the blood and tissues is too great to be successfully dealt with. There seems every reason to believe that the more the dissolved air has been gotten rid of in consequence of the precautions taken in decompression, the greater will be the probability of recompression promptly relieving any symptoms even after a considerable time after their appearance. Another fact shown is the necessity of extreme caution to be exercised in decompression after recompression and the consequent desirability of being able to keep the patient comfortable during this tedious process.

Berliner klinische Wochenschrift, September 6, 1909.

Method of Obtaining Hemochromogen Crystals.—Angelo de Dominicis describes a new and simple method of procuring crystals of hemochromogen. The dried blood is pulverized on a slide, and a drop of pyridin added to it. Over this a drop of a saturated solution of hydrazine sulphate is placed, and the slide held in the flame until definite bubbles appear and a purple color is produced. The preparation may be preserved in balsam. Crystals may also be produced without heating by adding, instead of the hydrazine sulphate, a reagent consisting of caustic soda and hydrazine sulphate. The first method, however, gives a brighter field, and the crystals are more isolated and of sharper outlines. The method is simple and sure. The author has obtained the crystals from blood nineteen years old, which would not give hemin crystals.

Münchener medizinische Wochenschrift, September 14, 1909.

The Permeability of the Kidneys to Bacteria.—Rolly investigated the question as to whether the healthy kidney is permeable to bacteria or only the diseased organ. He

examined the urine of nineteen cases of typhoid fever. In seven there was no sign of albumin, in twelve there was a trace. In three of the seven without albumin typhoid bacilli were found in the urine. Of the twelve with albumin the typhoid bacillus occurred in eight. He then carried out some animal experiments, thirty-four on rabbits and four on dogs. Permanent catheters were used. *Staphylococcus citreus*, *Bacillus pyocyaneus*, and *Bacillus kiliensi* were used as organisms which would not injure the kidney. Emulsions were injected into the jugular vein. The results of the experiments, which are reported at length, was that bacteria injected into the blood would appear in the urine in from three to thirty minutes as regularly in apparently normal animals as in those with kidney lesions.

Fulguration in Treatment of Cancer.—Schultz describes the good results reported by other authors in the use of the Keating-Hart method of treating cancer, namely, the direct application of the electric spark. He reports thirteen cases of his own in which the method was used with a voltage of 250,000 to 300,000, the spark being applied from a distance of 2 to 4 centimeters. None of the cases received lasting benefit. The pain was not relieved. Quick epitheliation often gave one hopes for results, but these were disappointed. Decrease in the size of the glands was not seen. In two cases the fulguration appeared to stimulate to increased activity in growth of the tumor. He was unable to see that the fulguration was of value in a single case in the treatment of cancer. As to other instruments and methods he cannot speak, but is very skeptical.

Deutsche medizinische Wochenschrift, September 9 and 16, 1909.

Tubercle Bacilli in the Blood.—Schnitter discusses the history of efforts to obtain the tubercle bacillus from the circulating blood of phthisis cases. The earlier authors all emphasized the difficulty in obtaining the organisms from this blood. The author says that there are three possible methods. Direct cultures from the blood are very difficult to obtain, and uncertain. Inoculation of guinea pigs is by far the most accurate method, but this requires from two to four weeks' time, and so is of little value in diagnosis. Stäubli had devised a method of obtaining the organisms directly. This consisted in treating the blood with a 3 per cent. acetic acid solution. This destroyed the red cells without injuring the tubercle bacilli. This solution was then centrifugalized and the precipitates spread and examined. Schnitter used this method modified only by using 1 to 2 c.c. of blood and examined a series of tuberculous cases. Of eight cases in the first stage of the disease all were negative. Of nine cases in the secondary stage two, or 22 per cent., were positive. Of seven cases of the third stage eight, or 47 per cent., were positive, while of four cases of tuberculosis of other organs than the lungs two, or 50 per cent., showed the organisms in the blood.

Nervous and Psychic Symptoms of Arteriosclerosis.—Cramer, in a lengthy discussion of this subject, first divides the nervous symptoms into general and local. The characteristic general symptoms are dizziness, headache, and reduction of mentality. The dizziness is the symptom which usually alarms the patient. The character of the headache varies. It may be a boring pain, a dull headache, or an acute knife-like pain after exercise or any dietary indiscretion. The diagnosis is evident when on a chronic headache is superimposed a sudden attack of dizziness. This may be a true turning dizziness and may cause the patient to fall. It must be differentiated from neurasthenia, late epilepsy, and internal ear disease. The attacks increase in frequency. The reduction in mentality is usually present. Speech and memory are affected. Emotional attacks are common. The patients are inclined to tears on slight provocation. Depression and pessimism are frequent symptoms. The whole individuality may change. Marked irritability may be found. The effect on sleep is variable; sometimes the patients are sleepless, sometimes soporific. Tolerance for alcohol is often greatly reduced, one glass of wine making the patient intoxicated. An important local symptom is slowing of the speech and uncertainty in pronunciation. There are usually changes in the pupillary reaction. These become sluggish and are reduced both for light and accommodation. Only in advanced cases is there a complete loss of reflex. Involvement of the facial nerve may occur early, and cause a partial paralysis. Paralysis of the cerebral nerves are rare. The reflexes are usually increased. The patients often complain of paresthesias and pains in the extremities. Slight thromboses may cause sudden apoplectic symptoms which later clear up. These vary according to the elevation and size of the hemorrhage. The differential diagnosis from neurasthenia may usually be made by careful search for symptoms of an organic nature. It is much less injurious to consider a neurasthenic as a sclerotic than to mistake a sclerotic for a neurasthenic. The psychic symptoms are increasing weakness of mental power, mild or severe depression, and euphoria or exaltation, occasionally the paranoic symptom complex. The intellectual degeneration is gradual and usually begins as a loss of memory. Ethical defects and moral perversions are common in previously normal men. This, added to increased irritability, makes the patient difficult to live with. The most common psychic result of arteriosclerosis is a state of depression. This is difficult to differentiate from true melancholia. The patients are usually more stupid, and careful examination usually shows some sign of organic nerve disease. The cases of exaltation are at times mistaken for paranoia. There may be delusions of persecutions sometimes based on auditory hallucinations. The occurrence of apoplectic attacks clears up the picture. The course of the sclerotic cases is slower than in paresis; the prodromals are more drawn out. The Wassermann reaction is positive in the blood serum of both arteriosclerotics secondary to syphilis and paretics, but in the cerebrospinal fluid both this reaction and Nonne's are practically specific for tabes and paresis, except in cases of cerebral syphilis, which can be ruled out easily, especially by therapeutic tests. A knowledge of the clinical pictures of nervous or psychic arteriosclerotic symptoms is not of academic interest only, but is practically important, as an early diagnosis and proper treatment in certain cases causes a halt in the progress of the disease and prevents social and material injury to the patient and his relatives.

Neurasthenia.—Jendrassik discusses this disease and concludes that it is a single definite disease, the symptoms of which may vary greatly in individual cases. There is, however, no definite symptom group characteristic of neurasthenia; it is more the combination of changing symptoms which characterizes it. The basis of neurasthenia is a hereditary increased irritability of the nervous elements of definite portions of the brain. There is no brain weakness. On the contrary the brains of neurasthenics are more active than those of the healthy. The increased irritability causes a restlessness, even an ability for greater activity. The neurasthenic cannot be separated from the normal by any sharp line of demarkation. The mild cases border on the normal and the severe ones verge into paranoia.

Malignant Adenoma of the Liver.—Ribbert concludes that malignant adenoma of the liver made up of galliferous liver cells is a definite form of tumor, and should not be mistaken for the primary liver carcinoma arising from the epithelium of the bile passages. It begins in a primary nodule, from which the process spreads to the neighboring organ either by direct extension along the vessels or by metastasis through the portal vein. The primary nodule arises either from liver cells which have been pinched off by a cirrhotic process or possibly from a previous hyperplasia.

Duodenal Ulcer and Its Treatment.—Einhorn discusses this subject. He says that duodenal ulcer is more frequent in men than in women. Until recently a positive diagnosis could be made only by operation. Since the introduction of the thread test it can be diagnosed with some degree of certainty. He reports six cases. In all six there was marked hyperchlorhydria, and in some continuous hypersecretion. Pain occurred two to three hours after meals. There were alternate periods of suffering and euphoria. Bleeding (hematemesis or melena) was present in two patients. There was usually constipation, but a tendency to diarrhea appeared in two cases. Point tenderness occurred in all. The treatment is at first medical, regulation of diet, and general hygiene. Olive oil, two tablespoonfuls morning and night, is of value. In severe cases a strict ulcer cure must be carried out: bed, rectal feeding, and large doses of bismuth. In very severe cases gastroenterostomy is of especial value. The condition is more dangerous than gastric ulcer, and operation must be advised earlier.

Kala-azar in Sicily.—Umberto Gabbi has observed several adult cases of kala-azar in Sicily, hence this rare disease is not confined to children. The symptoms are fever with chills and sweating. This is accompanied by gastrointestinal disturbances, poor appetite, and diarrhea or dysentery and an increasing asthenia. The disease is to be differentiated from malaria and infantile splenic leukemia.—*Il Policlinico.*

Book Reviews.

Severest Anemias. Their Infective Nature, Diagnosis and Treatment. By William Hunter, M.D., Edin., Fellow of the Royal College of Physicians of London; Physician and Lecturer on General Pathology and Morbid Anatomy, Charing Cross Hospital; Physician to the London Fever Hospital. Vol. I, with historical schemes, charts, and plates. London: MacMillan & Co., Limited, 1909.

The author has long held very original views on the subject of the severer forms of anemia, and in this work he brings forward his well known theory of the etiology that the disease is a chronic infection. He believes that we should abandon the use of the term "pernicious anemia" so generally employed in Europe and America, preferring the term "Addisonian anemia," because Addison described cases before Biermer published his first paper on the subject. While others, notably Herter, have attempted to show that this Addisonian anemia or progressive pernicious anemia, as it is generally known, may possibly be due to a chronic intestinal infection with bacteria whose toxic products are hemolytic, Hunter considers the site of the infection as largely oral. Neither of these views is, however, widely held, though it is well known that in pernicious anemia there is an active blood destruction going on, and that the poison of the parasite *Bothriocephalus latus* may induce an anemia with a similar blood morphology and clinical picture. The book does not add much to the writer's previous publications on the subject, and certainly does not settle the pathogenesis of this very obscure disease, though an excellent series of photomicrographs show many of the changes in the gastrointestinal tract thought to be characteristic. In the opinion of the reviewer, the author does not strengthen his position by his citation of published cases. Many of these are evidently not of the type of anemia which he is describing or have been so incompletely studied as to be of no value. A very full and well-classified bibliography, chiefly of English and American writers, adds greatly to the value of the book as a complete historical study.

Atlas und Grundriss der Röntgendiagnostik in der Innern Medizin. Bearbeitet von Prof. Dr. Carl Beck, New York; Prof. Dr. Ludolph Brauer, Marburg; Dr. Franz M. Groedel, Bad Nauheim; Dr. Georg Fedor Haenisch, Hamburg; Prof. Dr. Friedrich Jamin, Erlangen; Dr. Alban Kohler, Wiesbaden; Prof. Dr. Paul Krause, Bonn; Prof. Dr. Gustav Spiess, Frankfurt a/M; Prof. Dr. med. et phil. Anton Steyrer, Berlin. Herausgegeben von Dr. Franz M. Groedel, Bad-Nauheim. Mit 297 Abbildungen auf 12 photographischen und 44 autotypischen Tafeln und mit 114 Textabbildungen. München: J. F. Lehmann's Verlag, 1909.

In adding this seventh volume to Lehmann's medizinische Atlanten, Franz Groedel has rendered a signal service to the profession. On first examination the book would seem one prepared exclusively for the Röntgen specialist, but closer study shows it destined for all to whose work precise diagnosis is essential. The manner in which the book is written is such that it will prove invaluable for those whose line of effort embraces such organs and conditions as are perceptible by the *x*-ray. As illustration hereof, mention of the heads of the chapters alone will serve: 1. "Special Röntgen Technique for the Internist," wherein Dr. Franz M. Groedel details and illustrates the use of the instruments necessary for general internal diagnostic purposes. 2. Prof. Spiess describes the Röntgen examination of the upper respiratory passages. 3. Groedel discusses the Röntgen pictures obtainable from the normal thorax. 4. Prof. Jamin illustrates the diaphragm and respiration. 5. Prof. Krause analyzes the *x*-ray appearances of the trachea in health and disease. 6. The Röntgen diagnosis of mediastinal and pulmonary tumors is presented by Prof. Krause, who 7 also details the *x*-ray diagnosis of pulmonary tuberculosis. 8. Prof. Steyrer describes the technique of the Röntgen diagnosis of pneumonia and of the other pulmonary diseases. 9. Prof. Brauer studies and describes the diseases of the pleura as revealed by the *x*-ray; as he also does o the diseases of the pericardium. 10. Groedel enters deeply into the Röntgen diagnosis of cardiac affections. 11. Prof. Krause shows the changes produced by disease of the blood-vessels. 12. Groedel explicitly demonstrates how clearly the *x*-ray exposes gastrointestinal diseases. 13. Prof. Beck of New York, with habitual thoroughness, exhibits all the details of Röntgen studies of the liver and gall-bladder. 14. X-ray descriptions of the uropoietic system are very well made by Haenisch, and 15 Dr. A. Kohler illustrates the diseases of the skeleton. These fifteen articles, each one replete with a wealth of information, are followed by a list of the literature up to January, 1909, containing about 1,500 titles. These are classified in twenty seven divisions, that make rapid reference to any department of Rontgenology easy. The brilliant work terminates with photographic and autotypic plates, whose clearness and fidelity serve well to illustrate the text, wherewith they are in keeping as to utility for study and practice.

Nouveau Formulaire Magistral. De M. le Professeur A. Bouchardat. Trente-quatrieme édition. Par le Dr. G. Bouchardat, Membre de l'Academie de Médecine, Professeur a l'Ecole Supérieure de Pharmacie de Paris, Professeur Agrege a la Faculte de Médecine de Paris. Paris: Felix Alcan, Editeur. 1909.

When a book has gone through thirty-three editions it may be safely said that it has established its existence. This new edition has been thoroughly revised and brought in line with the new codex of 1908. A number of the newer remedies receive notice. A few pages are devoted to serum therapy and to organotherapy. The French must have (or have had) good eyes, for we have never seen a book better calculated to ruin one's eyesight than the volume before us.

The Sexual Disabilities of Man and Their Treatment. By Arthur Cooper, Consulting Surgeon to the Westminster General Dispensary; formerly House Surgeon to the Male Lock Hospital, London. New York: Paul B. Hoeber, 1909.

In this small volume there is ample discussion of sterility and impotence as found in man. The author handles the subject in a masterly way; his methods are scientific, his language is clear and dignified; he further shows his skill by omitting all unnecessary details. Thus, while cases are referred to, there are no "sexual histories" or other pornographic details, and for this the sane reader will be duly thankful. The book is a model of its kind, and will be of real service to physicians.

Naval Hygiene. By James D. Gatewood, Medical Inspector, United States Navy. Philadelphia: P. Blakiston's Son & Co., 1909.

It is a real pleasure to review this book, not only because of its intrinsic merit, but of the evidence it furnishes of that general spirit of admirable professional zeal which animates the medical department of our navy under its present efficient Surgeon General. The book stands in a class by itself, inasmuch as it is the first complete guide which we have for safeguarding the health of the sailor. It contains a vast amount of information to this end, the very newness of much of which to the ordinary reader emphasizes the fact that preventive medicine on board ship is very much of a specialty with which even those familiar with health measures on shore must necessarily be largely in ignorance. With the rapid development of the navy the changing conditions of naval life are constantly modifying naval sanitary problems and imposing new and increasing obligations upon the medical officers.

The book consists of eight chapters, treating of the following general subjects: Naval vital statistics; the air without and within the ship; the light without and within the ship; the ship's water supply and drainage; the navy's food; the navy's clothing; disinfection on the ship; naval recruiting. These chapters are all long, and if one were inclined to be critical with such a generally excellent book it might be suggested that shorter chapters, covering a necessarily less heterogeneous mass of subjects, would have been preferable. Dr. Gatewood's facilities for the work as assistant in the office of the Surgeon General of the navy and as instructor in hygiene at the Naval Medical School have rendered him peculiarly fitted for the preparation of this book, and his text embodies much valuable matter hitherto buried in official reports, as well as the results of much necessarily personal and original investigation. The scope of the book is wisely limited to service on board ship, for, although sailors and marines are frequently called on for shore duty, the special problems then presented are analogous to those of the land forces, and are covered by the several books on military hygiene which are already in existence. The limitations of the book in question are therefore such as commend it chiefly to such medical men as "go down to the sea in ships," whether on vessels of war or of the merchant marine.

By his arduous pioneer work Dr. Gatewood has done a service of future inestimable value to the navy, since his book will undoubtedly long serve as the basis upon which subsequent editions or modifications can without great difficulty be based on the hygienic adaptation of naval life to the meeting of changing times, conditions, and methods

Society Reports.

AMERICAN PEDIATRIC SOCIETY.

Twenty-first Annual Meeting, Held in Lenox, Mass., May 27, 28, and 29, 1909.

(Special Report to the MEDICAL RECORD.)

THE PRESIDENT, DR. CHARLES P. PUTNAM OF BOSTON, IN THE CHAIR.

President's Address.—Dr. CHARLES P. PUTNAM of Boston said that his remarks were in line with the paper to be read by Dr. Rotch. He urged pediatrists to take up a share of the work of public institutions for children in their own communities. Public institutions for children were to a great extent great hospitals for chronic patients. These children, whether juvenile offenders, truants, dependents, or neglected children, should not be taken on the whole as healthy and normal. Physicians were well fitted both by their experience and training for this work. Twelve years ago three unpaid boards of seven persons each were created by the General Court of Massachusetts to take charge of insane, paupers, and children's institutions in the city of Boston. To the board in charge of children's institutions four separate divisions and several classes of children were handed over, the Marcella Street Home, an almshouse for children with 321 inmates, Parental School and School for Truants, with 149 inmates, a House of Reform with 144 inmates, and a large placing out department. At the time they took charge of these institutions they had no conception of the great opportunity of bettering them which was at once presented. Dr. Putnam described the conditions found in the institutions and what had been done to better them in the city of Boston. Further details would furnish more proof in favor of the argument that the work of this kind was in demand, and that it was incumbent upon the physician to share it.

The Position and Work of the American Pediatric Society in Regard to Public Questions.—Dr. THOMAS MORGAN ROTCH of Boston read this paper, which was an appeal to the Society to aid by its work and influence in safeguarding early life. He said that the chief point to be aimed at was to persuade investigators in connection with the different phases of early life that they did not know sufficiently all of the different sides of the various questions connected with children to allow them to control all of the work themselves. The workers who were endeavoring to reform the laws relative to child labor should understand that they had the appreciation of the medical profession. Dr. Rotch explained that when children had been rescued from the mills and workshops or sweatshops of various kinds of labor it was the province of the pediatrician what these children were able to do. After this had been decided the legal profession should inform legislators what laws should be made for the preservation of the child's health, in the sense of the child's life. The same reasoning applied to those who had charge of grading the schools, kindergartens, and physical sports of both girls and boys. The old method of determining the child's grade in school and the time when he should work was by chronological age, but children of the same age differed greatly in both physical and mental development. The judges and lawyers in criminal courts had told him that it was extremely difficult to find out how old children really were. A law might be made in regard to the age at which a child would be permitted to work in a mill, and yet in the mill would be found many children under the required age. The reason of this was because false returns were continually made, and frequently there was absolutely no record of when the child was born. Dr. Rotch said that for several years he had been endeavoring to find some more exact index, not a chronological one, but a developmental one. He thought they should be able to determine when a child should work in the mills by determining whether he had proper strength derived from adequate development for such work. The higher the development of the osseous system the greater the strength and resisting power of the child. He did not ignore muscles and the condition of various organs, and the physiological conditions of childhood, but they were accessories to the skeleton. The development of the epiphysis presented an important point so far as strength was concerned, and showed the stage of development of the child. These epiphyses could be studied in all joints, whether of the shoulder, elbow, knee, or ankle, but the joint that was easiest to reach and most practical for forming the anatomic index was the wrist. Out of some thousands of cases of children studied with the Roentgen ray it was shown that, in the vast majority of cases, the normally developed wrist so developed with the other joints. He therefore presented to the profession as an anatomic index the development of the wrist. This development could be carried on in successive grades from birth to fourteen years by making use of the osseous centers of the carpal bones and the epiphysis of the radius and ulna. For instance, having made a division alphabetically from "a" to "m," the Roentgen ray could be taken of the wrist of the child, and this picture would represent a certain stage of the child's development. In this way they could determine whether a child was ready to enter kindergarten, or a grade in school, and keep the place, what strain in athletics he should be allowed to undergo, and finally what form of work he was able to perform. An index of this kind would be entirely in the hands of the physician, and would not depend upon any statement of the parent. The results reached by Prof. Pryor of the State University of Kentucky tallied with his own. Prof. Pryor had pointed out, and his investigations had confirmed, that the development of the epiphysis, especially as seen in the osseous centers of the wrist, the degree of development varied in different races and in different families, but that members of the same family had very nearly the same development. The development of girls in the early stages of their existence surpassed that of boys in the same family. The osseous centers of the carpal bones and epiphysis of the radius and ulna appeared perhaps as much as one year earlier in girls than in boys. The precocious child with an undeveloped body should not be allowed to push up in the grades in school; such an individual should wait until his development equaled his mental condition. Dr. Rotch exhibited a series of pictures showing the development of the wrist at certain periods, corresponding to the kindergarten age, the school age, the athletic age, and partly how to decide upon different forms of labor. He showed how he investigated the findings in joints to determine whether there had been any inflammation in joints; such cases should be thrown out, even though the joint became normal again, because the congested condition of the joint caused the osseous centers to develop more rapidly in that joint than in the others. Dr. Rotch said that he wished to impress upon the Society that he in no way ignored other means of determining whether the child was ready to work or not. The development of the muscles and the functions of the organs should be taken into account.

The Need of and the Relation Between a Definite Anatomical Development and Child Labor.—Dr. LINNAEUS E. LAFÉTRA of New York said that he thought the American Pediatric Society should take the lead in devising a plan for safeguarding child life. The publication of the discussions of the Society in this matter would call the attention of editors and writers in the medical and lay press to the importance of the subject. The great difficulty in safeguarding the child lay in the non-enforce

ment of the laws in States where the laws were good. The physician should take part in the creation of public sentiment. A question which should be studied was, What was the minimum physical development for a child to have in order to undertake various kinds of work? The hours and conditions connected with different kinds of work should also be investigated. He was of the opinion that the keystone in this matter was the establishment of an age limit for compulsory attendance at schools, and the age of employment should be fourteen years. In New York state the law required documental evidence of age and a school course of not less than eight years. No child less than 60 inches in height, or weighing less than 80 pounds, should be employed; it would not be amiss to raise the weight to 90 pounds. A gynecologist had told him that he had found that shop girls were very apt to have an infantile type of cervix and an undeveloped uterus from standing too much during their early menstrual life Dr. LaFétra thought that size and weight were no indices of mental development.

The Need of and the Relation Between a Definite Anatomical Development and the Athletics of Early Life.—Dr. Samuel S. Adams of Washington presented this communication, and said that in his opinion the American Pediatric Society had never taken the stand that it should have taken in national affairs. He had been intimately connected with legislation, constructive as well as obstructive, for thirty years, and the result of his observation had been that the medical profession was more apt to be engaged in obstructing legislation than in constructing laws. If there was any body of men competent to speak upon questions relating to children, this body of individuals constituted an authority fitted to speak on national questions. After having existed for twenty-one years they had reached their majority, and should assume the position to which they were entitled. In speaking of the relation of a definite anatomical development to athletics, he said, that although a member of the medical faculty at Georgetown University and on the athletic committee, he was supposed to be simply the mouthpiece for the boys. Dr. Adams spoke of the effects of cigarettes upon boys during the developmental age, but it was very difficult to teach him the dangers so long as he found his father smoking when he went home. A genitourinary man had told him that almost invariably a young boy suffering from a venereal disease and under sixteen years of age was a cigarette smoker. As a rule, cigarette smokers drank beer. He thought the Society should take up this question at a future meeting and place their authoritative disapproval upon the use of cigarettes and beer during the developmental age. While connected with a boarding school in his neighborhood, he had never been consulted as to the development or fitness of those engaged in athletic work; that duty was assigned to an ignorant trainer. A decided stand should be taken as to the age at which a child should enter into athletics. The physician should have a general supervision over the children until they were sixteen or eighteen years of age. Questions concerning the child's health, whether local or national, should be left to the medical man, but he was the one to step forward. Every doctor should engage in the politics of his own town.

The Need of and the Relation Between a Definite Anatomical Development and the Grading of Kindergartens.—Dr. Isaac A. Abt of Chicago presented this paper. He believed that this anatomic index promised to be of great value in estimating the child's development. There was a great difference in kindergartens, and as much depended upon the teacher as upon the children. As yet they had no accurate method of calculating the physical status of the child in the kindergarten. He suggested that the anatomic index of the child should be controlled by a fatigue curve. More information than they had at present was needed before they rushed headlong into legislation. It was not the province of the Society to get tangled up in political affairs. They should first find out how they stood in regard to Dr. Rotch's work. The problems attached to the first period of life should be attacked before they took up the working age of children. He hoped Dr. Rotch's paper would stimulate some of them to attempt to place his results upon a firmer foundation.

The Need of and the Relation Between a Definite Anatomical Development and the Grading of Schools.—Dr. Charles Gilmore Kerley of New York said that the paper he had read at the last meeting of the Society had a bearing on this subject, and he read from a reprint what had special reference to the present subject. He thought that in a subject as broad as the one under discussion they should begin at the bottom of the matter and should see that instruction was given in the homes to parents as to how they should live and how they should bring up their children. The first five years of life were very important as related to the child's development; his nutrition, general care, etc., were most important as related to his career as a citizen. He referred to Dr. McDonald's statement that 35 per cent of the children in the public schools were defective and 15 per cent. non-educational—that was, that education was lost upon them. Dr. Kerley thought that statistics based on height and weight were unreliable, and should not be used as an index as to the child's capacity for work. In regard to whether the Society should consider the matter relating to child study in a general way, he was of the opinion that if they did not do it they would be compelled to sit by and see others do the work. The laws just passed in New Jersey on this subject were of value.

A Report of the Medical Work in the Juvenile Court of Chicago.—Dr. F. S. Churchill of Chicago presented this paper, which was based upon the examinations of 2758 children appearing before the Juvenile Court of Chicago during the past year. These children he divided into two groups, the dependent and the delinquent. A dependent child was one who had not efficient care. A delinquent child was one who had transgressed the law in some way or other. Seventy-seven per cent. of them were of foreign-born parentage. Among the dependents 90 per cent. were Americans, Germans, Polish, Italian, Bohemian, and Jewish, in the order named. Among the delinquents 95 per cent. were of the nationalities named plus Norwegians and French. The proportion to the total population showed that the Poles led. These children were examined as to abnormalities. Special attention was paid to height, weight, chest girth, condition of the tonsils, adenoids, conditions of the eyes, ears, teeth, heart, lungs, skin, and frequency of venereal disease. But little organic disease was found among them, but the percentage was high for carious teeth and enlarged tonsils, cervical glands, defective eyesight, ear affections, and gonorrheal diseases among the girls. As a probation officer was not allowed to bring a sick child to the court dispensary, there were practically no acute diseases. Both boys and girls of the dependent class during their earlier years ran close to the normal, although a little below. The older boys and girls among the delinquents were very much below the normal. This seemed to show that the strain and stress of life was beginning to tell about the age of puberty. The sixteen year-old girls averaged twenty pounds heavier than the normal girls. This was because all these girls were handsome, well-formed, and attractive to men who caused their downfall.

A Few of the Things Which the Pediatrist Should Teach.—Dr. P. J. Eaton of Pittsburg read this paper, in which he made a plea for common-sense teaching of pediatrics. He said that children were, as a rule, born

healthy, and yet many died before reaching the age of three years. The moral, mental and physical training of these children should begin at birth. Babies had a right to live, to be comfortable, and to grow, and all this depended upon enforcing certain rules from birth. The baby should have accurate and regular habits. Taking a bath, feeding, and then a nap was very simple, but it was worth while teaching. Children, too, should be taught to sleep. It was formerly said "the one who rocks the cradle rules the world;" now it was "the one who rocks the cradle spoils the world." The Lord knew best when He made breast milk for babies. Mothers and nurses should be taught what good milk was and how to obtain it. Mothers should be taught that the advice of a skilled medical man was far better than what was found in books. The less the baby was handled the better. More sensible clothing should be made for babies, and they should be given more fresh air in order that they might have plenty of oxygen for metabolism. After the first few days of life the baby should be in the open air and should sleep where there was a free flow of fresh air. In feeding the child a good rule to follow was that "things which needed chewing required teeth for grinding." Teething was a physiological process when it was normal, and if normal there should be no interference. If the gums were tough they should be lanced.

Dr. L. Emmett Holt of New York said that he felt sorry that so much time of the Society should be devoted to subjects of this nature, for he thought that the Society did its best work along research lines in matters relating to diseases of children. With regard to the anatomical index studies, he thought they should be controlled by observation of a number of people before this Society went on record as believing in them. The Society should not assume a positive stand before it had sufficient facts before it.

Dr. Rowland G. Freeman of New York said that he thought the work of Dr. Rotch was a very important one, and so far as it went should be accepted.

Dr. Charles Gilmore Kerley of New York expressed surprise at Dr. Churchill's figures. The number of children appearing before the Juvenile Court in Chicago was 2,758, while in New York in one year the number was over 11,000.

Dr. Churchill replied that this was the annual number that had appeared before the court since its establishment, and the number was decreasing rather than increasing. A number of protective leagues had been formed that went about the city uprooting dance halls, etc., and this did a very good work.

Dr. Walter Lester Carr of New York said that the Society had been organized to study children's diseases, and he was of the opinion that while as individuals they could do much good as members of committees, etc., the work of the Society should be carried on in a medical way.

Dr. John Lovett Morse of Boston said that he objected to the custom of making traction of the foreskin, and especially to circumcision. One should not mistake the normal for the pathological. If the prepuce was adherent, let it alone. Interference in most cases was unjustifiable.

Dr. Thomas Morgan Rotch of Boston said that the matter he had presented was only one factor of a problem which must be worked out. He said that in regard to devoting themselves entirely to medical subjects, it was recognized all over the world that prophylaxis in children was a great part of the work of the medical profession. He could not understand why what he had offered was called sociological; they were absolutely medical facts. In New York City there had been 10,000 children taken from the sweatshops and mills, and the good people who had done this should be told what to do with these children. How were judges and lawyers to decide what was best for these children unless the physician told them? He hoped to have what he had presented further investigated.

A Case of Cerebral Hemorrhage (Birth) with Operation.—Dr. Frank S. Meara of New York reported this case. A woman had passed through her first pregnancy in an uneventful manner, and as labor was slow it was decided to force matters. The cervix was dilated to about three fingers, bags were inserted, and chloroform administered. The forceps was not taken off, but was frequently unlocked to prevent undue pressure. The fetal heart was weak, and the child was with difficulty resuscitated, but with crying its color became good. In the evening of the same day it was found that there was facial palsy of the left side; the left arm was rigid and the hand flexed at the wrist. The left leg was also rigid, and there was exaggerated knee jerk. There were convulsive movements of the upper part of the body. The following morning the child was cyanotic and operation was undertaken. A clot was found and removed. No improvement followed, and the child died an hour later. The post mortem showed that in addition to the clot that was removed there was an extension of it along the fissure of Sylvius. This case emphasized the fact that if an operation was to be successful it must be performed at the earliest possible moment.

Dr. Alfred S. Taylor of New York presented the specimen, which showed the beginning of the hemorrhage around the outer edge of the Sylvian fissure, but there was an extension of the clot through the fissure of Sylvius towards the base of the brain, and an extension forward under the frontal and backward to the temporo-sphenoidal lobe, and a particularly marked extension downward to the front surface of the hind brain. Dr. Taylor showed some instruments that he had designed for this kind of work. The best cases for operative interference were those in which the clots were confined to the upper surface of the brain. The best evidence of the presence of clot in these cases would be the focal symptoms of the motor apparatus, pressure on the motor area. When the clot was situated at the base of the brain there would be pressure on the vital centers and respiration and circulation would be influenced. There was a question in these cases whether the child would be a useful member of society, even though he had good health. To obtain good results one should operate at the earliest possible moment.

Dr. L. E. La Fétra of New York said that one should look out for hemorrhage occurring shortly after birth where the cord had been wound around the neck. He had found in looking up the reports of the Sloane Maternity that a large proportion of the cases of cerebral hemorrhage had been those in which the cord was found encircling the neck.

Dr. Henry Koplik of New York said that the operation for cerebral hemorrhage in the newborn was one that required thought before undertaking it. It was often difficult to decide whether or not to operate.

Dr. John Lovett Morse of Boston said that he had observed the irregularity of symptoms in these cases, especially in the late development of symptoms. He had thought that they developed during the first ten or twelve hours, but there were reports of cases in which the first symptoms appeared on the third or fourth day. There were other conditions that gave the symptoms of cerebral pressure. In making a diagnosis of cerebral hemorrhage in the newborn one could not be too cautious. A bulging of the fontanelle indicated cerebral hemorrhage, and another symptom that had not been mentioned was the flowing of blood from the nose or the back of the throat, the

blood presumably coming from the cribriform plate of the ethmoid bone. Resort might be had to lumbar puncture in doubtful cases. Here there was a possible source of error in sticking the needle into a vein instead of the spinal. Even after deciding that a cerebral hemorrhage existed it was difficult to decide where it was located.

Dr. L. Emmett Holt of New York said that he had seen these children at the age of a year or fourteen months with the symptoms resulting from cerebral hemorrhage one felt justified in doing anything. He agreed with Dr. Morse, however, that the difficulties of diagnosis were very great. These hemorrhages were usually very profuse, and one could not be sure that all of the clot had been removed. The bulging of the fontanelle was the best single symptom in diagnosis. They should have localized symptoms; if there was general rigidity and convulsions they were very much in the dark. No importance should be attached to a bloody fluid in a lumbar puncture.

Dr. D. J. Milton Muller of Atlantic City reported the case of a child, seven months old, with every symptom of defective mental development. Six days after birth the child was seized with general convulsions and rigidity which lasted for five days. At various times he developed opisthotonos. Finally he got whooping cough and died. He thought there was some injury or hemorrhage of the brain. The post mortem showed the brain to be perfectly normal macroscopically, but microscopically there was a diffuse meningitis.

Dr. Charles P. Putnam asked the number of successful operations that had been recorded.

Dr. Taylor replied that Dr. Cushing of Baltimore had reported two successful cases out of four operated upon. The two cases in which he had been interested died shortly after operation. However, both were in bad condition before operation.

Dr. Roland G. Freeman of New York said that he had seen a case a short time ago in which the symptoms were very marked, but operation was refused. At the age of five months the child had improved and was still improving. There were no longer any convulsions and there was every indication that the child was getting well without operation.

Dr. F. S. Churchill of Chicago said that when one considered the results in these children one was justified in advising almost anything for their relief. Dr. Cushing had two cases which recovered after the operation; the two that died were not operated upon until some time after birth.

Dr. Samuel McC. Hamill of Philadelphia agreed with Dr. Holt in regard to the difficulty of diagnosis. He had seen a number of these cases. Many cases closely simulating cerebral hemorrhage showed nothing at autopsy. Where there were definite localized symptoms there had been no mistakes in diagnosis.

Dr. John Howland of New York said that even if a mistaken diagnosis had been made an operation was not necessarily fatal. He had seen one case in which nothing was found except an edematous brain. This child made a good recovery.

Dr. Alfred S. Taylor of New York said that he did not wish to be understood as saying that every child who developed cerebral symptoms should be operated upon. The subject of surgical interference should be studied from different standpoints. The dangers of the operation were apt to be magnified.

Dr. Meary of New York thought that fatal results in these cases might be attributed to delay in operating. Anatomical evidence showed that death might be the result of delay, the delay permitting further leakage and pressure upon the vital centers at the base of the brain.

Danger to the New Born from Gas Heaters.—Dr. F. W. Saunders of St. Louis said that in many houses no provision was made for the progress of the products of the progress of foul air, and it was to be hoped that builders might be influenced in this direction. Gas heaters were inimical to life in the new born. Many cases of cyanosis might be due to carbon monoxide poisoning. Dr. Saunders reported the case of a nurse and baby almost their death sleeping in a room from which a concealed gas heater burning low might.

Dr. Samuel S. Adams of Washington reported the case of a Government clerk who returned home to find his wife, mother, and baby dead from carbon monoxide poisoning from a coal stove. There had been several similar deaths in Washington since.

Spasmodic Stenosis of the Esophagus; a Case Demonstrated by the X-Ray. Dr. [illegible] of New York reported this case. He had seen this case, a child of sixteen months, last April because the child was suffering from attacks of vomiting. He was informed that on the third day after birth there was a discharge of dark blood from the mouth. Nursing was attempted for three weeks and then stopped. The vomiting or regurgitation occurred at or after every feeding. The child did well on artificial food for only a week and then regurgitated again. He learned that the vomiting occurred while taking food, seldom after. Two or three hours after feeding strings of mucus would be brought up. When the baby was one year old he weighed fifteen pounds. A tube was passed six and one-half inches when it met with obstruction. The baby vomited alongside the tube. He also vomited yellowish mucus along with fresh food after taking four spoonsful in the morning. This looked as though there was a pouch of some size along the esophagus. After feeding there was dullness on percussion to the right of the sternum. Radiograph pictures taken before and after eating were shown. The picture before eating showed nothing abnormal, but after feeding there was a shadow extending to the seventh dorsal vertebra. The stomach was apparently contracted with an hourglass contraction. This was a case of spasmodic stenosis of the esophagus and not of cardiospasm.

Dr. Thomas Morgan Rotch of Boston said this was a good instance of what the x-ray could do as an aid in diagnosis. He had seen one case of a pouch situated lower down in the esophagus. In this case the diagnosis was also made with the x-ray. His patient died of exhaustion.

Influenza: The Part It Plays in Hospital Infections; the Value of Cultures as a Means of Diagnosis; Influenza Carriers.—Dr. L. Emmett Holt of New York read this paper. He said that it was his opinion that the frequent infections that occurred in hospitals were due to influenza to a great extent. Experiments had been undertaken since January 1 to determine what value could be attached to throat cultures as a means of diagnosis. Cultures were taken from the throats of all the babies, nurses, and physicians in the Babies' Hospital. There were 312 cultures taken from 108 persons. Cultures were positive in 85, suspected in 42, not suspected in 43, and among these were 15 nurses. Cultures were negative in 112, suspected in 16, not suspected in 67, and among these were 28 nurses. Among the positive cultures the pneumococcus was positive in 53 and negative in 55. Among 202 negative it [illegible] the pneumococcus was positive in 30 and negative in 140. In 47 routine autopsies the following points were noted: Meningitis and lobular pneumonia, 8 cases, influenza bacilli positive in 2, negative in 6; the pneumococcus [illegible] negative in 7. Acute bronchitis, 2 cases, the influenza bacilli positive in 2, negative in 0; the pneumococcus positive in 1, negative in 1. In tuberculosis of the brain and lungs, 8 had meningitis. Pulmonary tuberculosis, 10 cases, influenza bacilli positive in 3, negative in 7; pneumococci positive in 2, negative in 8. Non-

tuberculous disease, 13 cases; influenza bacilli positive in 1, negative in 12; pneumococci positive in 4, negative in 9. Of 140 cases suspected, 43 gave positive and 97 negative results. Among the cases that were negative at the first culture 11 were afterward positive. The influenza bacillus was found in only 16 healthy individuals. The pneumococci were found in eight of these and were not found in the remaining eight. Klebs-Loeffler bacilli were found in four. Twenty-eight healthy persons showed neither the pneumococcus nor the influenza bacillus. When an otitis media was present there was great danger of looking at it as the principal disease. The organism was recovered from the heart's blood in no instance. Much depended upon the technique employed in taking the cultures. The influenza bacillus persisted in the bronchial secretions. Influenza was a large factor in house infections and was difficult to deal with.

Dr. Thomas Morgan Rotch of Boston said that one was apt to diagnose this disease before he should. It was a difficult disease to deal with. He referred to the work that was being done at the Massachusetts General Hospital in Boston. They there recognized that there was a clinical influenza, but their work seemed to show that the supposed organism was not the cause of the disease. It did not cause influenza any more than other organisms. They had found that 25 per cent. of the cases of common cold in the inter-epidemic periods, without the clinical symptoms of influenza, showed the influenza bacilli in large numbers. They concluded that the influenza bacillus must be excluded as a cause of clinical influenza. One had no more right to say that this organism caused influenza than that the staphylococcus, pneumococcus, or other pyogenic cocci caused the affection. Whether these results would be upheld later he did not know.

Dr. John Howland of New York said that in the recent epidemic of influenza it was very difficult to find the typical so-called Pfeiffer bacillus. There was, however, a large group of allied organisms.

Dr. Henry Koplik of New York spoke of the ambiguity of these organisms. A few years ago he took cultures of every child in his service, about 300, looking for the diphtheria bacillus. He found the diphtheria bacillus in the throats of 35, although they had no diphtheria. This had interested him in the ambiguity of the microorganisms.

Dr. Isaac A. Abt of Chicago said that in the hospital with which he was connected there would appear every now and then an epidemic of diphtheria. He had cultures taken of everybody's throat and found great numbers of the bacillus in the throat of one nurse; she had been responsible for the outbreaks of diphtheria. After being isolated for a while she was again permitted to return to the wards and another outbreak of diphtheria occurred; she was then sent away and the epidemics ceased.

Dr. Samuel McC. Hamill of Philadelphia said that in an institution in Philadelphia they had met with a number of infants who gave charts like those Dr. Holt had referred to and they had tried to determine the cause of the peculiar recurring temperatures. He had had cultures taken of the nasal secretions and had been trying to persuade himself that the temperature depended upon some infectious organism of a different type.

Dr. Thomas S. Southworth of New York said that there was a difference of opinion as to the exact organism responsible for this condition, but the fact remained that there was a clinical entity which by exclusion they were in the habit of calling influenza. During January, February, and March they had had a series of ward epidemics and the peculiar temperatures that were recorded during that time were apparently due to the ward epidemic going from child to child. In many instances these temperatures fell after paracentesis, and this led him to believe that some of these temperatures were due to otitic involvement. There was no question but that the disease was infectious. That this was the truth must be recognized in the future if they were to save these babies.

Dr. D. J. Milton Miller of Atlantic City said that he believed that the presence of the diphtheria bacilli in the throat was always a menace. One of the resident physicians of the hospital carried these bacilli in his throat for six or eight weeks when he got the clinical diphtheria.

Dr. L. E. La Fétra of New York said that he had stayed the hand of the aural surgeon from doing sinus and thrombosus operations as well as operations on the mastoid. They were too hasty in wanting to operate.

Dr. Henry L. K. Shaw of Albany told of an epidemic of influenza that occurred at St. Margaret's Home in Albany four years ago. The thought occurred to him to try to demonstrate the presence of the bacillus of influenza in the blood. The blood was obtained by pricking the temporal vein when the baby cried. They found that many of the cases called influenza were not influenza at all. Dr. Shaw reported a case of influenza meningitis.

Dr. F. S. Churchill of Chicago reported an instance of influenza meningitis occurring in twins four or five days old. At autopsy a very virulent meningitis was found and cultures showed a perfect growth of the influenza bacillus.

Pneumococcic Infection.—Dr. Walter Lester Carr of New York said that in croupous pneumonia and similar affections the pneumococcus might be recovered from the blood. He reported the case of a child, eighteen months of age, who had pneumonia followed by a marked invasion of the conjunctiva. There was a very marked pneumococcic infection, but recovery followed without any trouble. The child succumbed to an attack of meningitis six months after the attack of pneumonia. Many grippal affections were, in fact, due to the pneumococcus.

Report of a Case of Long-Standing Empyema, with a Note on Race as a Predisposing Factor in the Occurrence of Empyema.—Dr. Alfred Hand, Jr., of Philadelphia reported this case. This patient, a girl, three and one-half years old, weighing eight pounds and fourteen ounces, gave a history from which it seemed that the empyema had existed for about twenty months. The statistics of the Children's Hospital of Philadelphia for ten years showed that the number of cases of empyema among white children was about 10 per cent. of the pneumonias; among the colored children empyema occurred with less than 1 per cent. of the pneumonias. There were three cases of empyema among the colored race, but none of them showed the metapneumonic form. The case in question was a very uncanny sight. Resection of a rib was made under cocaine and pentrated one-quarter of an inch into thickened pleura. About one ounce of greenish pus was evacuated. About a month after, during the heated term, the child succumbed. In this institution there were 852 cases of pneumonias among white children and 99 of them had empyema, less than 11 per cent. Among 205 cases of pneumonia occurring in colored children only two had empyema or less than 1 per cent.

Dr. Roland G. Freeman of New York said that they had found at the Foundling Hospital that resection of a rib was entirely unnecessary in these cases.

Dr. Samuel S. Adams of Washington said that in the Children's Hospital in Washington from 40 to 50 per cent. of the cases were colored and among these he could not recall a single typical case of empyema.

Preliminary Report of Metabolism of Diphtheria.—Dr. John Howland of New York presented this paper, which was the result of his studies of the metabolism of diphtheria undertaken with the desire to investigate what metabolic disturbances might be produced during the course of diphtheria and throw some light on the obscure and fatal combination of symptoms usually ascribed to pneumogastric paralysis. There seemed reason to doubt that vom-

iting, abdominal pain, and slow pulse were due to degeneration of the vagus. If these symptoms were due to degeneration the nerve should be found normal when these symptoms were absent. Such was not the case. The pneumogastric nerve was found to be degenerated in practically every fatal case of diphtheria. These changes were found without regard to the associated symptoms. The nerve had been found degenerated in cases where there was no reason on clinical grounds to believe that it was affected. The vagus was found to be affected or degenerated at times when there were bacteriologically, no evidence of diphtheria and no clinical reason to suspect its involvement. The slowness of the pulse and the fact that atropine did not prevent bradycardia still further discredited pneumogastric degeneration as a causal factor. There was excessive excretion of urinary nitrogen in febrile affections. There were two factors concerned in this, the pyrexia and the infectious agent. It was difficult to find the one without the other. There was no strict parallelism between the height of the fever and the amount of protein destruction with its excessive nitrogen elimination. In general excessive nitrogen fell with the temperature, but it might continue for several days after the normal temperature had been reached. The study of several cases showed that during the course of diphtheria there might be a very great loss of nitrogen due to the effect of the toxemia alone, and this loss might continue far into convalescence. Coincident with the albuminuria there was a great loss of body protein which took place in the muscles and parenchymatous organs and probably in the kidney itself, and the albuminuria might be only an expression of the injury done to the kidney cells, rendering them less efficient for a time and permitting the serum albumin to pass through into the urine. In the destruction of muscles that took place in fever and cachectic processes creatin appeared in the urine. Very considerable quantities found in the cases reported indicated that the destruction of striped muscle was in progress. So far as the ammonia nitrogen was concerned there was nothing decidedly abnormal. There was nothing to make it appear that there was a marked and prolonged excretion of nitrogen evidently due to the toxemia that would have developed an albuminuria; there was evidence of great destruction of the body protein, and destruction of the striped muscle took place even when the temperature was normal as shown by the excessive creatin excretion.

A Case of Atresia of the Duodenum.—Dr. Roland G. Freeman of New York reported this case, which was the sixty-third of its kind reported. Although the cause of the condition was unknown, it had been attributed to syphilis and to pressure upon the head of the pancreas. This child was a male, born of a primipara, and was asphyxiated at birth. The child presented no untoward symptoms within twenty-four hours. On the second day it was noted that no urine was passed and dark green fluid was vomited. The child was jaundiced and mucus passed by the bowels. On the third day there was no vomiting, but the other conditions were unaltered. On the fifth day the vomiting continued and the jaundice was marked. Breast milk and a modification of cow's milk were tried. The stomach was washed out. On the sixth day the child did not seem fit for operation. The infant became decidedly worse on the ninth day and died on the tenth. The temperature had never been above 99°. The post mortem showed a small constriction above which the esophagus was dilated. The duodenum near the constriction was bound by adhesions. The walls of the stomach were thickened. The stenosis of the esophagus was complete; it was surrounded by connective tissue.

A Specimen of Formed Meconium Simulating Intestine.—Dr. Roland G. Freeman of New York reported this case, which he had seen in consultation for what was supposed to be a protrusion of the bowel from the anus. The protruded part had turned black. The child seemed to be in good condition. A cylindrical coil one-half an inch thick and eight inches long protruded from the anus. Its color was characteristic of meconium. He separated the coil by gentle manipulation and found it to be meconium.

Dr. Thomas Morgan Rotch of Boston said that congenital stricture of the duodenum was rather rare, but that cases having the symptoms of constriction of the duodenum were not so rare. It was important that a diagnosis should be made between pyloric obstruction, stenosis of the duodenum, and volvulus and twist of the intestine. If the diagnosis could be made many of these cases could be saved. Dr. Rotch had had a case of twisting of the omentum twice on its axis where operative procedure had relieved the condition. He believed in operative measures in children, but the great point was the making of a correct diagnosis.

A Case of So-Called Congenital Malaria.—Dr. Frank S. Meara of New York presented this paper. He said the question arose as to whether there really was such a thing as congenital malaria. Dr. Meara reported the case of a child, apparently healthy at birth, but who on the tenth day became sick and was brought to Bellevue Hospital with what was supposed to be a hernia. This supposed hernia proved to be the spleen, which filled one-half the abdominal cavity. The blood of both mother and child showed a tremendous number of malaria parasites. The child had either been infected in the ordinary way or else had been inoculated by the maternal blood in the act of parturition. The possibility of the separation of the placental membranes with inoculation following might be assumed. He believed that this was one more case of congenital malaria occurring during the act of parturition.

Some Considerations Concerning Scarlet Fever, Rubella, Scarlatinosa, and Duke's Disease.—Dr. D. J. Milton Miller of Atlantic City read this paper, which consisted largely of the histories of many cases.

The So-Called Thymus Death, with an Account of Seven Cases of Sudden Death in One Family.—Dr. J. P. Crozer Griffith of Philadelphia said that in April he had been called in consultation to see a child three months of age who had a bronchitis. The consultation was to discuss what might be done to prevent this child from meeting the fate that had befallen the preceding children. This was the seventh child in the family and was well nourished, having been breast-fed for three weeks and then gradually weaned. When three months of age the bronchitis increased and the diagnosis of mild bronchitis was made. The possibility of status lymphaticus was considered. Before long the lips and extremities became livid and harsh respirations appeared on both sides of the chest. The child soon died. The thymus gland was enlarged and the hyperplasia was marked. There was hypostatic congestion of both lungs, the heart was large, but without valvular lesions, and the bronchial and mesenteric glands and spleen were enlarged. In this family were eight children and all had died but one and practically with the same symptoms. Another was soon to be born and Dr. Griffith wished to know what could be done to save it. There was no evidence of tracheal compression in any of these children. The old theory regarding status lymphaticus was practically exploded. Among the theories advanced were the nonmechanical: (1) Defective secretion of the thymus with constitutional disturbances; (2) a neurosis of some sort; (3) a neurosis independent of status lymphaticus. The other theory advanced was the mechanical. This was due to (1) pressure upon the trachea; (2) pressure upon the cardiac nerve trunk; (3) direct compression of the trachea with strangulation. The views which seemed most plausible were that there was a neurosis of some sort which accounted for the cardiac death, and compression of the trachea due to strangulation. It was

wrong to attribute death to the thymus simply because it was found enlarged. There were evidently two classes of cases, viz., those due to mechanical obstruction to respiration and those due to nervous influences with cardiac failure and no evidence of stenosis. Dr. Griffith doubted whether an enlarged thymus had very great significance in cases of sudden death.

Dr. Thomas S. Southworth said that he believed that in time these sudden deaths would be ascribed to some disturbance of the internal secretions.

Dr. Henry Koplik of New York said that it was the tendency at present to group status lymphaticus and tetany in the same class. The clinical symptoms of the two conditions were very much alike.

Dr. John Howland of New York said that Warthin believed that as knowledge increased more and more cases of tracheal compression were being reported. Now the ordinary cases of sudden death with the pathological picture of enlarged thymus were so common that no one reported them any more. It seemed to him that they must consider enlarged thymus gland and enlarged lymphatic apparatus throughout the body as a common pathological finding. There were pathological, biological, and histological evidences to prove that the thymus gland was not a lymph organ.

The Stools of the New Born and Their Significance. Dr. Thomas S. Southworth of New York said, in summing up the present-day teaching on this subject, that after a period varying from three to at most five days the meconium gave way to yellow or orange-yellow stools, and these were of a uniform, homogeneous, semi-solid consistency; this was the normal stool, and any departure from this type indicated a disturbance of digestion or a deficient or unsuitable secretion of breast milk. Dr. Southworth said that his observations in the maternity wards of the Nursery and Child's Hospital were not in accord with this teaching. A table of statistics of 50 infants successfully breast-fed showed that the meconium lasted from 3 to 5 days on an average of 3½ days. In 14 cases the color was brown, appearing on the third to the fifth day, with an average of 4½ days; dark green in 31 cases, appearing on 4 to 7 days, with an average cessation on the fourth day; yellowish-green in 7 cases, appearing on 5 to 11 days, with an average cessation on the eighth day; greenish-yellow in 20 cases, appearing on 5 to 12 days, with an average cessation on the seventh day; greenish-yellow, soft residue in 28 cases, appearing on 5 to 18 days, with an average cessation on 8¾ days; yellow, soft residue, established 7 days in 18 cases, established 8 to 10 days, 15 cases; 11 to 14 days, 9 cases; over 14 days, 4 cases. Yellow and loose in 3 cases, continuing until 12, 19, and 34 days, respectively. The earliest stools of the infant consisted of meconium and were of a brownish-black color. They persisted for three or four days and were followed by bile-tinged mucoid intestinal secretion, which might be dark brown or brown-yellow, but was more commonly dark green, depending upon whether bile pigment was in the form of bilirubin or biliverin. A certain proportion might assume the classical color as the exception rather than the rule; the majority were greenish-yellow and more or less fluid, only becoming yellow later. Color consistency and fluidity followed no fixed rule. The importance of this variability lay in the prognostic and diagnostic significance which might be attached to them. Under the present teaching conclusions were most erroneous and led to steps that often were of serious consequence to the welfare of the infant. Personally he was of the opinion that the larger part of these variations were physiological, pending the establishment of complete harmony between the mother and the child in the extrauterine phase of nutrition. Dr. Southworth concluded that (1) the classical orange-yellow, semi-solid stools appeared in the majority of newly born infants at a later period than was usually stated; (2) considerable variations in color and consistency of the stools of newly born infants were compatible with regular gains in weight; (3) such variations in the stools for ten days or more even with slow or irregular gains in weight gave no certain indication that breast feeding could not be successfully carried on; (4) whatever the character of the stools, weaning was never indicated if the infant was gaining steadily in weight; nor even with delayed gains until intelligent efforts had been made to bring mother and child into physiological accord; (5) in the dark green stools of insufficient nutrition and not limited to the first few days of life there was a practical absence of all milk residue; (6) a yellow color of the masses of milk residue, when they were smoothed out precluded the assumption of indigestion, whatever the color of the exterior or of the surrounding media; (7) delayed gains in weight were often the result of factors which prevented the infant from securing a sufficient quantity of milk from perfectly competent breasts, and with patience and ingenuity these difficulties might be overcome.

The Urine in the Gastrointestinal Diseases of Infancy.—Dr. John Lovett Morse of Boston read this paper, in which were the results of the routine examination of the urine in 300 infants. All the examinations were made within forty-eight hours from the time of admission to the hospital; usually but one examination was made. It was thought that some findings of prognostic value might be found. He used the classification adopted by the pediatric department of the Harvard Medical School. Among 39 cases where the gastrointestinal disturbance was slight there was a slight trace of albuminuria in but 1 case. In 53 cases of chronic gastric indigestion, albuminuria was present in from 2 to 4 per cent. In 61 cases of chronic intestinal indigestion albuminuria was found in 11 per cent. In 17 babies with acute gastric indigestion albuminuria appeared in 3, or 17 per cent. In 70 babies with acute intestinal indigestion albuminuria occurred in from 4 to 6 per cent. Of 61 babies with infectious diarrheas albuminuria was found in 10 per cent. A review of his figures showed that albuminuria was present in about 8 per cent. of the babies suffering from chronic disturbances of digestion, never more than a trace of albumin was present, and almost never accompanied by casts. The presence of the albuminuria had no effect upon the prognosis. The presence of albuminuria had no effect on the prognosis in the acute gastric cases, but the mortality was higher in the intestinal cases having albuminuria than in those without it. Vomiting was more common in babies having albuminuria. Symptoms of disturbances of the nervous system were also more common in those having the albuminuria. However, there was nothing to show the connection between the disturbances of the nervous system and the albuminuria. Infection of the urinary tract in the symptom complex, as in pyelitis or pyelonephritis, was not common; in chronic disease there seemed to be no relation between the mortality and the albuminuria. Edema occurring in the course of gastrointestinal disease was not connected with the condition of the kidney.

The Irritating Effects of Cathartic Drugs on the Intestinal Mucosa.—Dr. Isaac A. Abt of Chicago said that the common practice of giving infants cathartic drugs for a more or less protracted period, whether their use was indicated or not, had suggested this inquiry. He hoped that he might be able to show that these drugs had a therapeutic limitation, and that the so-called cleaning-out process should not be continued after catharsis had been established. Cathartic drugs were administered about 125 times to 22 children to determine the irritating effects of the average dose of calomel, castor oil, and Epsom salts. The stools were examined before the administration of the drugs was begun. After the cathartic had been admin-

istered in varying doses for twenty-four hours, the stools were examined in the usual manner for color, odor, consistency, reactions, microscopic findings, the degree of oxidation, and bile pigment. Calomel was given to eight children and sixty stools were examined. The children who received one grain of calomel, either in single or divided doses, showed irritative effects on the following day, as was shown by the presence of mucus and occasionally of blood. Those who received from two to three grains of calomel at one dose showed both blood and mucus on the following day. This often persisted for two or three days. In those cases where calomel was given in divided doses (1/10 grain per dose) for a number of days the reaction for mucus and blood increased in intensity from day to day. Magnesium sulphate was given to five children and eighteen stools were examined. A small single does of one dram produced a slight irritation, *i.e.* a small quantity of mucus and blood. Large doses of magnesium sulphate showed at the conclusion of the third day a reaction for blood by the benzedine test, but not as much as was produced by the repeated doses of calomel. Castor oil was given to nine children, twenty-six stools being examined. Single doses of castor oil produced no irritation except a very slight one in one case. Two drams given to older children caused a reaction and irritation in but one case. Castor oil was given to two children in drachm doses for three successive nights; both of their stools showed reaction and irritation after the third day. Of the three drugs employed calomel seemed capable of producing the greatest irritation in the shortest time; castor oil seemed to produce the least reaction.

The More Frequent Use of Gavage in Pediatric Practice.—Dr. E. W. Saunders of St. Louis read a paper in which he argued that gavage should be used much oftener than it had been.

Soy Beans in Infant Feeding.—Dr. John Ruhräh of Baltimore described the soy bean (*Glycine hispida*) and said that a fuller account of the plant could be found in Farmer's Bulletin, No. 58, of the United States Department of Agriculture and the different varieties of Plant Industry, Bulletin No. 98. A gruel made from this bean, either alone or in combination with cow's milk, might be of value in certain classes of diseases, such as marasmus, and as a substitute for milk in diarrheas and in intestinal and stomach disorders and diabetes mellitus. He had not used it in a sufficient number of cases or long enough to justify further statement, but felt that in the soy bean we had a valuable addition to the dietary of the sick infant. The report was merely preliminary.

Congenital Cyst of the Liver, with Report of a Case.—Dr. Henry L. K. Shaw of Albany said that in an exhaustive review of the nonparasitic cysts of the liver by Moschcowitz in 1906 he was able to find only eighty-five cases; since that time three more had been reported. Two of these occurred in the fetus, seven in the new born, four in the first year, one eleven years old and the remainder in adult life. The largest number of cases were in persons over sixty years of age. Multiple cysts were found in all the cases occurring in infants, and in all cases there were abnormalities and malformations in other organs, most commonly degenerative changes in the kidneys. The case reported was that of a child, seventeen months old, who was well developed and weighed thirty one pounds. The mother had first noticed the "lump" last August, when it was about the size of an orange. Examination of the heart and lungs was negative and the lymph nodes were not enlarged. There was no jaundice. The abdomen was greatly distended, but not the abdominal veins. No positive diagnosis was made. An exploratory operation was believed to be both advisable and justifiable. Upon opening the abdomen part of the right lobe of the liver seemed occupied by a globular tumor which protruded downward to about the level of the navel. The tumor was punctured and about 900 c.c. of a clear yellow fluid withdrawn. The opening into the cyst cavity was enlarged and a rubber tube and drain introduced. There was practically no loss of blood and no evident shock. The fluid was found to contain a moderate amount of albumin and microscopically it showed only detritus, no cells or formed elements of any kind were found. Moschcowitz had concluded that these cysts were always associated with congenital anomalies of the liver consisting in aberrant bile ducts which might be extrahepatic or intrahepatic. The cysts had their origin in these aberrant ducts and might assume two forms, one arising from inflammatory hyperplasia of these ducts, the other by retention of fluid in these ducts, the result of congenital obstruction.

Abnormal Development of Bones.—Dr. Blackader of Montreal reported the case of a child of three years of age with a curious abnormal development of bones. The *x*-ray plate showed a peculiar arching of the bones. The circumference of each wrist at the joint was three and one-half inches, and of the foot five inches. The child weighed twenty-four pounds.

Election of Officers.—*President*, Dr. David C. Edsall, Philadelphia; *First Vice-President*, Dr. D. J. Milton Miller, Atlantic City; *Second Vice-President*, Dr. E. W. Saunders, St. Louis; *Secretary*, Dr. Samuel S. Adams, Washington; *Treasurer*, Dr. Charles Hunter Dunn, Boston; *Recorder*, Dr. L. E. La Fétra, New York. Next place of meeting, Washington, D. C., May 3, 4, and 5, 1910.

Puerperal Eclampsia and Leucocytosis of the Cerebrospinal Fluid.—Maurice Villaret and Leon Tixier describes a case of eclampsia occurring before, during, and after a six months' abortion, in which careful examination of the cerebrospinal fluid showed that there was present a leucocyte reaction in the fluid. There was no other toxic condition, and no nervous or infectious condition present. There was no nephritis. The arterial tension remained normal throughout, and the albumin disappeared rapidly after the cessation of the convulsions. Had there been uremia the tension would have been high and albuminuria maintained for some time. The author states that there are a certain number of cases of eclampsia in which hypertension of the blood-vessels cannot be considered a cause of the convulsions, and in these the presence of leucocytosis is in favor of a toxoinfective origin for the convulsions. *Gazette des Hôpitaux.*

Antibacterial Sera in the Treatment of Diphtheria.—Bandi says that therapeutic sera, in distinction from antitoxins, contain specific principles which opposes themselves to the vitality and reproduction of the bacteria. The author's serum is agglutinating and sensibilizing. Bacilli of diphtheria in contact with this serum when injected under the skin are rapidly destroyed by the phagocytes and undergo endocellular breaking down. It seems best to produce a polyvalent serum making use of different cultures of diphtheria bacilli, as is done with the streptococcus, so as to utilize differences of morphology and biology in these germs. The specific amboceptors obtained from the larger animal serum may be complemented by the use of alexic blood serum of man.—*La Riforma Medica*

The Rôle of Human Contagion in Infantile Tuberculosis.—J. Comby finds that tuberculosis is a disease that generally begins with aerial infection, from infected members of the infant's family. Prophylaxis should deal with removal of all tuberculous members of the family from the surroundings of infants, rather than with the sterilization of milk and the destruction of slightly infected cows. Milk, unless full of bacilli, will be digested and do no harm. But the grandparents who have chronic bronchitis and asthma, really tuberculous, will infect the child from their sputum. Children are born neither with tuberculosis nor with a predisposition to it. Remove the children of tuberculous parents at an early age from their home and bring them up in healthy surroundings and they will grow up healthy. Leave them with their parents and they will contract the disease. Pallor, emaciation, and narrow chest are symptoms of latent tuberculosis, not of predisposition to it. The measures taken against bovine tuberculosis, and to prevent the use of tuberculous milk, during the last twenty years have not diminished tuberculosis among infants.—*Archives de Médecine des Enfants.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

HISTORY OF YELLOW FEVER. By GEORGE AUGUSTIN. 8vo; cloth; 1194 pages; illustrated. From the Author, New Orleans.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D. 8vo; paper; illustrated; $6.00 per annum. Lea & Febiger, New York.

DIAGNOSTIC METHODS. By RALPH W. WEBSTER, M.D., Ph.D. 8vo; cloth; 641 pages; illustrated; $6.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

PRINCIPLES AND PRACTICE OF MEDICINE. By ARTHUR R. EDWARD, M.D., A.M. 8vo; cloth; 1257 pages; illustrated. Lea & Febiger, New York.

MINOR AND OPERATIVE SURGERY. By HENRY R. WHARTON, M.D. 8vo; cloth; 683 pages; illustrated. Lea & Febiger, New York.

GENERAL MEDICINE. By BILLINGS and SALISBURY. 12mo; cloth; 358 pages; illustrated; $1.50. Lea & Febiger, New York.

AMERICAN PRACTICE OF SURGERY. Edited by BRYANT and BUCK. Vol. VI. 4to; cloth; 916 pages; illustrated. Wm. Wood & Co., New York.

MANUAL OF CHEMISTRY. By SIMON and BASE. 8vo; cloth; 716 pages; illustrated. Lea & Febiger, New York.

PROTOZOÖLOGY. By GARY N. CALKINS, Ph.D. 8vo; cloth, 349 pages; illustrated. Lea & Febiger, New York.

PHILADELPHIA GENERAL HOSPITAL REPORTS, Vol. VII. Edited by HERMAN B. ALLYN, M.D. 8vo; cloth; 272 pages; illustrated. Dunlap Printing Co., Philadelphia, Pa.

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MEDICAL SOCIOLOGY. By JAMES PETER WARBASSE, M.D. 8vo; cloth; 355 pages. D. Appleton & Co., New York.

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THE DIETETIC TREATMENT OF DIABETES. By B. D. BASU. 12mo; cloth; 40 pages. The Panini Office, Bhuvaneshvari Ashram.

NAVAL HYGIENE. By JAMES DUNCAN GATEWOOD, M.D. 8vo; cloth; 779 pages; illustrated; $6.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

PHYSICAL DIAGNOSIS, 4th Edition. RICHARD C. CABOT, M.D. 8vo; cloth; 579 pages; illustrated; $3.00 net. Wm. Wood & Co., New York.

DISEASES OF PERSONALITY. By Prof. TH. RIBOT, Paris. 12mo; cloth; 142 pages; $1.00 net. Boericke & Tafel, Philadelphia, Pa.

MODERN MATERIA MEDICA AND THERAPEUTICS. By A. A. STEVENS, A.M., M.D. 8vo; cloth; 675 pages; illustrated; $3.50 net. W. B. Saunders Company, Philadelphia, Pa.

PRINCIPLES OF HYGIENE. By D. H. BERGEY, A.M., M.D. 8vo; cloth; 555 pages; illustrated; $3 net. W. B. Saunders & Co., Philadelphia, Pa.

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AN ATLAS OF DENTAL EXTRACTIONS. By C. E. WALLIS, M.R.C.S., L.R.C.P., L.D.S. 4to; cloth; illustrated; $1.25 net. P. Blakiston's Son & Co., Philadelphia, Pa.

DIE CHIRURGISCHEN KRANKHEITEN DER BRUST UND IHRE BEHANDLUNG. Von Dr. CARL BECK. 8vo; paper; 485 pages; illustrated. A. Hirschwald, Berlin, Germany.

SPEZIELLE DIÄTETIK UND HYGIENE DES LUNGEN- UND KEHLKOPF-SCHWINDSÜCHTIGEN. Von Dr. FELIX BLUMENFELD. 8vo; paper; 104 pages; 2 marks 80. August Hirschwald, Berlin, Germany.

DIE IMPOTENZ DES MANNES. Von Dr. P. ORLOWSKI. 8vo paper; 160 pages; illustrated; 4.50 marks. Curt Kabitzsch, Würzburg, Germany.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of October 9, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	435	144
Diphtheria	219	9
Measles	102	7
Scarlet Fever	130	2
Smallpox	—	—
Varicella	23	—
Typhoid Fever	147	24
Whooping Cough	36	12
Cerebrospinal Meningitis	6	4
Malarial Fever	—	—
Totals	1,098	202

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended October 8, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS
District of Columbia, Washington	Sept. 18–25	2	..
Georgia, Macon	Sept. 15–21	1	..
Illinois, general	Aug. 1–31	40	..
Danville	Sept. 18–25	1	..
Peoria	Aug. 1–31	9	..
North Dakota, general	July 1–31	27	..
Texas, general	July 1–31	92	..
San Antonio	July 1–31	2	..
Utah, general	Aug. 1–31	101	..
Salt Lake City	Aug. 1–31	17	..
Washington, Seattle	July 1–31	2	..

SMALLPOX—FOREIGN.

Chile, Valparaiso	Aug. 21–28	..	Present
China, Hankow	Aug. 18–25	1	..
Egypt, Cairo	Aug. 26–Sept. 2	1	1
France, Paris	Sept. 4–11	1	..
India, Bombay	Aug. 18–31	..	6
Madras	Aug. 14–20	..	1
Italy, general	Sept. 5–12	7	5
Java, Batavia	Aug. 14–21	2	..
Mexico, Monterey	Sept. 12–19	..	2
Persia, Mazanderan	July 1–31	..	Epidemic
Portugal, Lisbon	Sept. 4–11	1	..
Russia, Moscow	Aug. 28–Sept. 4	7	2
Riga	Sept. 4–11	2	..
St. Petersburg	Aug. 21–Sept. 4	25	8
Spain, Barcelona	Aug. 28–Sept. 11	..	5
Valencia	Aug. 28–Sept. 11	1	..
Vigo	Sept. 4–11	..	2

YELLOW FEVER.

Brazil, Para	Aug. 28–Sept. 7	9	6

CHOLERA—INSULAR.

Philippine Islands, Manila	Aug. 14–28	3	2
Provinces	Aug. 14–28	342	246

CHOLERA—FOREIGN.

China, Amoy	Aug. 14–28	..	39
Hankow	Aug. 18–25	..	2
India, Bombay	Aug. 18–31	..	92
Calcutta	Aug. 7–21	..	11
Madras	Aug. 14–20	..	1
Rangoon	Aug. 14–20	..	6
Japan, Karatsu	Sept. 1	2	On S. S. Tain Maru
Mitajiri	Aug. 22	21	..
Korea	Sept. 2	..	Epidemic in the northern part
Manchuria, Liaoyang	Aug. 10–14	..	1
Mukden	Aug. 10–14	..	1
Tashichiao	Aug 10–14	..	1
Yinkou	Aug. 10–14	6	1
Russia, general	Sept. 3–10	716	257
	Sept. 11–17	946	251
St. Petersburg	Sept. 3–10	167	45
	Sept. 11–17	246	87

PLAGUE.

Chile, Iquique	Aug. 18–Sept. 5	..	6 cases in lazaretto
China, Amoy	Aug. 14–28	..	105
Hongkong	Aug. 14–21	1	1
India, general	Aug. 14–21	1,821	1,376
Bombay	Aug. 18–31	..	64
Calcutta	Aug. 7–21	..	31
Rangoon	Aug. 14–21	..	28
Japan, Kobe	Aug. 29–Sept. 4	5	2
Peru, general	Aug. 28–Sept. 4	13	9
Zanzibar, Zanzibar	July 23–24	..	2

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Original Articles.

CRITICAL REMARKS ON EHRLICH'S SIDE-CHAIN THEORY OF IMMUNITY.*

By J. W. McLAUGHLIN, M.D.,

AUSTIN, TEXAS.

ACQUIRED immunity is a condition that gives protection to the organism from infection. The protection is specific in character, variable in degree and duration, may be developed by an attack of the disease immunized against, or by inoculations of the pathogenic agent, and is causatively associated with specific antibodies developed in the serum of the immunized animal, or with immunizing tissue changes wrought in the tissues of its body.

This criticism of the chemical or side-chain theory of acquired immunity is based upon evidence that the phenomena of immunity are not wholly results of chemical transformations of matter as claimed by the distinguished author of the theory, but are results of catalytic transformations; that the properties of a catalyst, including pathogens and toxins, are due to a physical or mass structure rather than chemical structure of the catalyst.

The evidence upon which these conclusions are founded will be discussed in this paper; an attempt will be made to show why and how a catalytic transformation differs from a chemical transformation, and why the phenomena of acquired immunity belong to the former and not the latter reaction. But to accomplish this it becomes necessary to describe an original theory of molecular energy, and its bearing on catalytic energy, which will be done; and finally to describe in outline an original theory of pathogenesis and immunization—a theory that is causatively based upon catalysis.

Forms of Energy.—It is recognized that all changes in matter which involve atomic and molecular arrangements belong to the domain of chemistry, but the forces which cause these changes to occur need not be chemical forces, they may be physical. Substances in stable equilibrium do not spontaneously undergo chemical changes; the conditions of equilibrium must be overcome before decomposition will occur. The forces which most commonly cause substances in stable equilibrium to be decomposed are the following: Mechanical energy, radiant energy (light and heat), electrical energy, chemical energy, and catalytic energy (ferment and pathogenic energy). While any one of these forms of energy may overcome an equilibrium of forces which bind together the separate parts of a stable substance into a whole, the manner in which it is done appears to be not the same in all instances. Mechanical energy—say the force developed by a concussion—may overcome a stable equilibrium by swinging the molecules of a substance beyond the limits of their attractions and decomposing them. Radiant energy may accomplish the same end by ether waves of light and heat. Electrical energy utilizes ionization to reach the same results. Chemical energy is the energy of atoms, and is the means by which chemical affinities react upon each other; an acid and a base are chemical affinities and their reactions afford an instance of the operation of chemical energy. Both the acid and the base are substances in stable equilibrium, but when they are brought in contact under favorable conditions they are decomposed. The energy of the atoms of the acid and base, in stable equilibrium in each substance and therefore latent, become active in atomic dissociation of acid and base, and cause the dissociated atoms to recombine into stable end-products.

The energy of a catalyzing agent is believed to differ from the energy of a chemical agent in origin and function: in origin, since it is apparently not derived from substances undergoing chemical changes, but from a catalyzer, whose "chemical make-up is the same after as before the reaction;"[1] and in function, since the catalyzer "directs the transformation along one path in preference to another,"[2] and determines the character of the end-products of the reaction.

The lines of chemical union pursued by nascent atoms in chemical reactions are those of least resistance. Atomic energy—set free as atomic force in the dissociation of matter—is the single influence which determines the line of least resistance in chemical reactions, but this is not the case in catalytic reactions, since, in addition to chemical forces, there is another force, that of the catalyzer, which takes part, and it may be the major part, in determining these lines.[2]

When chemical forces combine dissociated atoms of reaction along the line of least resistance it is plain that the presence of an outside force—the catalytic force—may change the resistance and direct the nascent atoms to pursue other lines of chemical union. As a matter of observation it is known that reactions produced in the animal body by enzymes (which are classified as catalyzing agents) cannot be produced by any chemical agent of known composition. For example, an enzyme inoculated into the tissues of a normal animal will cause an antibody—antienzyme—to appear in the animal's serum; furthermore, this antibdoy is specific since its energy will neutralize that of the enzyme inoculated, but none other. Likewise, inoculations of a species of bacteria, or a toxin into a normal animal will cause the appearance of specific antibodies to the bacteria or toxin in the serum of the animal treated; and it has recently been shown that specific antibodies will also appear in the serum of animals inoculated with an alien protein. Now, since neither ptomains, vegetable alkaloids, nor other substances whose chemical com-

*Presidential address, Texas Academy of Science, October, 1909.

position is known, are capable of causing the appearance of specific antibodies in the serum of animals inoculated with any of these substances,[3] the reactions produced by catalytic agents should not be classed as chemical reactions.

Specificity.—Reactions caused by ferments, pathogens, toxins and alien proteins are further differentiated from those caused by known chemical agents in "specificity." All reactions between chemical affinities are specific in a general way, but they lack the limitations in specific action which characterize the reactions of a ferment and its substrate, or the specific relations of a pathogen and its disease, or an alien protein and its antibody. A substrate may be vulnerable to but one species of ferment, an infectious disease may be caused by but one species of bacteria, an antibody to an alien protein is specific only to the exact kind and variety of protein inoculated. On the other side, an acid has an affinity for a base but this is not definitely specific as it has the same affinity for many other bases.* Of the many instances of definite specific affinity that ferments have for the substrate susceptible to its energy, that which maltase has for the α-glucoside will be cited. The α-methyl and β-methyl series of glucosides are chemical isomerides—the molecules of the two series of glucosides contain the same number and kind of atoms, but notwithstanding this maltase will readily ferment the α-group, but has no influence over the β-group of glucosides. Equally remarkable is the fact that emulsion will ferment the β-group but has no influence over the α-group.†

While the behavior of the ferment to the glucosides brings out the specific relations that exist between ferments and their substrates it does more, it indicates, although obscurely, the probable nature of the cause of this behavior. It has been conclusively demonstrated that the molecules of the two series of glucosides are identical in their chemical composition but are not identical in physical structure. Emil Fischer[5] says the atoms are differently arranged in space in the two series, "stereochemical configuration of molecules," and claims this is the sole cause of difference in behavior of the ferment, say maltase, toward the two groups of glucosides.

While this is doubtless true, the statement does not make clear why a feature of physical structure may determine the chemical affinities of a molecule; or, to be more exact, why the physical structure of a molecule may determine its form of energy, since chemical action is due to chemical force. But following the lead here given, I will try to show why a study of matter and energy, if logically followed up, will lead to the conclusion that the forms of energy which chemical substances manifest are derived from the chemical and physical structure of their molecules, and that an energy wave, here as it frequently is elsewhere, is an ether wave.

To make this conclusion good, it will be necessary to supplement the present knowledge of molecular structure and energy with the two original concepts, the sufficiency and pertinency of which will be clearly apparent. But not to anticipate, molecular structure and energy, as now understood, will be described and then the new features will be added. When this has been done it will become apparent that investigations into chemical phenomena need no longer be restricted, as they now are,[7] to describing "how" the elements combine; the outlook will be greatly broadened and chemical reactions made infinitely clearer by a comprehension of "why" the elements combine. Further than this, the terms "chemical affinity," "chemical forces," and the "internal forces of matter" will need no longer to be used vaguely to designate unknown but necessary forms of energy, as their origin and nature will be clearly revealed by the light of the new concept of molecular and atomic energy.

All substances are aggregations of molecules held together by attraction and yet in active motion, moving hither and thither, colliding, breaking into "ions" and atoms and recombining until the chemical forces, derived from the changing substances become equalized in molecules of the final products. "Theoretical chemistry," says Julius Thompson,[9] in the introduction to Thermo Chemical Investigations, "isbased upon the molecular theory according to which all substances are made up of molecules, and these molecules of atoms. The physical and chemical state of bodies depends upon the arrangement and motions of the molecules, and the other physical and chemical properties depend on the number and kind of atoms in the molecules, on their arrangement and relative motions."[7] A molecule is the smallest part of a substance which retains its properties. It is made up of atoms, which vary in number and kind according to the physical and chemical properties of the substance they compose, and these are spatially arranged within the molecule in characteristic groups, and vibrate in periods that distinguish one kind of atom from another kind of atom. This molecule we must take as the representative of matter, for all masses of it, whether gaseous, liquid or solid, are but aggregations of similar bodies.

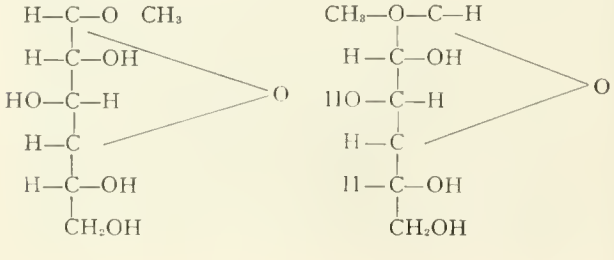
Atoms are chemical units. Modern chemistry

*"One of the most popular arguments against the view that fermentation is nothing more than a simple process of hydrolysis is that while starch, albuminoids, glucosides and sugars can be hydrolyzed by dilute acids, under approximately the same conditions, each ferment exerts its own specific action. The diastase which hydrolizes starch will not 'touch' albuminoids, maltase, nor cane sugar; and the ferment which breaks up albuminoids does not affect the carbohydrates or fats. In 1860 Pasteur proved that while mould fungus readily induces the fermentation of dextro-rotatory tartaric acid, it has no action on the lævo acid. And Emil Fischer has given us many examples of sugars, one isomer of which is susceptible to attack of an enzyme while the opical isomer is immune."[4]

†In 1894 Emil Fischer,[5] by his classical researches upon artificial and natural glucosides and their related enzymes, largely extended our knowledge in this field. D-glucose (dextrose) is known to exist in two stereo-isomeric forms, and Fischer found that when it is dissolved in methyl alcohol containing hydrochloric acid two stereo-isomeric methyl glucosides are formed, according to the following equation:

$$C_6H_{12}O_6 + CH_3OH = C_6H_{11}O_6CH_3 + H_2O$$

According to Fischer these glucosides have the following formulæ, which are identical except as regards the spatial position of the — O CH_3 and the — H radicals attached to the carbon atom. This difference of configuration is quite sufficient to determine their reaction with enzymes, for Fischer found that one of them, which he called the α-methyl glucoside, was readily split up by yeast maltase into glucose and methyl alcohol, whilst the stereo-isomeric β-methyl glucoside was not attacked at all. Emulsin, on the other hand, splits up the β-glucoside, but not the α-glucoside."



teaches that atoms are not single but composite bodies, made up of a great number of infinitely smaller bodies—corpuscles—whose dimensions do not exceed the ten-thousandth part of a hydrogen molecule. That these infinitely small bodies carry energy with themselves in the make-up of atoms is an evident conclusion and a necessary one to explain atomic energy, since atoms are actively moving bodies, whose vibrations occur in periods that characterize each particular kind of atom. Spectroscopy would not be intelligible but for this fact.

Professor J. Clerk Maxwell[8] suggests that "Atoms exist of various kinds, having their various periods of vibrations, either identical or so nearly identical, that our spectroscopes cannot distinguish them." "The same kind of atom, say of hydrogen, has the same set of periods of vibration, whether we procure the hydrogen from water, from coal, or from meteoric iron." Lord Kelvin, in his vortex hypothesis, not only attributes to each kind of atom distinctive motion, but holds that the motion of the atom may be the sole character which distinguishes it from other atoms.

When to molecular structure, as here described, is added the knowledge that heat is developed by molecules in their translations and collidings, and that heat may be transformed into other forms of energy, we have before us the teachings of our textbooks of molecular structure and energy. And in view of the meagerness of this knowledge and its insufficiency to furnish a working hypothesis of the cause of chemical action, no other course is left to chemistry than that of describing "how" chemical changes occur, and to describing transformations of matter as they are seen from the viewpoint of changing matter, but not as they appear from the viewpoint of energy.

Taking up the study of molecular structure and energy where it has apparently been abandoned, I will supplement our knowledge of the subject by adding to it two new features. The first of these is the presence of the universal ether, surrounding the atoms in the molecules and accurately reproducing as ether waves the vibrations which distinguish them. The second is an adjustment of conflicting ether waves, produced by the vibrating atoms in the molecules, and their transformation, by the "principle of interference" into waves whose periods coincide in crest and trough; that is, into waves of energy.

The mutual neutralization of the waves of light as seen in Newton's rings when the crest of one wave falls upon the trough of another, or the neutralization of two sound waves, one by the other, affords an example of the "principle of interference," which occupies an important place in the new concept of molecular energy. "For beauty, simplicity and wide application, this principle," says Sir John Herschell, "has hardly its equal in the whole circle of science."

The set of adjusted intramolecular waves accurately represents the following factors of their synthesis—the kind and number of atoms in the molecule, their arrangement in space, the character of ether waves produced by their vibrations, and the results of their adjustment. They also possess energy, since the wave impacts, recurring in coincident periods millions of times per second, are capable of doing work.

Catalytic Energy.—Since the properties of a substance are due to the chemical and physical structure of its molecules, and the energy of molecules is derived from ether waves which represent their chemical and physical structure, we may safely assume that a molecule cannot influence other molecules through its waves of energy (potential energy) until the waves come in contact with waves of other molecules they can either exaggerate or neutralize, when potential wave energy is converted into an active force—dynamic energy. But it is evident that the molecules of the interior of a mass are conditioned differently from those occupying the surface; the waves of the former are mutually equalized, while the waves of the surface molecules are not equalized, since there are no opposing molcules to supply opposing waves. It follows, therefore, that (1) a perfect equilibrium of molecular waves of a mass is not possible, as it would require mass without surface; (2) molecular energy not equalized is available as potential energy; (3) the quantity of potential energy of a mass that may become available without decomposition of the substance is directly proportional to the extent of its surface and inversely to its mass; (4) available molecular energy should be capable of decomposing substances weaker in chemical bonds and of coincident periods (*a*) in practically unlimited amount, and (*b*) the dissociating force should be a factor in determining the line of union along which dissociated atoms combine; (*c*) work done by molecular surface energy need cause no chemical change in the substance whose molecules supply the energy.

It has been shown by Bredig and von Berneck[10] that ultramicroscopic particles of platinum are torn loose from platinum terminals immersed in distilled water, by the electric current, and that these infinitely small pieces of platinum suspended in distilled water, a colloid solution, possess in a marked degree the properties of ferments. Now, since the only difference between the minute and larger pieces of metal is in an immensely increased surface given to the mass by dividing it into infinitely small pieces, it must be the enormously increased molecular surface, with a corresponding increase of potential energy, that give the ultramicroscopic particles the property of ferments.

It is not necessary for me to say that the properties or functions described are identical, as far as they go, with those of a catalyst, and if the argument and premises submitted are logical and sound, a catalytic agent is a substance whose extent of molecular surface is greatly exaggerated and largely out of proportion to the mass. This seems to be a characteristic of colloids to which enzymes and toxins belong.

The following summary of accepted catalytic properties comprising Mellor's "Articles of Faith," show how close together are the properties of a catalyzer logically deduced from our concept, and those recognized by science. Mellor says:[9] "What part the catalyst plays in the reaction is shrouded in mystery." The following, however, are generally recognized as "articles of faith": (1) The catalyst has the same chemical composition at the beginning as at the end of the reaction. (2) A small quantity of the catalytic agent is sufficient to effect the transformation of an indefinitely large quantity of the reacting substance. (3) The phenomenon of catalysis is universal. "There is no kind of chemical reaction," says Ostwald, "which cannot be influenced catalytically, and there is no substance, element, or compound which cannot act as a catalyzer." (4) The activity of a catalytic agent depends on its physical condition. As a rule the finer its state of division the greater its activity. (5) The function of a cata-

lyzer is to direct the transformation along one path in preference to another.

The new theory of atomic and molecular energy may at first sight appear to violate the principle of conservation of energy, for the reason that persistent motion, involving a constant expenditure of energy, is ascribed to atoms with apparently no evidence that energy is received. But since it has been shown that atoms are complex bodies, and are made up of a great number of infinitely smaller energetic bodies which bring energy with them in the make-up of atoms, atomic motions are not in violation of the principle of conservation of energy. Besides, if atoms do not vibrate, and in characteristic periods, what about spectroscopy and the undulating theory of light, and how can the action of radium be explained? The quantity of energy given off by radium is enormously out of proportion to the chemical change that takes place in the substance; and it may, therefore, be asked, where does radium get its energy?

Specific Antibodies.—While it is recognized that "the function of a catalyzer is to direct the transformation along one path in preference to another," it has not yet been made clear by what means the catalyst does this; nor is it explained why the end-products of the transformation are antibodies to the catalyzer. But when catalysis is examined in the light thrown upon it by the new theory, it is believed that a reasonable explanation of these problems will appear. A mental picture of a catalyzer in action will show that its waves of potential energy (its molecular waves), the intensity of which is proportional to the largeness of molecular surface and the smallness of the mass, falling millions of times, crest and trough, on molecular waves of the substrate, will swing the molecules of the substrate beyond their attractions and disrupt them. And since nascent atoms combine into stable end products, the influence of wave energy of the catalyzer in the recombination of the atoms must be considered, as it seems evident when this energy dominates the reactions no end-products can form whose molecular waves coincide with those of the catalyzer, since coincidence will cause dissociation. The less the waves of the two sets, catalyst and end-product, coincide in crest and trough, the easier can the atoms combine, and when the trough of the waves of the end-product falls upon the crest of the waves of the catalyzer, the line of least resistance will have been found; but *the end-product will be a specific antibody to the catalyst.*

To be in harmony with this scheme each molecule of the final product of a catalytic reaction should be a specific antibody to a molecule of the catalyst; but since the available energy of a substance as a mass is a matter of surface action, the neutralizing energy of an antibody should be directly proportional to a maximum of molecular surface with a minimum of mass: as an extent of molecular surface may be large or small, end-products of catalytic reactions which have exaggerated surfaces in proportion to mass are active antibodies, while end-products which do not possess these features are less active.

It was stated in the beginning of this paper that specific antibodies are recognized by common agreement as a cause of acquired immunity; and since reactions in which antibodies appear as end-products are shown to be catalytic, the appearance of specific antibodies in the serum of a normal animal recently inoculated with bacteria, toxins, enzymes, or alien proteids, affords strong evidence that these bodies are catalytic agents, and that immunizing reactions produced by inoculating a normal animal with one of these bodies are catalytic reactions. This inference, if a stronger term is not justified, is much strengthened by failure of chemical agents to produce antibodies in the serum of animals inoculated with such agents, and by failure to show that the peculiar forms of energy of enzymes and toxins are causatively connected with chemical composition of the substances. Analyses of enzymes and toxins have found nothing but protein; no ferment or toxin has been separated in a pure state.

Oppenheimer[12] says, "We must be content to assume that they (toxins) are large molecular complexes, probably related to the proteins, corresponding to them in certain properties, but standing nearer to the equally mysterious enzymes, with whose properties they show the most extended analogies, both in reactions and in activities." And he further says,[13] "Of the ways and means by which the peculiar forms of energy of ferments develop their activity we have not the slightest trustworthy idea." But when toxins are classified as catalytic agents, and pathogenesis is classified as a catalytic reaction, in which a pathogen or toxin plays the rôle of catalyst, it is but necessary to find in the sera of normal animals vulnerable substrates, to explain rationally how bacteria and toxins cause infection.

Recalling to mind that stereochemical configuration of molecules of the α-glucoside made it vulnerable to the ferment (maltase), while a chemical isomeride—the β-glucoside—is not vulnerable to this ferment because the atoms of its molecules are differently arranged, we should seek in blood serum for a substance whose molecules are arranged in homologous groups, which retain the chemical features of the substance but differ among themselves in stereochemical configuration. When a substance of this nature is found, we will have a substance whose molecules will be susceptible to many species of bacteria and many toxins: each group of homologous molecules, while retaining the chemical character of the whole will differ in physical structure, and because of this the groups will differ in specific vulnerability; one group will be vulnerable to one species of pathogen, another group to another species, and so on down the list.

Now the albumins of the tissue juices apparently possess the characters we are seeking. The albumins compose the larger part of the tissues of the body and the various cells obtain from the albumin molecules of the serum nourishment they require for the repair of waste and for functional action. It seems impossible to understand how cells of various kinds can obtain from a homogeneous substance materials so heterogeneous, but when we conceive the molecules to be arranged in many groups of albumin isomerides, the process of assimilation becomes catalytic and falls within the scope of mental action. Likewise, the problem of infection becomes a matter of easy solution, since each group of homologous molecules may be a specific substrate to a single species of bacteria, and, therefore, susceptible to disruption and conversion into specific toxalbumins by the molecular energy of this species. Pathogenesis is, then, a catalytic reaction in which a pathogen plays the rôle of catayst, a group of proteid molecules of the serum the part of substrate, and the end-product that of antibody. In this process the albumin molecules of the substrate are converted into toxalbumins (the poison of infection) by the pathogen or toxin.

The Side-Chain Theory.—Following the classification of Ehrlich, acquired immunity will be discussed under two headings—toxic immunity and bacteriolytic immunity. The term "toxic immunity" designates immunity against a bacterial toxin, or the disease it may cause. It gives no protection against diseases other than those caused by toxins, and is, therefore specific, as the neutralizing energy of the antitoxin is limited in its action to the toxin of the disease. The term "bacteriolytic immunity" designates immunity of the organism against a species of pathogenic bacteria. Bacteria which invade the immune organism may be killed by bacteriolysins which appear in the serum of the animal during its immunization; this action is specific, as the *lytic* energy is effective only against the one species of bacteria. Since antitoxins, which appear in the serum of animals during immunization, are recognized as the cause of antitoxin immunity, and their origin and synthesis are not known, it is the province of theory to explain these problems. It is likewise, and for the same reason, the province of theory to explain the synthesis of bacteriolysins, and how they kill bacteria, since these matters are not known to science. In discussing the features which differentiate catalytic from chemical reactions I submitted some speculations on antibodies which include antitoxins and bacteriolysins, and will have more to say later when on the subject of immunity. In the meantime the following brief outlines of Ehrlich's theory will be submitted:

Toxic Immunity.—It is taught in the side-chain theory that antitoxins are chemical agents which specifically neutralize poisonous toxins; that a toxin molecule has two groups of chemical affinities—a haptophore group and a toxophore group; that the toxin molecule must be bound to the side chain by the haptophore group before the poison side or group can reach and destroy it. And, since the affinities of toxins are specific, it is taught that the affinities of the binding or haptophore groups are both numerous and varied in order that they may be chemically attracted by the corresponding affinities of the side chains. This feature is illustrated diagrammatically by representing the affinities of the side chains as objects of many shapes, and the affinities of the haptophore groups as receptors shaped to fit in the side chains, as a key fits its lock.

The tissue cells of the body are described as having a central fixed substance of organic life, with surrounding molecular groups, which constitute its side chains. It is assumed that the side chains are clothed with chemical affinities of many kinds to enable them to select nourishment suited to each kind of cell; and that the specific affinities which enable the cells to select food molecules for cell nourishment also enable the affinities of the side chains to fix toxin molecules which infect the organism. The theory further teaches that tissue cells which have been poisoned but not destroyed by toxin molecules throw off the injured side chains and reproduce others identical with those lost. And it is furthermore assumed that side chains destroyed are reproduced in larger number than the cells can place; and that the excess passes into the blood, where they maintain an independent existence. The outcome of this is that the side chains floating in the blood stream are described as specific antibodies to the toxins (antitoxins), since they can fix and neutralize these bodies (toxins) in the blood stream, and so protect the cells of the body from becoming poisoned by the toxins.

If the merits of this beautiful theory are alone determined by its ability to explain the phenomena of toxic immunity the verdict should be highly satisfactory. But since there is no proof that toxins are definite chemical agents; that separated portions of cell structures (antitoxins) are capable of maintaining an independent existence in the blood; and that Nature departs in this instance from her simple uniform methods to adopt others that are bewilderingly complex and without parallel; and since the phenomena of immunity may be rationally explained without accepting these hypotheses, the verdict should be—"not proven."

I have read that in the commercial production of diphtheria antitoxin (from the horse), a unit of toxin will produce ten thousand units of antitoxin, and the quantity of antitoxin may be further increased, and very largely, by frequently bleeding the animal. While I cannot vouch for the accuracy of these proportions, it is evident that the large number of units of antitoxin which may be produced from a single unit of toxin takes the process out of the realm of chemical action and places it in the domain of catalysis, or ferment reaction. Besides, the fact that inoculation of a known chemical agent does not produce an antibody in the serum of the animal treated should be conclusive that the production of antitoxin by toxins is not, strictly speaking, a chemical process.

The catalytic theory of toxic immunity stands out in favorable contrast to the chemical or side-chain theory in simplicity, uniformity, extent of application in physiological processes of the organism, and in experimental proof furnished by development of specific antibodies in the serum of normal animals inoculated with the toxin. The production of antitoxins in the blood serum, as seen from this point of view, is as follows: The toxin, being a catalytic agent, will cause a catalytic reaction when inoculated into a normal animal—a reaction in which the toxin is the catalyzer, a group of vulnerable proteid molecules is the substrate, and the antitoxin is an end-product.

Bacteriolytic Immunity.—It is claimed by the side-chain theorists that the animal organism owes its protection from invasion by pathogenic bacteria to two soluble substances contained in immune serum—alexin and immune body. The name "alexin" was given by Buchner and the school of humoralists, who taught that alexin is the principle that gives blood bactericidal properties. It is a normal constituent of serum; is destroyed by heating to 55° C.; enters into chemical combination and may be substituted by chemical agents; is nonspecific in action, and is regarded as a mild ferment, but this has not been definitely established and is of questionable accuracy. "Immune body" is a term long used to designate a substance, contained in immune serum, that is an important factor in acquired immunity. Unlike alexin, immune body is not a component of normal serum; is not destroyed by heating to 55° C.; and is definitely specific in its action. Immune serum then contains two substances—alexin or complement, and immune body or amboceptor, which acting together supply its bactericidal power, according to the side-chain theory. Neither one of the above is bactericidal alone, but they become so when they act together.

This was determined in the following manner: It was first shown by experiment that immune serum is specifically bactericidal; the serum was then heated to 55° C. when it was found to have

lost its bactericidal power; but this was fully restored by adding to the inactivated (heated) serum fresh (unheated) serum. It is claimed, therefore, that heating immune serum to 55° C. destroys the complement it contains, and that this is restored and the serum made active by the addition of complement contained in the fresh serum. But since activation of immune serum may be accomplished by adding fresh normal serum of animals of different species, it is evident that the required substance contained in the added serum is not specific.

Now the problem to be solved is—how immune serum destroys bacteria, why the action is specific, and why coaction of fresh serum and immune body is necessary to secure this result. The answer to these questions by the side-chain theory is as follows: The two soluble substances of immune serum to which it owes bacteriolytic efficiency are complement and amboceptor. Complement is the name given alexin on the hypothesis that it is complemental to amboceptor in destroying bacteria; it has all the characteristics of alexin and is alexin. It is assumed to have two groups of affinities—a haptophore group—which unites it to the amboceptor, and a zymophore group, which supplies the "lytic" ferment that destroys the bacteria. Amboceptors are hypothetical bodies of immune serum, whose function is to unite complement and bacteria in the serum. The name amboceptors was given to these bodies on the supposition that they have two receptors, one for complement and the other for bacteria. The complement receptor has no specific affinities, but the bacteria receptor has a multiplicity of affinities in order that it may fix bacteria of many species. It is quite evident, when the existence of complement and amboceptor is agreed to, why neither complement nor amboceptor alone is effective in destroying bacteria, but become so when they act together, since complement must be anchored to the bacteria by amboceptor, an intermediary, before complement can reach and poison the bacteria.

It is, of course, understood that this explanation is a theoretical conception, beautiful, consistent, and sufficient, but only a theory, and as such is open to fair criticism, without reflecting upon its distinguished author. Do amboceptors, so vital to the side-chain theory, exist, or are they objects conceived in fancy to explain conditions? If they have an existence the fact has not been proven; they have never been isolated, and nothing is known of their composition, place of origin, or synthesis. It is true that immune body is a constituent of immune serum and its identity with amboceptor has been claimed; but to allow this claim would, it seems to me, destroy the chemical theory, since it has been shown that immune body has never been produced by known chemical agents. Besides, when we consider the functions ascribed to amboceptors, it is hardly possible to believe they are chemical agents, since we have no evidence that such agents possess the power of reproducing themselves, as amboceptors must do in order to repair losses sustained by combinations with bacteria; or of remaining long in the system, since these foreign chemical agents would quickly be eliminated or destroyed, as other foreign substances are.

It seems but fair that a theory should not only be capable of giving a rational explanation of phenomena, but its premises should have a basis of truth in fact or analogy; and since the side-chain theory does not fully comply with these requirements it seems unwise that it should be accepted.

There is still another defect in the side-chain theory that exposes it to fatal criticism as a theory of acquired immunity, it is this: it offers no explanation of *lasting immunity*. The term of acquired immunity is not the same for all infectious diseases; some never recur, others may recur after the lapse of years, and others may recur every time the person is exposed to the infection. The two types (toxic and bacteriolytic) made to cover the field of acquired immunity described in the side-chain theory are both short lived forms and necessarily so since the causes of these types (toxins and bacteriolysins) do not remain in the body, but like other foreign substances are soon removed or encapsulated.

Since immunity does not outlive the causes of its origin, the bacteriolytic and toxic forms, which are caused by specific antibodies in the serum, are of short duration and disappear with the disappearance of the causal antibodies. But there is a large number of infectious diseases which are thought not to be toxic in origin, since no soluble toxins have been found in the serum or other tissues of the infected body; and in which immunity is not due to bacteriolysins. A feature of this class of infectious diseases, and one which distinguishes them from toxic and bacteriolytic diseases, is the lasting character of their immunity. Immunity against yellow fever, for example, is lasting and may continue a great number of years, or for life, while immunity acquired against a toxic disease, say diphtheria, is of short duration. The nature and cause of lasting immunity are apparently not embraced within the scheme of the side-chain theory, and I venture, therefore, to submit in brief outline an explanation of acquired immunity which will cover all its types, and is predicated on the concept of atomic, molecular, and catalytic energy, already described.

Pathogenesis, or the process whereby an organism becomes specifically infected, is, according to the new theory, a catalytic reaction occurring within a living nonimmune organism. In this reaction a species of pathogenic microorganism, its toxin or endotoxin, is the organic catalyst, and a group of homologous molecules of the serum (stereoisomer of protein) is the substrate. The molecules of the substrate are dissociated by the wave energy of the organic catalyst, and the nascent atoms, under the dominating influence of this energy, combine to form specific antibody—a toxalbumin—which is the specific cause of the resulting infectious disease.

The type of an infectious disease produced by a reaction of the character described will depend, first, on the specific cause, and second, on the stereochemical configuration of the molecules of the substrate. Specificity characterizes the reaction throughout, as every type of infectious disease has a specific cause; every organic catalyst requires a specific substrate, and every antibody is a product of a specific reaction and possesses specific energy. The duration of immunity obtained in this process will be permanent if the reaction is complete—that is, continued until all substrate (molecules susceptible to dissociation by the catalyst) is transformed. But this seldom happens, as a concentration of antibody (end-product whose energy waves antagonize those of the catalyst) brings about an equilibrium of forces that stops the reaction before the substrate has all been transformed. It would appear, therefore, that the end accomplished by antibody is to afford temporary immunity; and we must seek

further to find the tissue changes of lasting immunity.

The dependence of coaction between an enzyme and the substrate vulnerable to its energy upon definite relations in the structure of the molecules, has been determined by many observations, and is a *sine qua non* of catalysis according to the new theory. Therefore, when it is shown that the portion of substrate left untouched by the catalyst in a toxic reaction becomes changed in the structure of its molecules—is transformed into a stereoisomer of its substrate—it becomes plain that the transformed substrate is immune to the pathogenic agent to which it had previously been susceptible; and, further, that immunity thus acquired will be lasting, since the transformation has merely changed protein into an isomer and not into a foreign body.

Now, evidence in the case of enzyme reactions proves that these reactions are reversible and that the reverse product is an isomer of the substance transformed. If, therefore, the analogies in structure and in reactions between enzymes and toxins, justify the belief that pathogenic reactions are also reversible, a rational explanation of acquired immunity will be found in the transformation of a pathogenic substrate into an isomer of the same substance; since the isomer will be immune from dissociation by the pathogenic agent. The principle on which this fact is based is illustrated in the immunity of the β-glucosides to maltase notwithstanding the susceptibility of its stereoisomer—the α-glucosides to this enzyme.

According to the hypothesis of Van't Hoff[14] an enzyme will synthesize only the bodies which under other conditions it can hydrolyze. If this is correct the scheme of lasting immunity just described must fall to the ground since it is evident that a substrate which may dissociate (hydrolyze) the toxin is not immune to this agent; in fact a substrate of this structure may be hydrolyzed by the enzyme in a direct reaction as often as it is synthesized by it in a reverse reaction. But as a matter of fact this does not occur, and when Croft Hill,[15] the first to bring forward definite proof of a synthetic process taking place under the influence of an enzyme, discovered that revertose, afterward shown to be isomaltose (which is not vulnerable to hydrolysis by maltase) is the product of the reverse reaction of maltase on máltose, he was greatly surprised, since the result seems to be in violation of the Van't Hoff[14] hypothesis. This and other results of the same character led Franklin Armstrong[17] to conclude that an enzyme as a general rule synthesizes exactly those bodies which it cannot hydrolyze. This conclusion is in perfect harmony in its results with the scheme of immunity we are describing, but there seems to be a difference of opinion between us as to the nature of a reversible reaction—the exact process by means of which these results are obtained.

The generally accepted opinion, as I read it, is that a reversible enzyme reaction is one in which the same enzyme acts reversely to its direct action, while the process, as I reason it out from an energy point of view, is one in which the antibody, when added in excess of the quantity produced in the reaction, is the enzyme which transforms the substrate into an isomer of the same substance of which the substrate is composed.

Taking for illustration the process in which maltase transforms maltose into glucose, I would explain the reaction as follows: Relations in molecular structure held in common by maltase and maltose create ether waves of energy (molecular waves) in each substance which coincide, crest and trough, in periods; and as a result of this coincidence the waves of maltase fall in concident time millions of times a second on those of maltose, and swing the molecules of this substance beyond their sphere of action and dissociate them. The nascent atoms thus set free and forced to recombine under the dissociating wave energy of maltase, find the combining line that leads to glucose—an antibody, the one of least resistance, and as the wave periods of antibody do not coincide with, but may be opposite to, those of maltase, the former will neutralize the latter, more and more as it accumulates (concentrates), until finally the waves of one side will equalize in energy those of the other side. An equilibrium will then be established and the reaction will stop.

Now when glucose—the antibody—is added in excess of that required to establish an equilibrium of forces it becomes a question, What influence will the energy represented by the excess of glucose have upon the other bodies of the reaction? As we have seen, the wave periods of maltase and maltose coincide with each other but are opposite in crest and trough to those of glucose. It seems quite probable, therefore, that the free energy of the latter—that is, the energy in excess of that required to neutralize the energy of maltase and maltose, will fall upon the molecules of these substances, and while it cannot dissociate them it may bring about a rearrangement of the atoms in the molecules, at least in those of the weaker substance—maltose; that is, convert maltose into isomaltose.

Frenkel[16] describes how injurious influences of many kinds applied within limits a little less than deadly will "attentuate" many varieties of bacteria—ferment, chromogenic, and pathogenic; that is, will gradually weaken more and more, and may finally destroy the specific catalytic properties they possess, without ajparently harming the vegetative functions. The attenuated bacteria do not apparently differ from those not attenuated in any respect except in a partial or total loss of power to produce the substance—ferment, chromogenic or pathogenic—they produced under normal conditions. This loss of functional power may be permanent and may be transmitted from parent to offspring through many generations, or the power may be restored by growing the attenuated bacteria under favorable environmental conditions.

Now the most rational explanation of this phenomenon is that the harmful agent weakens or destroys the specific catalytic function of the bacteria by changing the arrangement in space of atoms in the molecules which determine their catalytic power. If this is the case, it furnishes evidence that the harmful action of antibody may bring about similar changes in the molecules of the substrate; that is, transform them into isomers, which make them specifically immune. This explanation of reversible reactions has been much strengthened by experimental work of Bietzka and Neuberg[18] who showed that on subcutaneous injections of emulsion into a rabbit, antiemulsion was formed, and that this body was able to synthesize a disaccharide from glucose. Also by the views of Euhler[19] based upon the strength of this experimental work, who assumes that antibodies in general are the synthesizing enzymes of reverse reactions.

In conclusion I can truthfully say, and without

undue egoism, that many phenomena of enzyme and pathogenic reactions whose existence has only been generally recognized in recent years, as for example, specificity, structure relations, reversibility, and incompleteness of hydrolysis, are legitimate deductions of the principles on which are constructed the catalytic theory of immunity; and as such were described by the author[21] three years before the announcement by E. Fischer[5] of the structural relations of enzymes, and six years before the announcement by Croft Hill[15] of the first definite proof of a synthetic process taking place as a result of a reversible enzyme reaction.

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EMPYEMA OF THE ANTRUM OF HIGHMORE: ITS RELATION TO OTHER DISEASES, AND ITS TREATMENT.*

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When one surveys the vast literature of diseases of the antrum it might appear at first sight that the whole subject had been thoroughly covered and that it constitutes a closed chapter in rhinology. Yet one can easily seen how comparatively recent is our knowledge of empyema of that cavity when one remembers, for instance, that Voltolini did not even mention it in his text-book on Diseases of the Nose, which appeared in 1888. It was Voltolini, however, who by his method of transillumination has done so much toward furthering our knowledge of this affection. This method he described in an appendix to his book, and quotes a case which had been diagnosed as sarcoma, but which he afterward found to be nothing but an empyema. It must be said, however, that Ziem, a few years previously (in 1886) had drawn attention to the frequent occurrence of empyema. It was Zuckerkandl who first thoroughly studied the anatomy of the pneumatic cavities. He advanced our knowledge considerably, and his fundamental work was not only then, but is to-day, the basis of all our study and progress in the field of rhinology. It is far from my intention to enter into the details of the development of this new field of rhinology, and I prefer to plunge directly into my theme. In order to understand the relation of empyema of the maxillary sinus to other diseases we must first discuss its etiology.

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The first etiological factor to be considered is the teeth. There is a considerable number of persons in whom the teeth (especially the first and second molar) protrude into the antrum. The osseous part of the cavity is sometimes so thin that it breaks easily when a tooth is extracted, thus opening the maxillary sinus. That an acute empyema may develop in such a way we all know. It is only surprising that infection does not more frequently occur in this manner, since to a large number of dentists such precautions as sterilization of instruments, or asepsis and antisepsis seem to be entirely unknown—at least one notices very few signs of them in their work. Of course, an infection may ensue in spite of the greatest care, but I have seen too many cases in which the dentist was not free from all responsibility. It is fortunate that the majority of such infections improve rapidly with or without our aid. But a case like the following ought to be a warning to all:

E. B., a poorly nourished child, six years old, had suffered from toothache seven days before admission to the hospital. A tooth was extracted two days later, and very soon afterward the face commenced to swell. Pus was discharged from the socket, the face became painful, and continued to swell more and more, together with the lips and the eye on the affected (left) side. Fever.

On admission, the child was stuporous; strong fœtor ex ore; marked swelling of the face, which now extended even to the right side, so that both eyes were closed. Large amount of purulent discharge. Temperature, 104.2° F; pulse, 180; respiration, 48. Leucocytes, 19,000; polynuclears, 83 per cent.

On account of the gravity of the case, operation was performed immediately. The left antrum was opened through the canine fossa, and a mass of necrosed tissue was removed. Then an opening was made into the alveolar process through the socket of the second bicuspid, and drainage tubes inserted. The nose was apparently free.

During the next few days the temperature ranged between 102 and 105° F., the pulse was 150-180, respiration 36 to 44; the general condition grew worse constantly, and finally nourishment was refused. To reduce the very pronounced cellulitis, several incisions were made, but no pus was found. Death occurred from septicemia three days after the operation.

The report of a physician who happened to be present at the extraction of the tooth, and who afterward saw the child in the hospital, leaves hardly any doubt that the infection was to be attributed to the carelessness of the dentist.

As a matter of curiosity, the following case may be added here: A young lady of the better classes, whose family I have been treating for twenty years, asked me to consult with her doctor, as is the cus-

tom in this family whenever anything serious occurs. I found the patient in a very excited condition; she could not sit up in bed, felt dizzy at the slightest motion, and had just had a chill. Her temperature was 104° F. The doctor had made the diagnosis of pleurisy, but I was unable to find any trace of that condition, nor was I able to find any cause for the high fever. Finally, I thought that as a laryngologist I should look at the pharynx, although the patient did not complain of it at all. To my surprise, I found in the socket of a tooth a thread, and upon pulling it out a strip of gauze followed, giving vent to an extremely foul odor and to a quantity of thick pus from the antrum. I learned then that the patient had had a tooth extracted twelve days previously, and that on account of severe hemorrhage a tampon had been inserted. The young lady had forgotten the matter entirely until I drew her attention to it. She recovered in a few days.

Much more frequently, however, dental caries perforates the bone and penetrates the cavity of the antrum. In fact, in the early period of our surgical work in the field of rhinology we seldom did much more than drill a hole through the alveolar process and syringe the antrum. At that time it was the belief that the majority of the cases of empyema were caused by disease of the teeth. As so often happens, this view has undergone complete change. In view of the good results now attained with the major operations, one is apt to forget completely the possible dental origin of many cases of empyema. For some years I have not drilled through the alveolar process to reach an antrum for therapeutic purposes, yet I should like to sound a note of warning that we should not forget one cause of this disease, *i. e.* a carious tooth, while planning an elaborate operation.

On the other hand, it cannot be denied that the majority of cases of empyema of the antrum have their origin in the nose. Think of the intimate connection of the nasal mucosa with that of the antrum, remember the position of the natural and accessory ostia, and you will easily understand how a mucocele, hydrocele, and finally an empyema, may develop when these are closed for some time.

Now, given a case of empyema of long duration, frequently the reverse happens, namely, that as the result of the long stagnation of the exudate in the antrum, the teeth which protrude sometimes into the antrum become affected and their integrity is endangered. Therefore it may be correct to say that in some cases of empyema of the antrum the aid of the rhinologist is required; in others that of the dentist.

There are other diseases with which empyema of the maxillary sinus is often directly connected. One of these is

Aprosexia Nasalis.—As a characteristic example of this affection, which hitherto has been mentioned only in connection with adenoids, the following case may be cited:

Miss A. G. was referred to me by Dr. Einhorn on January 18, 1908. She complained of discharge from the nose, and headache, from which she has suffered for more than a year; besides, there was constant feeling of pressure in the center of the forehead. She has been very nervous since childhood, is still suffering from chorea, and gives the impression of being stupid. There were polypi in the right nasal chamber, after the removal of which an empyema of the maxillary sinus was found.

I performed a radical operation, employing the Caldwell-Luc method, and the patient recovered in a comparatively short time. At present, a year later, the impression she makes is entirely different —not only does she appear more intelligent, but she is brighter mentally. Without my questioning her, she tells me that her memory has improved remarkably. She helps in her father's business, and now knows—so she informed me—not only the names of the customers but also their wishes. The result of the operation is satisfactory in every respect.

The power to concentrate thoughts is lost in many of these patients, and this not only in children or young people but also in persons of advanced years. Thus, I operated a few months ago on a plumber 47 years of age, who had been suffering from headaches for the past ten years. For nine months he had been troubled with a constant dull pressure in his head. He is, as he expressed it himself, "in a constant stupor," and feels "as if he would rather not think of anything." This very intelligent patient told me that he could not do his work any more, and could only direct his employees.

There are a great many such patients, and we can find them if we only take the trouble to look for them.

Other diseases to be considered are:

Affections of the Stomach and Intestines.—The following is a case of great interest:

Mr. H. J. U., 65 years of age, merchant. Last summer I had occasion to see him very frequently, as he and I traveled daily on the same morning train from the country to the city. Only too often he told me of the "trouble he had with his stomach and bowels," trouble which would not let him sleep more than a few hours at a time. Finally, on September 14, 1908, he came to my office with a swollen face, and I learned that he had been suffering from pain in the region of the left antrum for several days. These pains now extended upward to the left frontal sinus. Upon questioning him, I ascertained that for many years he had had a purulent discharge from the nose, for which he had been treated as far back as 1890. The left maxillary sinus was swollen anteriorly and over the alveolar process, very painful on pressure, and fluctuating. Temperature, 100.5° F. It was evident that there was here an acute exacerbation of an old empyema of the antrum. On the following day Denker's operation was performed. The anesthetic was poorly taken. Within a few months the patient became perfectly well, and on March 1, 1909, he told me that he has had no trouble with his digestive tract since the operation. The pain in the stomach which had annoyed him so much has entirely disappeared.

The relation of these digestive disturbances to the empyema of the antrum is easy to understand. The pus that collects in the antrum overflows during the night, that is, it passes through the ostium maxillare into the pharynx, the esophagus, and finally into the stomach, where it gives rise to distressing gastric symptoms.

The following history also tends to show how some patients are treated for many years for gastric conditions without attention being drawn to the true cause of their ailment:

Mr. M. B., 43 years of age, merchant, has suffered from colds and nasal catarrhs as far back as he can remember. He has also been a victim of chorea and other nervous disturbances. For example, he could not remain for any length of time

in a crowded place because he was always liable to faint under these conditions. For this reason he could not obtain a commerical position, and decided to emigrate to America. For ten years he had lived in Colorado, where he was constantly troubled with indigestion, nasal catarrh, headaches, and dizziness. At times these symptoms were so intense that he feared he would become insane. Twice he fell down in the street in a fainting fit.

Although he had consulted a number of prominent physicians, his condition had not improved, and he finally returned to his home in Koenigsberg in Germany, where Prof. Schreiber was the first to recognize the true condition. He referred him to a rhinologist, who opened up both antra through the alveolar process (in 1897), and the patient returned to Colorado. His headaches, however, continued to be as severe as before, so that Dr. Robert Levy, of Denver, Col., had to open the right antrum again in 1898. Even this was of no avail, and a half year later he again returned to Germany where the radical operation was performed on all the accessory sinuses of the nose. Great relief followed, and the patient soon returned to his business in Colorado. But unfortunately the old symptoms reappeared and the patient suffered greatly during the following eight years.

When I first saw him on March 3, 1906, he complained of excruciating headaches, profuse discharge from the nose, loss of appetite, etc. In each antrum there was still a plug. When I removed the one on the right side, the pus simply flowed out; the same occurred on the left side, and also when the patient was told to bend over a little. I have never seen so profuse a discharge of pus as in this case. A large polypoid mass was removed from the right side, and all the accessory sinuses were irrigated. The latter procedure had to be repeated every morning, and the patient himself had to perform the irrigation of the antra once or twice a day, so marked was the secretion. During the following two weeks I curetted the accessory sinuses as far as I could reach them, opened the right sphenoidal sinus, and the patient felt somewhat easier. I considered a radical operation of all the accessory sinuses the only salvation for him, but the patient did not care to submit to such an operation, preferring to take the chances, and went back to Colorado.

On September 1, 1906, he returned to New York, and I continued treatment along the same line. He took sea baths, which agreed very well with him, and returned to Colorado two weeks later. After half a year he again came to New York, and a radical operation was performed on the right maxillary sinus. After that he returned to Colorado much improved. A few days ago he again reported in a very good condition. I had taught him to syringe his frontal and maxillary sinuses himself, and he has done this so effectively that to-day the left side may be considered cured. There is still a small opening in the left antrum, but no discharge of pus whatsoever. On the right side there is some secretion from the frontal sinus, but more from the maxillary sinus. The quantity, however, is small, so that now the patient can let a few days pass before syringing that side. It seems that at present the antrum is only the reservoir for the pus coming from the frontal sinus. The patient looks and feels very well.

We can see in his instance how much can be achieved sometimes by a rather conservative treatment, yet I must confess that in other cases I would proceed just as I did here—that is, I would not take chances in allowing a man to travel several thousand miles with such an alarming discharge from the frontal and other sinuses. I should therefore advise a radical operation in other similar cases.

Some interesting points concerning this case were revealed by a radiograph of the accessory sinuses. Although the left maxillary sinus may be considered cured, clinically, it appears darker on the plate than the right. The ethmoidal cells appear of the same shade on both sides. The most interesting point, however, is that each frontal sinus appears to be separated by a *horizontal* plate into an upper and a lower cavity. As one can see in the radiograph, the lower part of the right frontal sinus is the only one that is absolutely clear, *i. e.* is draining well. Whatever there may be in the other parts of these cavities cannot be surmised. It seems strange that at the operation by Kuhnt's method the horizontal plate should have remained undiscovered. A colleague who saw the patient suggested that that plate was probably taken to be the floor of the frontal sinus at the time of the operation. However this may be, this case is one of the most interesting that I have seen in years.

In the next section of my paper, I come to a subject that is somewhat more difficult to explain, namely, the relation of antral empyema with

Epilepsy.—It is now probably a generally accepted principle that in this disease all peripheral irritations must be removed, as, for example, affections of the eye, ear, nose, or other organs. Furthermore, it seems to be an established fact than an operation on any part of the body frequently exerts a very beneficial effect on epileptic attacks. It is therefore not surprising to find that good results also follow operations on the nose in these cases. Thus, I distinctly recollect a patient whom I treated many years ago, who was suffering from epilepsy, and in addition had an empyema of the maxillary sinus. I made an opening through the alveolar process, and directed him to syringe his nose for months, as was customary at that time. During that period his epileptic attacks, which had previously occurred every eight to fourteen days, did not reappear. The patient, however, removed to another city, so that I cannot report anything further about him.

Another case was referred to me on June 4, 1908. This patient was the daughter of a colleague, and was 25 years of age. She had suffered for years from epileptic attacks which occurred every six to eight weeks. The father noticed that her nose was obstructed, that there was an occasional purulent discharge from it, and that she complained of headaches on the left side. An empyema of the left maxillary sinus was found, and was operated upon the next day by Denker's method. Two weeks later when the patient returned for the first time to my office, she had a typical epileptic attack that lasted for eight minutes. There were present foam at the mouth, livid discoloration of the lips and face, unconsciousness, biting of the tongue, etc. A few days later she returned home, where her father continued the treatment. Up to date, ten months have elapsed and she has not had another attack. It cannot, of course, be said positively that she will remain well.

In several other cases of epilepsy I have had similar good results, but I must also confess that I have had some in which no improvement followed the operation.

Tuberculosis.—Wertheim found that almost one-third of patients who had died of tuberculosis had an empyema of one or more of the accessory sinuses. E. Fraenkel also observed a large number similarly affected. I have for many years devoted a great deal of attention to the occurrence of empyemas in tuberculous patients, and it is my firm belief that Wertheim's numbers are too small. Tuberculous affection of the maxillary or any other sinus is very rare, but pyogenetic affections are the most common of all.

Eye Diseases.—The connection of the maxillary sinus with affections of the eyes forms a very important chapter, which is, however, too large to be discussed here. The involvement of the ethmoidal cells ought to be included in this discussion, which however lies beyond the limits of our theme tonight.

Diagnosis.—Before speaking of the operative procedures, we must discuss briefly the diagnosis.

When we began to study the accessory cavities, it was the transillumination method of Voltolini that attracted great attention. It is a peculiar coincidence that almost twenty years ago I had a chance to demonstrate that method for the first time in America before the Section on Laryngology of the New York Academy of Medicine.* I take great pleasure in passing around the instruments which I received at that time from Professor Voltolini.

Since then this method has been tried all over the world, and we can say to-day that it is but one of the methods which, in some cases, aid us in making a diagnosis of empyema. More cannot be said of it.

In some instances we succeed (especially after putting the patient in the Frænkel position) rhinoscopically in seeing pus oozing from the hiatus semilunaris. If this pus always returns after having been wiped away, or even if it shows pulsation, the diagnosis is rendered much more probable. The most important and safest method is to enter the antrum with the aid of a small needle and to evacuate the pus. This method was first recommended by Zuckerkandl, and then tried by Moritz Schmidt, Lichtwitz, Hajek, and others. Personally, I prefer the instrument recommended by Beaman Douglass. It has been said of this method that it makes a wound, that it "stirs up" the normal conditions of the antrum and creates pathological ones. That may be true if one uses a very thick trocar, but if one employs the instrument of Lichtwitz, or one of its modifications, the whole manipulation is not more serious than a hypodermic injection. Among the hundreds of punctures that I have made—of course under thorough cocainization—I have never encountered any that presented the slightest difficulty. Several times, however, I failed to perforate the antral wall, and I cannot say what was the cause of these failures—possibly thickened bone?

An important advance in the methods of diagnosis of empyema was made by the discovery of the Roentgen rays. Though an empyema of the antrum can ordinarily be diagnosticated with comparative ease, yet there are cases in which the Roentgen pictures are of great value. First, they show the extent of the cavity, a point which, of course, is of greater importance for the frontal sinus. Second, there are cases in which after repeated puncture no pus can be found, yet there is an empyema present which can be demonstrated by the skiagram. These, however, are the exceptions. Generally speaking, we may say that we can rely to a certain extent upon the Roentgen picture in cases in which the conditions are not otherwise clear; but to make the operative procedure depend upon the findings of the skiagram in every instance would be just as wrong as to rely solely upon transillumination. In Germany, where many rhinologists have occupied themselves with practical skiagraphy, they have reached very similar conclusions. Not only is it an art to take such pictures well, but it is also difficult to interpret them—and here the imagination of the interpreter plays a very important rôle.

Permit me to show you a few pictures* which may be of interest.

Mrs. L. Transillumination showed shadows over both antra. The skiagram, however, reveals plainly that the affection is on the right side only, where the other sinuses are also affected. These findings are especially important, as the patient constantly complained of pain over the left eye. We were not able clinically to find any evidence of disease on that side.

William A. G. This case is instructive because it demonstrates how easily mistakes can be made if one makes a diagnosis solely from a Roentgen picture. The patient consulted me a year ago on account of chronic empyema of the left antrum. He showed clearly a projection of the antrum toward the mouth, so that a general surgeon intended to operate upon him from the mouth. I performed a Denker's operation, and the patient got well. When he returned to me for other reasons, I had the Roentgen picture made. A radiographer, who knew nothing of the patient's history, writes me: "The plates show a lesion of the maxillary sinus on the left side. Although not at present filled with pus, it does not have the clear cut and well-defined outline of a normal sinus, as is shown on the opposite side." The latter is perfectly correct, and the cause of it is that in consequence of the operation a thickening of the bone has occurred that makes the sinus appear indistinct, though no empyema is present.

Mr. M. B., from Colorado. This case has been discussed above.

Miss A. G. Transillumination and skiagram give identical results, namely, empyema of the right maxillary sinus.

Miss R. S. was operated upon three months ago for bilateral empyema of the antrum. After the operation the cavities were packed with iodoform gauze. At the time of the first dressing the gauze was torn and a piece was left unnoticed in the right maxillary sinus. A week later, when I saw the patient, the piece of gauze, that had caused a horrible odor and a reinfection of the antrum, was discovered. The picture shows this empyema distinctly.

Mrs. P. S. Empyema of the right maxillary sinus. The frontal sinuses cannot be seen. Whether they are entirely absent, or are very small, or are filled with pus, cannot be decided. The patient did not return for further treatment.

Treatment.—The acute cases of empyema of the maxillary sinus are best treated according to general rules, without operative interference. If possible, the antrum should be syringed with hot saline solution through the natural ostium. Occasionally, however, it is easier to puncture the antrum and then to syringe. This may be required several times. If after a time the condition does not improve it is advisable to make a small opening at the place of puncture, and to irrigate the antrum daily through this

*Medical Record, May 17, 1890.

*The pictures were exhibited, but are not reproduced here.

aperture. In a large number of cases of acute empyema the above simple methods are sufficient for a cure. In other cases, however, the process becomes chronic. Some patients declare that at the slightest provocation they have a recurrence. This is nothing else but an exacerbation of a so-called latent empyema.

How, then, should we treat a chronic empyema of the antrum? As far back as 1889 Krause recommended the opening of the maxillary sinus through the lateral nasal wall by means of a thick trocar. L. Réthi, in 1901, made a broad opening in that wall, after first removing two-thirds of the lower turbinate. This method is frequently employed to this day, and with some modifications was highly recommended by men like Claoué, Myles, Richards, of Fall River, and many others. In certain cases that are comparatively slight, I also employ this method. Where, however, a deep degeneration of the mucosa or the bony septa is diagnosed or suspected, there is only one method, *i.e.* the radical operation through the canine fossa. This is the only method by which we can successfully cope with these conditions.

But, let us hear what the advocates of the "Intranasal method at any price" have to say: First, it is asserted that the intranasal operation can be done under cocaine, which surely is a great advantage over general narcosis, but whether this, as well as the absence of any severe hemorrhage, and finally the shortening of the whole procedure, outweighs all the disadvantages of the method is a serious question. I have seen severe hemorrhage after the removal of one part of the inferior turbinate; others have had the same experience. Furthermore, Dr. Richards, of Fall River, a very careful observer and supporter of the intranasal method, says that if the condition should not improve "after a reasonable length of time," the radical operation should then be done. If this be the case, I would propose to do the latter at once, for the former is an extremely unpleasant procedure for many patients. At present we have reached a point where "each writer has vied with his confrères in destroying as much as possible of the nasal wall of this cavity, and it is remarkable what ingenuity is displayed in devising new chisels, saws, drills, etc., for this purpose" (T. W. Moore).

But there is another important reason why I am not inclined to make a large opening in the lateral nasal wall, and this experience has taught me:* I have seen several cases that have been operated upon by good men and *lege artis*. There was not much left of the inferior turbinate body after one or two-thirds of it had been cut away, and the remainder had atrophied markedly. The lateral wall had been resected so far that antrum and nose now formed an extraordinarily large cavity. What happened then? At the slightest change of weather a profuse discharge occurred, and the patients felt just as miserable as before. The protection that the normal turbinate and the rest of the mucosa give had been taken away, and the sensitive mucosa of the antrum, which is not made for direct respiration, reacted in a very unpleasant manner upon every change of temperature, dust, etc. (B. Kyle).

Certainly we must remove as thoroughly as possible all the diseased parts, but let us leave intact the normal structures, so far as we can.

Another point should not be neglected, that is, the position of the floor of the antrum in its relation to the floor of the nose (John O. Roe). What we want to accomplish in all these operations is perfect drainage, and that is naturally impossible when the floor of the antrum lies lower than that of the inferior meatus. In such cases one can make ever so large an opening into the lateral nasal wall, yet the antrum will never drain thoroughly and the pus will never cease to form. Here, too, we are forced to perform that operation which is the most conservative, namely, the radical operation.

In this operation, as is well known, the larger part of the anterior wall of the antrum is chiseled away so that one can easily examine every part of the sinus. The removal of this bone does not affect the patient very much, firstly, since we strive for obliteration of the sinus; and, secondly, because we can leave such portions of the antral mucosa as are found normal. Naturally, a counter-opening must be made into the nose, but I make this as small as convenient. If it afterwards closes up entirely there is no harm done, provided the process has healed in the meantime. If not, the perforation can easily be kept open.

Of the accidents that occur in these operations, the following may be mentioned: That serious hemorrhages may occur when the anterior wall is opened, so that the operation has to be abandoned entirely, is well known. Such an accident occurred in three cases among several hundred upon which I have operated during the last twenty years. For the past three years this accident has not occurred at all in my work (Coincidence?). The operation can generally be completed after an interval of twenty-four hours in these cases.

A severe syncope with profuse secondary hemorrhage occurred in the following case: Miss S. H., 19 years old, has suffered from headaches on the right side for the past six months. There was pain over the right maxillary sinus. On admission to the hospital there was a temperature of 104° F.; pulse 108, respiration 30. Denker's operation was performed, with my slight modification. Everything went smoothly, excepting that there was some slight bleeding when the nasal mucosa was lifted from the floor of the nose. This, however, stopped after a little while under the use of packing and adrenalin. Half an hour after the patient had been removed to her bed, the house surgeon called me to her on account of uncontrollable hemorrhage. She had vomited large masses of blood, and blood apparently still ran down into the pharynx. The pulse could not be felt. An intravenous infusion was given immediately, the nose packed tightly, and ice applications were made. It was not until two hours later that her condition was such that I could venture to leave the hospital. After that she twice collapsed again, and the hemorrhage only ceased after another six hours. The patient recovered and left the hospital sixteen days later.

In some of my cases toothache persisted for several weeks after the operation, and in others pain in the face. In still another series of cases the face remained swollen for several months after operation.

Occasionally I saw in the antrum such numerous granulations—or, as Hajek prefers to call them, "hypertrophies of the mucosa"—that they gave the impression of a malignant neoplasm, but microscopical examination showed,—with one exception,—that this was not the case. The exception occurred in a young man of twenty who was sent to the hospital with a diagnosis of sinusitis maxillaris. At the operation the anterior wall was found to be as thin as paper, so that one could penetrate into the antrum

*Braden Kyle has reported a similar experience.

with a scalpel. A mass of granulation tissue was curetted out that afterwards proved to be a giant-celled sarcoma. The history showed that the patient had been struck in the face with a ball and that the disease had since developed. At least the patient dates his suffering from that time. When I presented this patient at the Section on Laryngology of the New York Academy of Medicine, two cases were reported by Dr. Harmon Smith in which a sarcoma had developed after a trauma. These, however, concerned a horse and an ox.

In the presence of malignant changes in the mucosa, its complete removal, etc., is naturally imperative. In benign cases, however, such a radical curettage of the entire mucosa is not indicated and is not advisable for the cure of the disease. The more of the mucosa one can leave *in situ*, the more rapidly a cure is effected.

These principles were followed by me in the Caldwell-Luc operation and in Denker's modification of it. The latter I have performed twenty-nine times, with the modification mentioned above. Wherever it was possible I left the inferior turbinate intact. This is preferable in all cases where the anatomical condition is such that a satisfactory opening into the lateral wall of the nose can be made. In others, in which the inferior turbinate occupies the largest part of the inferior meatus, one must remove part of it.

The isolated empyemas of the antrum which have been discussed here are not the most frequent. More often they are associated with affections of the ethmoidal labyrinth, or the sphenoidal or frontal sinuses. Some authors go so far as to declare that in every case all the accessory sinuses of one or both sides are affected. It would be unfortunate if such a theory were found to be valid in practice. The number of cases of isolated empyema of the antrum which have been cured is too large to be ignored.

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FURTHER OBSERVATIONS UPON RIGIDITY OF THE CHEST MUSCLES AS A SIGN OF INVOLVEMENT OF THE PULMONARY PARENCHYMA.*

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In describing this new physical sign in the *Journal of the American Medical Association*, March 6, 1909, I said that it "consists of a rigidity of the muscles of the chest wall, particularly of the intercostals. By making gentle pressure with the tips of the fingers over the intercostal space the experienced touch will detect a resistance on the part of the muscles that overlie the inflamed parts which is like that noted in the muscles of the right lower quadrant of the abdomen in appendicitis, in the right hypochondrium in hepatic colic or the general rigidity of the abdominal muscles when general peritonitis is present."

As to the frequency of the sign, I stated in my paper in the *American Journal of the Medical Sciences*, May, 1909, that "in the examination of patients suffering from pulmonary tuberculosis, I have found this muscle rigidity, particularly as it affects the intercostal muscles, to be a constant sign. Not only have I been able to map out the areas of infection, but I have been able to judge the nature of the infiltration with a considerable degree of accuracy by the condition of the muscles, the rigidity being much greater over dense infiltrations than over infiltrations of lesser degree, and greater over recent inflammatory filtrations than over old, quiescent ones."

More extensive experience confirms the above statements, and I now find this sign to be one which furnishes very important data in the examination of patients suffering from pulmonary tuberculosis. While we have been led to believe that palpation is of little value in the diagnosis of pulmonary lesions, with the recognition of this new sign we are compelled to assign to it a place of at least equal importance with percussion, and of greater importance in one respect, viz., it gives us information as to the acuteness of the process. In my former communications I was inclined to place reliance on the rigidity of the intercostal muscles almost to the exclusion of that noted in the more superficial groups. Further experience would indicate that in this I was in error and that the superficial muscles also show this rigidity to a marked degree. For example, at times in picking up the mass of muscles covering the apices of the lungs and comparing the two, the difference is at once apparent, the muscles of the affected side appearing more rigid than those on the other. Care must be exercised to exclude the natural difference in favor of the muscles used most; but a little practice will enable one to do this without difficulty. A very important aid is furnished by palpating deeply and noting the condition of the deep muscles. It was in the deep muscles of the supraclavicular region, those covering the apex, where about a year ago I first noticed this sign, but being unable to convince others of its existence, I thought that I might be mistaken; so it was not until I had noticed it in the other chest muscles that I described it.

It is a well-recognized fact that rigidity of the muscles is confined to those groups directly overlying the foci of the disease, yet the explanation of this fact does not seem entirely clear. The explanation of the cause of this muscular spasm being an underlying pleuritis suggests itself, but does not account for it fully. Quoting from my former paper (*American Journal of the Medical Sciences*, May, 1909): "The analogy of the abdominal conditions which are accompanied by muscle rigidity also speaks against the involvement of the underlying pleura as a necessary cause of the rigidity. In appendicitis the rigidity of the abdominal muscles is present when the inflammation is confined to the organ itself and the parietal peritoneum is free from disease. The same is true in gall-bladder disease and pancreatitis, so it would seem that inflammation of a contiguous part is not necessary to produce these muscular spasms."

In examining for muscle rigidity, I would suggest that both the superficial and deep muscles be palpated, the superficial with light and medium pressure, and the intercostals with firm pressure.

This muscular rigidity is detected with various degrees of ease in different individuals and in the same individual under different circumstances. It is the easiest to detect in individuals who do not have too much subcutaneous tissue, and whose muscles are normally not too firm; however, a fair muscular covering of the chest wall seems to be advantageous, because under these circumstances the underlying bones do not interfere. The acuteness of the process in the lung affects the amount

*Read before the American Climatological Association, Old Point Comfort, Va., June 4 and 5, 1909.

of rigidity; thus, when the process is active the sign is more pronounced than when the acuteness has passed away. In this way, at times when both lungs are involved, or when different portions of the same lung, it may be judged on which side or in which portion of the lung the process is more active.

In acute inflammations this rigidity must be due to a stimulation of the nerves which results in a tonic contraction of the muscular tissue, but this can not be the case where the rigidity has remained for months and years, as it does in chronic cases. According to our knowledge of the laws of physiology it would be impossible for a muscle to remain in a constant state of contraction. Sooner or later it would lose its power to contract and relaxation would ensue. It seems to me, then, that we must, from a theoretical standpoint, assume that certain pathological changes occur in the muscles which result in a more dense consistency; and, that rigidity, which shows itself for months and even years, is not due to muscular contraction so much as it is due to these pathological changes.

Specimens of muscle which were the seat of this chronic rigidity were subjected to microscopical examination to ascertain the exact changes which had taken place. The following is the pathologist's report, although based on too few specimens to be final:

"In the muscle specimens I find fibers which have undergone hyaline change. The substance of the fiber is replaced by a homogeneous substance. In one specimen this was broken up into irregular masses such as we find in so-called waxy degeneration of the muscle. In all these hyaline areas there were apparently between the replaced fibers extremely long, delicate nuclei. As near as I could make out these were the nuclei of endothelial cells of either the blood or lymph capillaries."

While the practical value of rigidity of the chest muscles as a diagnostic sign in diseases of the pulmonary parenchyma is of first importance, much interest is also attached to it because of the relation which this rigidity bears to other well-known signs. Muscle rigidity is undoubtedly an important factor in the causation of "lagging," "diminished motion," "contraction," "impeded or diminished respiratory murmur," and "ankylosis of the costosternal articulation of the first rib and the resultant phthisical habitus," concerning which so much has been written. It is also possible that the sounds heard on auscultation may be somewhat influenced by the condition of the muscles, for muscle contraction enters into the makeup of what is termed the respiratory murmur to a surprisingly great extent, as was demonstrated to me by my friend, Dr. D. J. McCarthy of Philadelphia, on a patient whose chest muscles were paralyzed. The muscular element in the respiratory murmur may also be demonstrated by listening over the collapsed lung in pneumothorax, or by placing the stethoscope over some muscle as the biceps during its contraction. The more rigid walls produced by the muscular spasm of necessity alter the percussion note to some extent, although we may not be able to appreciate it.

In my previous paper I discussed the effect of muscle rigidity on some of the more important symptoms, but I now wish to discuss this more fully.

Lagging has been looked upon as a very important symptoms in apical infections. It shows itself early, being often detected when the changes on percussion and auscultation are so slight that they can barely be recognized. Lagging often calls my attention to an apical disease, and I have learned to look for it as one of the first signs in examining a chest for early tuberculosis. The cause of this lagging has long interested me and I had looked upon it as being due to an interference with the normal elasticity of the lung tissue as a result of which the apex failed to expand fully. While this may partly account for it, yet it seems to me now that we have a greater factor in the spasm of the muscles which results from the inflammatory change in the lung. This spasm limits the movements of the upper rib or ribs and consequently causes a lagging of the affected side.

The muscles which show spasm are those immediately over the focus of infection. When it is at one of the apices those immediately covering the apex become rigid first, and then as the disease extends lower down the intercostals and superficial chest muscles take upon themselves a state of tonic contraction. Whether or not the superficial muscles show contraction at once upon the presence of inflammation, I do not know, but I have been able to detect it in all of the early cases which I have examined. When these muscles covering an apex contract, the result is a degree of fixation of the upper ribs resulting in limitation of motion, which is commonly perceived and described as lagging.

Diminished Motion.—This may be considered as being identical with lagging, but this term is usually applied only when a greater amount of the lung has become involved. While there are doubtless several factors entering into the causation of this sign at different times, yet I do not doubt that often the immediate cause is at first the tonic contraction of the chest muscles, later the pathological thickening of the same, as we find it in all advanced, long-standing cases.

Contraction.—We have been wont to look upon contraction as being due to the chest wall falling in, or being drawn in, so to speak, to take the place of tissue which has been destroyed, but it is probable that the muscle change which produces lagging and later diminished motion of a great portion of the lung would also probably be the most potent factor in drawing the chest wall inwards, resulting in the contractions so often met with.

Impeded or Diminished Respiratory Murmur.—The part played by muscle spasm in the production of this sign is very evident, for the fixation of the upper ribs and the resultant limited motion cannot fail to impede the entrance of air to the apex and cause a diminished respiratory murmur. This sign, which I personally regard as one of the most important signs of early tuberculosis heard on auscultation, conveys to the ear of the examiner the impression that the air, in entering the lung, is doing so against obstacles.

Ankylosis of the Costosternal Articulation.—This sign or condition was described by Freund in 1859 ("Beitraege zur Histologie der Rippenknorpel im normalen u. pathologischen Zustände"), but received little attention until recently, when it was again brought forward by its author ("Thoraxanomolien als Prädisposition zu Lungenphthise u. Emphysem; *Verhandl. der Berl. med. Gesellschaft.* 27 Nov. 1901) and was confirmed by Schmorl ("Zur Frage der beginnenden Lungentuberkulose," *Muench. med. Wochenschrift.* 1901, Nr. 50.), and by Hart ("Die mechanische Disposition der Lungenspitzen zur tuberkulosen Phthise," 1906.) and others.

Ankylosis of the costosternal articulation of the first rib is considered by these men as being a mechanical predisposing cause of tuberculosis, in that it interferes with the motion and consequently with the flow of blood and lymph through the apex, thus mechanically predisposing the apex to infection. It would seem probable in the light of our observations on muscular spasm that ankylosis of the first rib is a result of muscle spasm which is dependent upon a tuberculous focus already present in the lung rather than a predisposing factor in its causation. That a pathological condition is present in the muscles surrounding the ankylosed costosternal articulation was recognized by Freund, but, as was natural, he attributed it to the action of the muscles in their attempt to move the ankylosed rib.

The inspiratory motion of the first rib is upward and outward, and with this action the upper aperture of the thorax is enlarged. The upper edge of the rib is drawn backward, the under surface outward and the flat surface of the rib assumes an almost horizontal position. This change of position requires considerable motion between the first costal cartilage and the sternum, as mention by Hart (*loc cit.*), and when it was noticed that the costosternal angle was ankylosed and that the muscles attached to the first rib and whose function it is to elevate it were in a condition of pathological thickening, it was perfectly natural for Freund and his followers to account for this as an hypertrophy caused by overwork on account of the muscles being compelled to pull against the unyielding rib, held firm by the ankylosis of its cartilage with the sternum. It seems probable, however, that these observers have taken the cause for the effect. The inflammatory change in the lung causes the spasm of the muscles. This limits the motion of the first rib and has a tendency to fix it at its costosternal articulation. In the muscle at first there is a condition of irritation which results in spasm, but, as the irritating cause remains, the muscle undergoes pathological change which results in chronic thickening. As a consequence of this, the first rib is held more or less firmly fixed and the opportunity for ankylosis is offered. Added to this, we must assume that the same cause which produces the irritation of the muscles and causes them to undergo pathological change has a similar effect upon the perichondrium. Freund noted these changes, but described them as being an ossifying perichondritis due to the pulling and drawing of the overworked muscles.

I have been able to detect muscle rigidity in every case of tuberculosis of the pulmonary form examined by me since I have been using this sign. The degree of rigidity differs in different cases, but I cannot conceive of its absence. I have also found it present in pneumonia, pleurisy and emphysema, and would expect it to be found in all inflammatory conditions of the lungs and pleura.

It promises much for early diagnosis and is of considerable value in helping to differentiate between quiescent and active lesions. If an apex is the seat of a tuberculous focus the muscles at that apex will appear more rigid than at the other apex. If the apex is the seat of an active inflammatory process, the rigidity is much greater than where the focus is quiescent. An observation which I have long made, but one, which seemed so contradictory in the light of the teaching that a retraction of the apex as shown upon percussion is one of the early signs of tuberculosis, that I failed to interpret it, is, that the muscles covering an apex which is the seat of an acute inflammatory process, such as we find in an active tuberculous lesion, often stand out and make that apex appear fuller than the one which is unaffected or which is the seat of an older and less active lesion. Of course, the latter condition was easy to explain because of contraction which had resulted, but the former seemed contradictory; but now it is easy to see that it is due to the muscles covering the apex being in a condition of spasm, thus appearing larger than normal. Valuable information on early apical infections may often be elicited by simply observing or palpating these muscles.

It is impossible for me to go fully into a discussion of this sign as it bears on the diagnosis of diseases of the lungs and pleura in the short time allotted to this paper, but I hope by calling the attention of the active workers of our society to it that they may take it up and develop it for themselves.

THE THERAPEUTIC VALUE OF THE ANTIGONOCOCCIC SERUM AND GONOCOCCIC BACTERINS.*

By GEORGE KNOWLES SWINBURNE, M.D.,

NEW YORK.

My paper will be a short one, based on the clinical experience of the past three years in the classes of cases in which I have found these new therapeutic measures of value.

First, I wish to enter my feeble and probably ineffectual protest against that palpably absurd term vaccines. Inoculation, which has also been suggested, seems to me to be equally objectionable. While vaccine and vaccination should refer only to inoculation with cowpox, by inoculation it seems to me we mean the transference of living organisms to a living animal or human being; thus we may inoculate with smallpox, with syphilis, with gonorrhea. At the same time I must confess my inability to suggest the proper term; it seems to me, however, that the term bacterins (referring to suspension of dead germs) is less open to objection.

In this connection I will relate an experience which occurred at my clinic only within the past two weeks. A young man presented himself with gonorrheal rheumatism of two months' standing, who said he had heard that vaccination was being used as a remedy in gonorrheal rheumatism and he had gone to a doctor and had himself vaccinated and he had derived no benefit from it at all. He exhibited the recent mark on his arm caused by the vaccination. Although this young man belonged to the population of the East Side in New York, he had some idea of the proper use of the English language, if his ideas of medicine were a little mixed.

Taking up the first use of the antigonococcic serum, I wish to refer to its value in gonorrheal rheumatism. In looking over my records I find that in using it early in acute gonorrheal rheumatism, involving joints and ligamentous structures, I had failure in only one instance, and in considering this case in its last analysis I find that it was in reality of great value, though at the time I had thought it to be a failure. So that I have come to look upon this serum as a specific in the treatment

*Read before the American Urological Association, Atlantic City, June 7, 1909.

of acute gonorrheal rheumatism especially in those cases occurring early in a primary gonorrhea. The pain and swelling quickly subside, and many cases recovered inside of a week or ten days.

The case to which I referred was a man 38 years old, a Swede, who came to the dispensary in July, 1906, when we were using the rabbit serum obtained from Dr. Torrey. The man presented himself with a profuse purulent gonococcus-bearing discharge of ten days' standing, and shortly after treatment was commenced he began to have pain and swelling in both knees and feet and the right shoulder joint. For nearly a month he received the serum, 2 c.c. in either arm; he rapidly lost weight and strength, losing in that time fully fifty pounds. The discharge continued profuse in spite of treatment; the urine was very cloudy. And while he had a certain amount of comfort following the injection of serum, yet on the whole he seemed to become worse and was going downhill. It was with great difficulty that he could get to the dispensary, but that being the nearest place that he could get relief was probably the reason we did not lose him as a patient. The muscles were atrophied, especially those of the right arm, which he could not move except by lifting with the left hand, and when lifted the scapula moved outward showing anchylosis at the shoulder joint. It occurred to me to examine his urethra. I found a stricture admitting a No. 16 F. at 2½ to 3½ inches (the patient had had one previous attack of gonorrhea fifteen years before but no other in the interval). The stricture proved to be very amenable to treatment, for in ten days I was able to dilate the canal up to 30 F., when all his pain suddenly subsided, the discharge ceased, the urine cleared, his appetite returned, and he rapidly began to regain flesh and strength, and by the middle of September had regained his former weight. The right shoulder was the last to return to normal and did so gradually and he finally regained complete motion at the shoulder joint. He received a few more injections of the serum. The phases of this case are sufficiently striking without going into the question of the benefit derived from the serum, but I attributed his rapid recovery to the fact that he was well filled with the serum at the time I attended to his urethral lesion.

In the chronic cases of gonorrheal rheumatism we do not see the prompt action of the serum we do in the acute cases, and they are very prone to relapses generally due to some indiscretion, either from alcohol or sexual excitement when they are feeling comparatively well. In these cases thorough investigation of the urethral canal, the prostate and vesicles, and especially the posterior urethra must be made and carefully treated, and when this is done the serum has in my hands proven of great assistance in removing the pain and swelling, while it is only of temporary benefit if these measures are neglected.

Next I have found the serum of great assistance in epididymitis, both acute and relapsing; here again relapses occur if treatment is given up too soon. In many cases when given in the earliest stages I have seen the disease aborted. Of such value have I found the serum in these cases that although in the past two years I have looked for cases on which to perform the Hagner operation for epididymitis, I have not yet met with a case when I felt justified in using it, though I have made use of the Belfield method of opening and irrigating the vas with success in some cases of relapsing epididymitis.

In cases of acute prostatitis and vesiculitis the serum has proven of marked benefit in relieving the pain and shortening markedly the attack. A. M., 20, a college student, came to me last winter with a gonorrhea of two months' standing. He had just recovered from the severity of a posterior urthritis, in fact he was just out of bed. He was obliged to return at once to his college and could only come to New York twice a week traveling on the cars. At the end of the first week he complained of severe pain in the rectum. On examining the prostate I found it much swollen, hot, and tender. I gave him 2 c.c. of the serum in addition to the usual treatment, and he returned that same day for a mid-year examination the following day. I saw him again four days later and there was hardly a trace of the swelling; he said the pain had left him by the following morning.

As regards the bacterins, my experience is still very limited. I believe they are more easily prepared, and for that reason the cost may not be so great (of this I do not know). It would also seem to me more easy to obtain an autogenous culture, though with such I have had no experience.

I used bacterins prepared and furnished me by Parke, Davis & Co. I have used tubes at first containing 10 millions to the c.c., then 20 millions, and latterly 50, 100, and 500 millions to the c.c. These I have used at present only in dispensary work, as I have used the serum only in private work. At present I begin on a case with a vial of 1 or 2 c.c., containing 50 million bacteria; in forty-eight hours I give 100 million, and two days later 500 million. My impression so far has been that while I have seen good results, still the action seems to be slower than with the serum. I have not seen any marked ill results in using this large number of bacteria, have had no complaints of high fever, etc., nor have I seen any of those reputed results. Some cases which had previously had the serum have expressed themselves as noting better results with the serum and have asked for it in preference; others seemed pleased with the results. I have used the bacterins in gonorrheal rheumatism and epididymitis. One thing I have, I think, noticed, and that is that the local reaction, pain, and swelling of the arm followed by urticaria I have not as yet noted with the bacterins, while it is a very common incident with the serum.

64 East Fifty-sixth Street.

THE USE OF ETHYL CHLORIDE AS A GENERAL ANESTHETIC FOR OPERATIONS IN THE THROAT AS ESPECIALLY APPLIED TO CHILDREN.

By E. MATHER SILL, M.D.,

NEW YORK.

ATTENDING PHYSICIAN IN DISEASES OF CHILDREN AT THE GOOD SAMARITAN DISPENSARY, LECTURER IN DISEASES OF CHILDREN AT THE NEW YORK POLYCLINIC HOSPITAL AND MEDICAL SCHOOL.

The choice of an anesthetic for the removal of tonsils and adenoids in infants and young children is a matter of no small importance since the success of the operation or even the life of the child may hinge on the administration of the proper anesthetic in a given case.

A child that has adenoids, adenoids and hypertrophied tonsils, or hypertrophied tonsils alone, not infrequently has hypertrophy of the lymphoid tissue elsewhere, such as enlarged cervical glands, en-

larged bronchial lymph nodes, enlarged thymus, etc., and, in fact, when operating upon cases we have not had under observation we are never quite sure that we may not be dealing with a case of "status lymphaticus." It is, therefore, of prime importance that an anesthetic be given that after extensive use has proved to be the safest. An anesthetic that fulfils this requirement, I believe we have, in ethyl chloride, but to say that there is no danger (even though it may be ever so slight) attached to any general anesthetic is a fallacy. I have used it as a general anesthetic with the Ware inhaler and the improved Ware inhaler in over 500 cases of operations for the removal of tonsils and adenoids, on infants and young children without a fatality or any serious results of any kind. Of this number there was only one case, that of a very anemic boy, in which it was thought necessary to administer hypodermic stimulation. There were two other children that did not take the anesthetic well. They became somewhat cyanosed and one of them stopped breathing for a short time and had to be resuscitated. It was found that this child had a severe bronchitis, which had been overlooked. It is my opinion that these three disagreeable experiences were largely due to the fact that these children, contrary to orders, had eaten

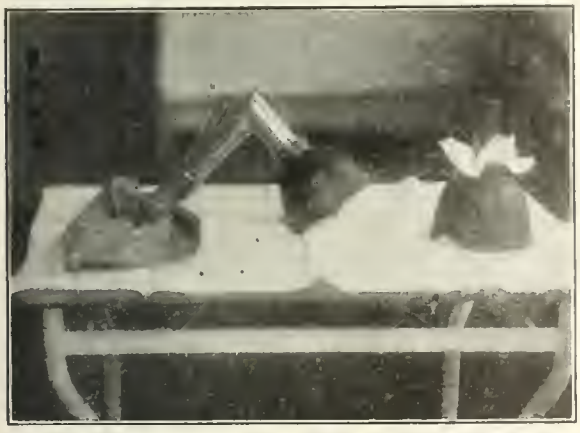

Fig. 1.—The Ware inhaler for ethyl chloride; the original is seen on the right, the improved form on the left.

within a short time of the operation, and to the fact that the vomitus, adenoid tissue, and blood were in a measure aspirated into the trachea; and also to the fact that the patients were not carefully examined before operation. Upon lowering the head and pulling the tongue and jaw forward the children cleared the trachea and were quickly revived.

The anesthetic was given by my assistants, who were, at this time, inexperienced in its use, and in these few cases too much was probably given and the child became too profoundly under its influence before attention was drawn to the fact. In such cases I remove the cone and allow the child to breathe pure air for a minute or so before beginning the operation. The child feels no pain in this operation when it is not so profoundly under the influence of the anesthetic and its reflexes are much more active, so that immediately upon completion of the operation and removal of the mouth gag, the child coughs and expectorates all blood and adenoid tissue.

Before beginning the use of ethyl chloride I had used chloroform in quite a number of cases when operations for the removal of tonsils and adenoids were necessary and had had several unpleasant experiences, which I should not like to have repeated. In these cases the child's breathing became slow and shallow, there was extreme pallor, the pulse became weak and irregular, and it was necessary to abandon the anesthetic entirely, give hypodermic stimulation, and then proceed with the operation. On inquiry among my colleagues I find that they have had similar experiences, and have given up the use of chloroform for adenoid and tonsil operations in children and are using laughing gas and ether anesthesia, or ether by the drop method. The consensus of opinion now is against the use of chloroform in the lymphatic diathesis.

My experience (and it has been pretty extensive since I have performed over 1,000 operations on children for enlarged tonsils and adenoids, and of these quite a number received chloroform—before the series of 500 cases where ethyl chloride was used, has borne out the fact that chloroform is a dangerous anesthetic in this lymphatic condition in which it is not infrequent to have hypertrophy of other lymphoid tissue and glands. Although I have never had a fatal result from its use, I have heard of fatal cases. On the other hand I have never seen any ill results occur from the use of ethyl chloride properly given, other than the cases above mentioned.

I have had no postoperative hemorrhages in any of my cases, but infection did occur in several cases causing sore throat, an elevation of temperature, and stiffneck for a while, in spite of the fact that great care was used in the way of asepsis and sterilization of instruments. This could almost be expected in such a large series of cases.

Ethyl chloride given by means of the Ware inhaler is the easiest of all anesthetics to give, and a novice can in a short time become almost an expert at giving it, although, of course, the same care and precaution should be taken as for other anesthetics. Only two or three thicknesses of gauze should be used over the inhaler, and the tube should be removed at intervals to see that the gauze does not become frosted over. In such case it should be changed, as it then prevents both air and ethyl chloride from entering the lungs and the child will become cyanosed. When the inhaler with the rubber bag is used this precaution is not necessary as no gauze is used, the ethyl chloride stream going directly through the small metal tube into the rubber bag. I prefer the rubber bag inhaler since with this the patient gets less air and is under the influence of the anesthetic quicker, and less ethyl chloride is lost in the giving and consequently less is required; but practically the same result can be obtained with the original simple inhaler by placing the thumb over the metal tube at intervals and in that way regulating the amount of air taken in and at the same time preventing the escape of the ethyl chloride. Dr. Ware has used this anesthetic in 8,000 surgical cases both in children and adults, some of which necessitated the patients being kept under for some length of time, with none but favorable results, and in all this number he never had a fatality. He believes it to be one of the safest and the most convenient general anesthetics.

When the anesthetic is properly given it usually takes from two to five minutes before the patient is sufficiently under its influence to proceed with the operation. I do not wait for the child to be profoundly anesthetized but operate when there is complete relaxation, but the eye or conjunctival reflex is still present to a slight degree. Unless there are

imbedded tonsils which require to be dissected out, this gives us plenty of time for the operation as ordinarily done. I have used it with satisfaction where slight dissection was necessary, or enucleation was done before the patient became conscious or felt any pain. Immediately upon the completion of the operation and removal of the mouth gag the little patient is conscious, coughs, cries, and expectorates all blood and adenoid tissue. There is no tedious waiting for the child to come out from the influence of the anesthetic as in chloroform and ether anesthesia. I always operate with the patient lying flat on the operating table with the head slightly lowered. This position is the safest on account of the heart and prevents aspiration into the treachea of blood and adenoid tissue in case the reflex cough does not come quickly enough to expel them. I have watched these cases carefully and find that after the first short struggle, which has occurred in a little over half of my cases, the child breathes regularly and quietly. There is usually some acceleration of the pulse, but I believe this to be due more to the fright and struggling of the child before becoming unconscious than to the anesthetic, although I believe ethyl chloride is a cardiac stimulant given in this way.

To sum up, we have a comparatively safe and reliable general anesthetic in ethyl chloride, which is most suited for operations for the removal of adenoids and tonsils in children. This anesthetic is simple of administration and does not require an expert or one of large experience to give it. The patient is under the influence quickly, is out almost immediately upon completion of the operation; there are no unpleasant or dangerous effects from its use either during or after the operation. This anesthetic is not only especially applicable in operations in the throat, but should be used in most of the other operations performed upon children. When the inhaler is kept over the patient's nose and mouth he can be kept under the anesthetic as long as desired. It is only when that is removed that the patient regains consciousness more quickly than with other anesthetics. Where long operations are necessary on the nose or throat I advise first putting the patient under ethyl chloride and then continuing deep anesthesia with ether using the drop method.

It seems to me ethyl chloride as a general anesthetic should find a large field of usefulness in dentistry.

142 West 78th Street.

INTERSTITIAL KERATITIS IN ACQUIRED SYPHILIS.

By S. LATIMER PHILLIPS, M.D.,

SAVANNAH, GA.

In the issue of July 31 of the Medical Record, Dr. Burton Chance of Philadelphia reports a most interesting case of parenchymatous keratitis in acquired syphilis. This suggested to me a case which came under my observation during the latter part of 1890, and was of so much interest to me with its probable sequences that I report it below with some further notes on this case and that of her son.

Mrs. ——, thirty years old, and a widow of five years standing and mother of two healthy boys, one nine, the other seven years old, consulted me, December 18, 1890, in reference to her failing sight, which she had noticed for the past three months. Not strong and in reduced circumstances she was using her eyes constantly by day and night to make a living for herself and her children. At first what was a slight blur gradually grew worse, until the time when she sought aid, when she seemed to see all objects through a thick veil—vision, right, 20/70; left, 20/50. Sewing was now impossible. She had never had pain in the eyes, or head, or photophobia, nor was there any congestion of the conjunctiva. Through it all the eyes never showed the slightest redness. There was no iritis, and under atropine the pupils dilated freely and clear of all adhesions. In each corner there was a gray central opacity, with edges clearly defined, leaving a rim of perfectly clear corneal tissue between the clouding and the corneoscleral junction. In each eye the clouding took somewhat of the form of a crescent, with the concavity below, thus leaving more clearness in the lower half of the cornea than the upper. With the ophthalmoscope, details of the fundi could not be made out. Clouding involved the superficial and middle layers of the cornea only. After inquiry, patient acknowledged that over a year, or nearly two years, previous she had lost much hair from her head and had suffered much from sore throat.

Making a diagnosis of syphilis she was put on increasing doses of bichloride of mercury and potassium iodide, varied with inunctions of mercurial ointment. For a week or ten days clouding increased in intensity and vision became materially worse. After that, however, it began steadily to improve without a setback until the following May, five months after the inauguration of the treatment, when she was discharged with v. = right, 20/30; left, 20/20. Cornea perfectly clear. Eyes still slightly under the effects of atropine. General health good. I did not see her any more professionally until six years later, when she appeared with a baby boy two years old suffering from enlarged tonsils. She had married in the meantime a man who, previous to her marriage, had been under my care for a chronic throat trouble of a catarrhal nature, with history of tuberculosis in his family. A few years later the son developed trouble in the knee joint and was under the care of the late Dr. Phelps of New York until he died. The mother developed some lung trouble and died in Asheville, N. C., about 1902 or 1903, of tuberculosis, so said. The son, under Dr. Phelps treatment got well, with a slight limp. The father, wishing to better his condition, if possible, took him to a physician who advised breaking and resetting the limb. This was done, with no improvement of the condition. In 1905 the father asked me to see the boy in consultation. He was in a hospital where the attendant physician had sent him. He was tossing about, holding his head in his hands and complaining of intense headache, and crying out in agony. Temperature, 103°. An ophthalmoscopic examination revealed optic neuritis. Diagnosis, tuberculous meningitis. Notwithstanding all that could be done the boy died a few weeks later, aged eleven. It has been very interesting to me to follow the above case through another generation and see how nature has worked according to her own laws.

Alexander (Syphilis und Auge, Wiesbaden, 1889) mentions having seen in his practice thirteen cases of keratitis parenchymosa, where there was no trace of heriditary syphilis, the first symptoms of corneal trouble appearing from two to three years after outbreak of acquired syphilis. He mentions Leber as having seen it in connection with

syphilitic retinitis. Jakolewna twice in sixty-three cases of acquired syphilis; once simultaneously with eczema, ulcerated pharynx, and condylomata, the other with ptosis. Mauthner, a severe case in a suckling, who had contracted syphilis from the wet nurse. Ancke in thirty-seven cases dependent upon syphilis, ten times in acquired syphilits. Schadeck saw a case of laryngitis, periostitis, and frequently recurring iritis, in which double parenchymatous keratitis broke out, and was controlled only by a long course of mercury and potassium iodide.

232 Bull Street.

A NEW PHYSICAL SIGN, PROBABLY A SKIN REFLEX, WHEREBY SOLID ORGANS, SUCH AS THE HEART AND LIVER, AND INFLAMMATORY PROCESSES FOUND IN THE LUNGS AND PLEURA MAY BE DETECTED BY PALPATION.*

By F. M. POTTENGER, A.M., M.D., LL.D.,

MONROVIA, CALIFORNIA.

While working out the sign of muscular rigidity in diseases of the pulmonary parenchyma, as described in the *American Journal of the Medical Sciences,* May, 1909, I found still another sign which greatly enhances the value of palpation as a procedure in physical diagnosis, and which aids in the outlining of normal organs as well as in the determining of pathological conditions. This sign consists of a feeling of resistance to the palpating finger when pressed gently upon the skin. To determine the presence of this sign it is well to begin at some little distance from the edge of the organ, or if it be an inflammation or infiltration that is to be outlined, it is well to begin over presumably normal tissue, and then by advancing toward the area whose limits are to be determined there will be noted a feeling of resistance when this is reached. While I am not sure just what produces this sign, yet it seems to me that it is most probably a skin reflex, produced by the contraction of the erectores pilorum. But even if this be the explanation of the phenomenon, it is still necessary to explain what it is that makes these muscles contract under normal conditions in such a manner as to delimit healthy organs, and also in the presence of disease so as to outline inflammatory processes.

While it is somewhat difficult to give a clear idea of this sign by description, it is easily demonstrated on the living subject. The heart can be easily and accurately outlined by it, the liver dullness, both relative and absolute, can be determined, and the areas of infiltration in the lung can be mapped out with surprising accuracy.

One thing that is difficult to understand is that this sign shifts with the organ. We might conceive of a certain connection between the skin immediately overlying an organ and the organ itself, but to explain shifting of the sign to other areas of the skin when the position of the organ changes is difficult. When the heart shifts, as it does in diseases of the lungs and pleura, the sign shifts with it. I have found it to follow the heart when the organ was entirely to the left of the sternum, and also in a case of dextrocardia, in which the entire organ was to the right of the sternum. I have also found it to follow the edge of the liver when it was three finger breadths below the costal border.

Its accuracy is proven by percussion and auscultatory percussion, in the case of the heart and liver, and when checked by both percussion and auscultation in a case of infiltration of the pulmonary parenchyma.

Note.—Since writing the above, I have had an opportunity to study this sign more fully, and am now convinced that it is not a muscle reflex, because it can be found on the cadaver the same as on the living. It probably depends on the difference between tissues of different density.

I have proven the sign, in case of the heart, with the orthodiagraph, and am surprised at its accuracy.

*Read before the American Climatological Association, Old Point Comfort, Va., June 4 and 5, 1909.

New Observations on the Mechanism of the Production of Transitory Albuminuria in Children by Experimental Lordosis.—A. Mori has never obtained transitory albuminuria by lordosis in the horizontal position. He has studied in the obstetric clinic of Milan a collection of fetuses fixed in a position of lordosis at various vertebral levels, and has experimented on rabbits and guinea pigs, and believes that we can exclude any rotation of the kidneys on their vertical axes from the production of albuminuria by stasis of blood in the renal veins. The vertical position is necessary to the production of albuminuria. The stimulus of the splenic plexus must be reckoned with in the production of albuminuria by lordosis, as well as the vasomotor disturbances in the vena cava ascendens and its branches at the level of the lordosis produced, and the compression exercised by the kidney and liver disturbances.—*La Riforma Medica.*

Postrubeolic Diphtheritic Conjunctivitis.—E. Weill and G. Mouriquand describe a small epidemic of diphtheritic conjunctivitis following measles, witnessed by him, in which the cases were all fatal. There are two kinds of diphtheritic conjunctivitis—a less severe one, in which there is a false membrane involving the lids alone, and a severe form, in which there is no false membrane, but the ocular and palpebral conjunctiva are both involved, and the interstitial inflammation generally causes ulceration and perforation of the cornea and loss of the contents of the eye. The Klebs-Loeffler bacillus is found in the exudation. The severity of the measles bears no relation to the occurrence of the complication. There is rarely a pure culture of the diphtheria bacillus but staphylococci or streptococci are present with it. Treatment is of no avail, and the children died in all the cases seen by the authors.—*Archives de Médecine des Enfants.*

Ovarian Opotherapy.—Paul Dalché makes use of ovarian opotherapy, or the treatment of irregularity and deficiency of the ovarian function in a number of conditions. The indications include ovarian dystrophies, shown by flashes of heat and cold, headache, insomnia, and such troubles; hyperactivity of the ovaries; ovarian ataxia, with irregularity of menstruation; cephalalgia of puberty; polyglandular syndromes, consisting of variations in the functions of the suprarenals and thyroid; genital accidents, including amenorrhea, dysmenorrhea, and metrorrhagia; some cases of chlorosis and anemia; goiter and Basedow's disease; localized obesity; psychoses; chronic rheumatism after the menopause, and surgical menopause. It should be in the form of ovarian powder, powdered corpus luteum, peptonized ovarian substance, or glycerinated extract of ovaries. The treatment must be continued for a long time in order to get the best effects.—*La Gynécologie.*

The Ovular Theory of the Pathogenesis of Eclampsia.—E. Opocher, after careful examination of all the clinical and experimental material with reference to the cause of eclampsia of pregnancy, concludes that there is not sufficient proof of the theory that the poisons producing the convulsions are generated by the metabolism of the fetus. To consider the eclamptic poisons as the products of the fetus is contrary to the dictates of physiological obstetrics and of observation. The placenta would not be capable of the neutralization of these products in cases of pregnancy going on to its end without eclamptic manifestations. Although the placentar theory is attractive from a theoretical standpoint, it is not proven practically by experiment or observation. The theory that is best substantiated practically, and that best accords with modern knowledge, is that of the production by the maternal system of antitoxines which prevent the appearance of eclamptic symptoms as a result of systemic poisoning.—*Folia Gynæcologica.*

MEDICAL RECORD.

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THE ETIOLOGY OF LEUKEMIA.

A FEW years ago a prominent English physician, in discussing a case of leukemia, compared the usual method of investigation of such diseases by frequent differential counting of the blood cells, to trying to find the reason for a street gathering by counting the styles of hats worn by the crowd. As a preponderance of silk hats might suggest a wedding and an excess of cloth caps a meeting of the unemployed, so an abnormal number of lymphocytes, eosinophiles, or myelocytes may give slight suggestion of the reason for their presence. The peculiar blood picture, however, is itself neither the disease nor its cause, but is the result of some more deeply seated stimulus; and in order to determine the etiology of the especial condition in question attention must be paid less to the peculiarities of the cells produced and more to the primary cause. To return to the simile, to prove the cause of the crowd, we must overlook the hats and search for the bride and the demagogue.

That this is becoming more widely recognized is shown by a review of the recent literature on acute leukamia. Each year less attention is paid to the hematological differences in the cells themselves and more to the search for parasites in the blood. In recent years four articles have appeared reporting new structures found in leukemia, each suggested as a possible cause of the disease. In 1900, Löwit presented his monograph on the *Hæmameba leukæmiæ;* in 1905 Auer discovered various peculiar intracellular structures; in 1907, Löwit again came forward with a different parasite, a flagellated organism found in the blood and lymph glands at a post-mortem examination; and finally White and Proescher, in 1908, reported spirochetes in the lymph glands, not only in acute leukemia, but in pseudoleukemia and lymphosarcoma as well. As these findings were, however, all isolated observations, and with one exception have not been confirmed by later investigation, but little weight has been given to the discoveries. The exception is in the case of the structures observed by Auer in 1903, and described by him in 1905. These findings have been confirmed twice, and for that reason the so-called "Auer's bodies" are deserving of especial attention. They were seen by their describer in the blood of a patient who died of acute leukemia in the wards of the Johns Hopkins Hospital. As described by Auer, they were of three kinds, pulsating vacuoles, refractile granules, and rods. They appeared only in the large lymphocytes and were seen in the fresh blood as well as in that stained by several of the usual methods. The pulsating structures were intranuclear and in the fresh blood actively changed both their size and shape. In the stained smears they were seen as indefinite pale blue areas in the more deeply colored nuclei. The granules and the rods were found in the cytoplasm only, and in the fresh specimens appeared to be highly refractile. The granules were so numerous that many of the cells resembled myelocytes, and they stained a dark red or bluish red with Leishman's stain and a pale brown red with Ehrlich's. The rods were the most characteristic of the structures observed by Auer. They occurred in from six to ten per cent. of the large mononuclear cells, were one to six micra long, as a rule lay near to and parallel with the edge of the nuclei, and stained similarly to the granules. Unfortunately the inability to obtain permission for an autopsy on the patient prevented the author from carrying his experiments further.

Shortly after the appearance of Auer's paper Pappenheim stated that in one case of leukemia he had seen similar structures; in July, 1909, Barker also saw them in one case, and in the *American Journal of the Medical Sciences* for October, 1909, Ottenberg reports three cases in which the rods were found, two of acute lymphatic leukemia and one of chloroma. The rods were in much smaller numbers than in the original case of Auer. The granules Ottenberg states to be indistinguishable from the azurophile granules found in normal blood, and as apparently no study was made of the fresh blood, the pulsating intranuclear structures of Auer are not mentioned. Efforts to grow the Auer bodies in various culture media failed, and smears from the spleen, bone marrow, and lymph glands did not show the rods—possibly due to the degeneration of the cells. Efforts to reproduce the disease in monkeys by inoculation were unavailing.

This practically covers the present status of knowledge as to the parasitology of leukemia. The findings of Löwit and of White and Proescher have as yet not been confirmed. The structures described by Auer have been seen by four observers in six cases. They have been seen, but nothing more. They have not been grown and have not produced the disease in animals. They have, however, been observed in six cases of leukemia and in no other diseases nor in health. As they have been seen in fresh blood as well as in stained specimens the possibility of their being artefacts is ruled out. The rods suggest parasites, but there is no absolute proof of their being such while the vacuoles are claimed by some to be found in normal cells. In short, we are far from having proof of the etiology of leukemia. The finding and confirming of these Auer's bodies, however, would seem to offer more encouragement than any other recent discovery in connection with leukemia, and it is possible that further research in this direction may be fruitful

in adding to our knowledge of this mysterious and fatal disease, if a symptom complex, possibly the result of various pathological processes, may justly be designated as a disease. Further observations may at least be expected to demonstrate the true nature of the structures described by Auer, when it is probable that they will be given a name more scientific and descriptive than that with which we at present cloak our ignorance—the name of their discoverer.

Possibly worthy of mention *en passant* are the three instances cited recently by Nicolle and Cassuto in which, in cases which they consider to be van Jaksch anemia infantum pseudoleukemia, typical Leischman-Donovan bodies were found, which were grown on culture medium and at a later period successfully innoculated by Novy into dogs. The question of the entity of van Jaksch's anemia is however so widely criticised, and the blood findings in Nicolle's case are so atypical of the disease as it is at present understood, and so suggestive of a simple inflammatory leucocytosis as it appears in the infant that it hardly seems justifiable as yet to base any theories upon these findings.

THE MODE OF INFECTION AND THE INFECTIOUS PERIOD IN SCARLET FEVER.

In a lecture before the Harvey Society Dr. David L. Edsall once said that nothing succeeds better than a few figures in determining whether our conceptions are scientific or "fine art." This remark is very applicable in connection with a study of scarlet fever published as the Fiske Prize Essay by the Rhode Island Medical Society. The author, Dr. Charles V. Chapin, was Health Officer of Providence, Rhode Island, and had, therefore, access to first-hand evidence in the matter of the spread of infectious diseases. He has prepared for his essay a number of tables which in part bear out the common beliefs in the subject and in part contradict them or disprove them altogether. The usual teaching in regard to the shortness of the period of incubation is well borne out by his figures, two or three days being the rule, though exceptionally it may extend to any number of days within three weeks. That the disease is very infectious in its early stages is likewise shown by the number of secondary cases developing in families after a child has been removed to an isolation hospital. Contrary to the usual belief, however, the data indicate that the infectivity rapidly declines with the diminution of the throat symptoms and the disappearance of the rash. On the other hand, a small number of patients remain infective for a long period, a fact well proved by the occurrence of the so-called "return" cases of the English, cases, that is, traceable to children sent home from isolation hospitals. It is in this connection that Chapin brings out the little known fact that the infectivity is probably kept up by the chronic discharge from the nose or the ear, which is a frequent sequence of scarlet fever or one of its complications.

The old belief in the infectivity of the desquamated epidermis is quite shaken by the statistics obtained by Chapin and those quoted by him from the English observers. Priestly, of Leicester, discharged 120 scarlet fever patients in the period of desquamation and yet no secondary cases developed in any of the homes. Lauder, at Southampton, succeeded in reducing the percentage of "return cases" from 4.27 to 2.15 in the course of one year by paying special attention to the mucous membranes while neglecting desquamation. At the same time the length of stay in the isolation hospitals was shortened by these measures from forty-eight to thirty-four days. These data show the falseness of the oft-quoted analogy between smallpox and scarlet fever. Indeed, it is rather diphtheria that scarlet fever resembles most closely, for the pathological process caused by the unknown excitant of the disease is for the most part confined to the mucous membranes, the rash being probably due to the toxins elaborated in the throat. This argument speaks *a priori* against any great infectivity of the desquamated skin, while the absence of direct proof of such infectivity is well shown by the experience of the English observers quoted above. The numerous cases in which no lesions have been found and which have, nevertheless, proved infective may quite reasonably be classed with so-called "carriers" of the disease, such as are met with in typhoid fever, etc.; such an explanation is much more probable than tracing the infection to a small portion of desquamating epidermis not discovered at the time of discharge. Of course, the final proof of such assumption must await the discovery of the specific excitant of the disease.

Most interesting is Chapin's discussion of the modes of infection in scarlet fever. His statistics show that this disease almost never travels from one family to another in the crowded tenement houses of cities, which fact throws great doubt on the frequency of infection by fomites. Certainly the mothers, brothers, and sisters of the patient infect numerous articles in the tenement houses, such as the woodwork in the halls, the rails of the stairways, the knobs of the street doors, etc., and yet these inanimate objects do not spread the infection. That fomites occasionally spread the disease is not to be doubted, but that they play any important rôle in this connection the author regards as quite improbable. The bugbear of airborne infection, too, falls with the proof that the desquamated skin is very little if at all dangerous, yet this belief is established so firmly among lay circles that the foundation of an isolation hospital is frequently met with insuperable objections from members of legislative bodies representing the population of the neighborhood. The best practical evidence we have that scarlet fever is not airborne is furnished by the Pasteur Hospital in Paris, in which patients with different diseases are cared for in separate rooms opening out of a common corridor. Of two thousand such patients admitted one winter ninety-two had scarlet fever, but in no instance did any one in the hospital contract the disease. In the great majority of cases scarlet fever is spread by direct contact with the patient. There are a thousand and one ways in which children can transfer infective material whether by immediate contact or through the

medium of an object, such as a glass used in common or a pencil held in the mouth by the sick child. Toys, cups, spoons, candy, etc., etc., may thus become the carriers of secretion from one child to another and spread the disease. The *rôle* of contact is shown still further by the greater prevalence of scarlet fever among women over sixteen years of age than among men, for women, of course, come into much more intimate contact with the sick children than the men of the family.

Dr. Chapin's study puts great stress upon the importance of the recognition and isolation of early cases of scarlet fever, for these are the cases that spread infection broadcast. The importance of the pathological conditions of the mucous membranes in keeping up infectivity must also be kept in mind by health officers as well as by private practitioners. It may be that the results obtained by Lauder can be duplicated in this country, greatly to the advantage of the patients as well as of the community, if desquamation is less thought of than the cessation of aural or nasal discharge, in determining the duration of isolation after an attack of scarlet fever.

FUNCTIONAL NEUROSES OF CHILDREN.

This term covers a very wide range of children's complaints, far too wide a range indeed to be discussed even in the most cursory manner in a single column. There are, however, a few of the most prominent of these neuroses of children which may be briefly touched upon. As J. A. Coutts of London pointed out at the recent meeting of the British Medical Association, several of these neuroses begin in earliest infancy. For instance, cases of faulty deglutition, where an infant rolled and gargled each mouthful of milk at the back of the pharynx for some time before finally swallowing it. Sometimes such cases improve with the thickening of the food at the appropriate age, but in other instances the difficulty commences with the thickening of the food. Defective respiration is a much rarer neurosis of infancy and at the same time far more dangerous. Both faulty deglutition and defective respiration are to be ascribed to defective training of the nerve centers concerned with deglutition and respiration respectively. As to the pathology of pyloric stenosis Coutts himself considered it unsettled, but as most authorities consider that it arises solely from spasm he felt justified in including it among the functional neuroses. Some authorities advise operation, while Hutchinson and others hold the view that in no circumstances should operation be performed.

In regard to the neuroses of later childhood Coutts was of the opinion that cyclic vomiting was merely a phase of migraine. Family histories and sequelæ confirmed the identity of the two complaints, although typical migraine as witnessed in adults was rare in children before the age of puberty. The form it took in young children was that of recurrent attacks of pyrexia and drowsiness, together with a certain amount of headache and vomiting, and was usually looked upon as simply an attack of biliousness. Migraine in infancy was extremely uncommon, but in these cases the attacks in later years were generally of a severe and intractable type. Incontinence of urine, was, according to the author of the paper, frequently treated in an unsatisfactory way. Leonard Williams has recently given reasons for attributing the disorder to thyroid insufficiency, and has claimed great success for its treatment with thyroid extract. Nervous diarrhea was as frequent perhaps among adults as among children. In the treatment of this affection nerve sedatives, such as the bromides, with temporary limitation of the carbohydrates in the diet, had proved more efficacious in the hands of the author than the treatment by arsenic, as recommended in the text books.

The simple tic or habit spasm up to a comparatively recent period has been regarded as a phase of chorea, but it is now well established that the complaint frequently arises from some local exciting cause, and the first step in treatment should be a reliable examination of such parts as the eyes, ears, throat, and teeth. Further than this chorea is, according to the experience of the author, never strictly unilateral.

In the discussion that followed the reading of Coutts' paper, many of the foremost British authorities on children's diseases took part and several interesting points were raised. G. E. Shuttleworth drew attention to the fact that emotional excitability in children was very commonly associated with moral perversion and disregard of truth, neuroses passing into psychoses. Mental obsessions, he thought, sometimes developed from impressions received through children's picture books, which led often to morbid fantasies. Regarding hypertrophic stenosis of the pylorus, Harold Stiles said it could be remedied only by operation, but such cases were rare, whereas instances of pyloric spasm were common, often resulting from change of diet or being associated with chronic trouble in the appendix.

That neuroses of every description are on the increase in all civilized countries is well known to medical men. It is a sign of the times and a necessary corollary to the manner in which we live. Infants born and brought up in towns, and whose parents are frequently of unbalanced or unstable nervous temperament, can hardly fail to suffer from neuroses. It is a penalty of so-called advanced civilization. In endeavoring to cope with such affections, the first and main object is to strike at the root of the evil and to attempt to better the conditions under which the majority of the dwellers in towns live. Treatment is essential, but prevention must be the chief aim.

Heart Failure Cells in the Urine.

Epithelial cells containing brown pigment granules occurring in the sputum have long been considered of diagnostic value, their appearance associated with the chronic passive congestion of heart disease having led to their being commonly known as "heart failure cells." Similar pigment granules have also been noted in the kidneys during congestion, the various pathologists who have studied them having stated that the pigment is of two types, large dark brown or black masses found in the neighborhood of hemorrhages, and light yellow to brown-

ish yellow granules occurring in the epithelium of the tubules without association with gross hemorrhage. These cells have been shown to be similar to those found in the lungs in that they are of epithelial origin but to differ from the latter in that the granules are rarely composed of hemosiderin. While the presense of such granules in the kidneys has been up to the present of little more than academic interest, an article by Bittorf in the *Münchener medizinische Wochenschrift* for August 31, 1909, holds out the hope that they may prove to be of actual, clinical, diagnostic importance. This hope is based upon the author having found such cells fairly constantly in the urine in cases of passive congestion of the kidneys as a result of heart disease. The cells found in the urine are of the type containing light yellow granules. They are seen as more or less swollen, polymorphous, but usually polygonal, cells of various, often large, sizes, with indistinct, large, round nuclei. There may be several together or they may be attached to casts. Their occurrence in the urine, associated with casts and a few scattered red blood cells, is an objective evidence of a circulatory affection of the kidneys, especially if the common sources of kidney hemorrhage as tumors, infarcts, and acute nephritis are absent. It not infrequently happens that it is a difficult problem to differentiate between cases of primary myocarditis with secondary renal congestion and those of chronic nephritis with resultant cardiac lesions. In such cases the presence of these "heart failure cells" in the urine may be of some value in pointing to the heart as the source of the disease and the kidney as affected only secondarily. As to prognosis, Bittorf has found that in primary cardiac cases improvement in the general condition and relief of the congestion cause the disappearance of these characteristic cells from the urine.

Tuberculosis in New York.

A pamphlet has recently been distributed by the Committee on the Prevention of Tuberculosis of the Charity Organization Society in behalf of the increased appropriations needed to continue the anti-tuberculosis work in the city. In it are given some statistics as to the prevalence of tuberculosis in New York. In 1908, 10,147 died of the disease, the tuberculosis death rate not having decreased materially during the past seven years. There are at present in New York 44,000 known cases of tuberculosis, of which only 16,000 are under the care of physicians, leaving 28,000 unsupervised and uncared for in the tenement houses. Each year there are in the neighborhood of 24,000 new cases in the city. There are now on record over 8,000 patients of the unsupervised class, and 20,000 have been lost sight of. The granting of the increased appropriation will accomplish the following: (1) close and effective control of the consumptive poor in their homes; (2) monthly or biweekly visits to the tenement house patients; (3) diligent search for the 20,000 "not found" cases; (4) supervision of patients discharged from hospitals; (5) disinfection of infected apartments; (6) more thorough sputum examinations; (7) more adequate clinic treatment; (8) increased usefulness of the Otisville Sanatorium and the Riverside and Metropolitan Hospitals; and (9) proper care and education of children, both those with outspoken tuberculosis and suspicious cases. Every one who knows what has been done by the Health Department of this city, the tuberculosis work of which is looked upon as a model by sanitarians the world over, will hope that the appropriations asked of the Board of Estimate and Apportionment by the several departments will be granted. Without the additional means desired there is danger that most of the work already accomplished will be undone. Civic pride, if not pity and the instinct of self-preservation, should inspire the board to grant the comparatively slight increase demanded.

News of the Week.

Morton Commemoration Exercises.—Commemoration exercises were held at the Massachusetts General Hospital, on October 16, in honor of the anniversary of the first use of ether by Dr. William T. C. Morton. President Emeritus Charles W. Eliot of Harvard University delivered the address and spoke on the subject of animal experimentation, stoutly opposing the antivivisectionists and their ideas. There was exhibited a bronze bust of Morton, a photograph of which is here reproduced by the courtesy of Jno. Williams, Inc., of New York, the casters. It is the work of Miss Helen Farnsworth Mears of this city. The bust will have a permanent place in the Smithsonian Institute in Washington. The inscription on the base is as follows:

William T. C. Morton, M.D.
MDCCCXIX MDCCCLXVIII
Discoverer of surgical anesthesia. By whom pain in surgery was averted and annulled. Before whom in all time surgery was agony. Since whom Science has control of pain.

On the rear of the base is inscribed:

Modified and elaborated from an initial study for a bust made from life by Clark Mills of Washington, D. C., about MDCCCLXIV, which is in the Massachusetts General Hospital at Boston, Mass. Presented by William James Morton, M.D., a son of W. T. C. Morton, MDCCCCIX.

Army Medical Corps Examinations.—The Surgeon-General of the Army announces that the War Department has appointed permanent boards for the preliminary examination of applicants for appointment in the Medical Corps of the Army, to meet at Washington, D. C., Fort Sheridan (near Chicago), Ill., and San Francisco, Cal., in addition to the usual preliminary examination boards that are assembled at various army posts throughout the United States from time to time. The permanent boards will hold sessions on the second Monday of each month. A limited number of successful candidates will be appointed First Lieutenants in the Medical Reserve Corps (salary $2,000 per annum) and assigned to army posts until the next session of the Army Medical School, when they will be ordered to attend the school as "student candidates." Applicants must be citizens of the United States, between twenty-two and thirty years of age, graduates of reputable medical schools, of good moral character and habits, and shall have had a year's hospital training after graduation, or its equivalent. Full information concerning the examination can be procured upon application to the Surgeon-General, U. S. Army, Washington, D. C.

Superintendent of the Custodial Asylum for the Feeble Minded.—Under the civil service rules a competitive examination for the position of Superintendent of the New York State Custodial Asylum for Feeble Minded Women at Newark, N. Y., at $2,500 per annum and maintenance, will be held on October 30, 1909. Candidates must be men of medical training and experience who are interested in the care and development of the feeble minded and who possess executive ability sufficient for the management of the affairs of the institution. Application blank can be obtained on request from State Civil Service Commission, Albany, N. Y.

Harvey Society Lectures.—The first lecture of the series will be delivered on Saturday, October 30, 1909, at 8.30 P.M. in the New York Academy of Medicine, by Prof. Richard M. Pearce of the University and Bellevue Hospital Medical College, on "The Problems of Experimental Nephritis."

Dr. Bulkley's Lectures on Skin Diseases.—The governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give an eleventh series of clinical lectures on diseases of the skin in the out-patient hall of the hospital, on Wednesday afternoons, commencing November 3, 1909, at 4.15 o'clock. The course will be free to the medical profession.

Medical Directories.—The Medical Directory of New York, New Jersey, and Connecticut for 1909, published by the Medical Society of the State of New York has just been issued. It contains the names of 16,785 registered physicians, 13,023 in New York State, 2,458 in New Jersey, and 1,304 in Connecticut. Of the 13,023 physicians in New York State, 4,865 reside in Manhattan and the Bronx, 1,778 in Brooklyn, 184 in Queens, and 62 in Richmond, a total of 6,889 for Greater New York. The appearance, promptly on time, of this complete and accurate directory reminds us of the directory long ago promised by the American Medical Association. Subscriptions were asked, and some received, for this book early last winter and the subscribers were then promised that the book would be issued in April or May. It is now October and subscribers are wondering whether, as in the case of trust companies in general, interest is allowed on deposits.

Fined for Selling Medicine.—A woman of Rock Island, Idaho, was found guilty recently of practising medicine and peddling drugs and ointments without a license on complaint made by the State Board of Health through its attorney. She was fined $100 and costs and appealed the case.

Dr. G. A. Gibson of Edinburgh, at the recent ceremonies accompanying the inauguration of President Lowell, received the degree of Doctor of Science from Harvard University.

Pellagra in Texas.—Twenty-one cases of pellagra are reported in Texas in the latest bulletin of the Texas State Board of Health. Ten cases were reported from central Texas, two from Dublin, three from Cleburne, one from Temple, one from Marlin, one from Powell, one from Warren, one from Ennis, and one from Austin.

State Hygienic Laboratory at Ithaca.—In connection with the central department at Albany, a branch of the State Hygienic Laboratory has been established at Cornell University to serve the needs of the surrounding counties. It is located in Lincoln Hall, the civil engineering building. Dean Haskell and Prof. H. N. Ogden, hydraulic expert for the State Health Department, will have supervision over it.

A New State Insane Hospital is to be established on Lake Mohansic, seven miles from Peekskill and a mile from Yorktown Heights in Westchester county. The site is across the lake from the site of the New York State Training School for Boys, and contains 550 acres. The new hospital will take care of the overflow from the State insane institutions in New York City. Buildings are to be erected on the site to accommodate 2,000 patients.

Pension Fund for Nurses.—Under the auspices of the Mount Sinai Training School for Nurses, a pension fund has been established for the benefit of nurses who have been graduated for more than ten years. This is the only pension fund of its kind in the United States. Until $60,000 have been contributed to the fund no claim can be considered, and up to the present time $25,000 has been donated.

Hospital Contests Will.—The Presbyterian Hospital in New York has opened proceedings to contest the will of the late Edward O. Kindberg. By a previous will the hospital was made residuary legatee by Mr. Kindberg. Shorly before his death, however, he made a new will by which the hospital received nothing. The allegations are that Mr. Kindberg was of unsound mind and that the will was obtained by undue influence and fraud.

Montefiore Home Reception.—Invitations have been issued for the celebration of the twenty-fifth anniversary of the Montefiore Home for Chronic Invalids and Consumptives, in New York, to be held at the Hotel Astor on the evening of Oct. 26. Among the invited guests who will be present and deliver addresses on that evening are Messrs. Seth Low, Robert W. de Forest, and Judge Samuel Greenbaum.

The American Society for the Study of Alcohol and Other Narcotics has erected a monument to the memory of the late Dr. J. Edward Turner, of Wilton, Conn. The dedicatory services at the unveiling of the monument will be held Oct. 27, 1909, at 2 P. M., at Wilton, Conn. Dr. L. D. Mason,

of Brooklyn, N. Y., president of this society, will give the dedicatory address. Other addresses will be made by Dr. H. O. Marcy of Boston, and Dr. T. D. Crothers of Hartford.

The East Side Physicians' Association.—A regular meting of this society will be held Thursday, October 28, 1909, at Scheffel Hall, 194 Third Avenue, at 8.30 P. M. The discussion of the evening will be on typhoid fever, the papers on this subject being by Drs. Darlington, Coleman, Isaacs, and Heiman.

The Delaware State Medical Society, at its 121st annual meeting, held October 12, at Dover, elected the following officers: *President*, Dr. Pressley S. Downs of Dover; *Vice-Presidents*, Dr. L. Heisler Ball of Faulkland and Dr. James Martin of Lewis; *Secretary*, Dr. George W. K. Forrest of Wilmington; *Treasurer*, Dr. S. C. Rumford of Wilmington; *Delegate to the American Medical Association*, Dr. J. H. Wilson of Dover; *Delegate to National Council of Medical Education*, Dr. H. W. Briggs of Wilmington.

The Bennington County (Vt.) Medical Society at the quarterly meeting held at Bennington, October 6, 1909, elected the following officers for the ensuing year: *President*, A. E. Houle of Bennington; *Vice-President*, Dr. G. V. Wager of North Bennington; *Secretary*, L. E. Hemenway of Manchester; *Treasurer*, Dr. F. W. Goodall of Bennington.

Pathological Society of Philadelphia, Pa.—At the annual business meeting held October 14 the following officers were elected for the ensuing year: *President*, Dr. David Riesman; *Vice-Presidents*, Dr. A. O. J. Kelly, Dr. D. L. Edsall, Dr. Allen J. Smith, and Dr. Jos. Sailer; *Secretary*, Dr. E. H. Goodman; *Recorder*, Dr. F. H. Klaer; *Curator*, Dr. H. T. Karsner.

Appointments.—Dr. William Egbert Robertson has been elected Professor of the Theory and Practice of Medicine and of Clinical Medicine in the Medical Department of Temple University, Philadelphia. Dr. Charles E. Nammack has been appointed visiting physician to St. Vincent's Hospital, New York City.

Obituary Notes.—Dr. JOHN PHILLIPS REYNOLDS of Boston died at his home, September 30, 1909, at the age of 84 years. Dr. Reynolds graduated from Harvard College in 1845, and from Harvard Medical School in 1848. He was instructor of obstetrics and medical jurisprudence from 1869 to 1877, and professor of obstetrics from 1877 to 1885 in the Harvard Medical School, resigning in the last named year. Descended from illustrious ancestors, Dr. Reynolds was himself for many years a prominent figure in the history of Boston, and for many years was a member of the Boston School Committee. He was a member of Suffolk County and the Massachusetts Medical Society.

DR. HENRY A. DEVENDORF of Hunter, N. Y., died at his home October 14, 1909, aged 83 years. Dr. Devendorf was a graduate of the Albany Medical College, but had retired from active practice many years ago.

Dr. MARTIN HALBERT CALKINS of Wyoming, Ia., died at his home, September 27, 1909, aged 81 years. Dr. Calkins was a pioneer physician in Iowa, having settled there in 1856. Besides his practice, he took a great interest in politics, having been elected the first mayor of Wyoming, and for two terms having served in the Iowa Legislature.

Dr. W. GREGG AUSTIN of Utica, Miss., died in his office, September 25, 1909, aged 41 years. He was a graduate of the Memphis Hospital Medical College in 1894.

Dr. OTTO FRANKENBERG of Columbus, O., died at his home, October 1, 1909, aged 63 years. He was a graduate of the Starling Medical College, in 1870, and for twenty years was a member of the faculty of that institution.

Dr. JUNIUS K. BATTLE of Eufaula, Ala., died at his home, September 28, 1909, aged 48 years. He was a graduate of the medical department of the University of Louisville, in 1883, and was a member of the Barbour County Medical Society, the Medical Association of the State of Alabama, and the American Medical Association.

Dr. CHARLES P. BEAMAN of Ithaca, N. Y., died October 6, 1909, aged 49 years. He was a graduate of the New York Homeopathic Medical College, in 1882, and was for many years official physician to the Cornell University athletic teams.

Dr. SWEZEY GILBERT HOPKINS of Yaphank, New York, died recently at North Falmouth, Mass., aged 68 years. He was a graduate of the Bellevue Hospital Medical College in 1869.

Dr. JOSEPH F. X. POITRAS of Brockton, Mass., died at his home, October 1, 1909, aged 43 years. He was a graduate of the Medical School of McGill University, in Montreal, in 1890. Shortly after graduation he moved to Marlboro, Mass., and then to Brockton. Dr. Poitras was one of the founders of the Brockton Medical Society.

Dr. ORSON VALENTINE THAYER of San Diego, Cal., died at his home, September 19, 1909, aged 86 years. In 1846 Dr. Thayer graduated at the Vermont Medical College, formerly at Woodstock, but extinct since 1856. He practised in San Francisco for thirty-six years and was a member of the San Francisco Medical Society.

Dr. WILLIAM B. ARTZ of Osage City, Kan., died at his home, September 24, 1909, aged 59 years. Dr. Artz was a graduate of the College of Physicians and Surgeons of Keokuk, in 1878. He was a mayor of Osage City for four years and councilman for six years.

Dr. DANIEL GARRISON died at West Collingswood, N. J., on October 4, at the age of 63 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1880. He had resided in Pennsgrove, N. J., for more than thirty years.

Dr. HARRY D. NILES of Salt Lake City died at his home on September 28, 1909, of apoplexy, aged 53 years. He was a graduate of the Medical College of Ohio in 1880. Dr. Niles practised surgery in Salt Lake City for 24 years, and was at different times president of the Western Association of Surgeons and the Utah State Medical Association.

Dr. HOWARD SUMNER DEARING of Boston, Mass., died at Hollis, Maine, October 4, 1909, aged 52 years. He was a graduate of Dartmouth College in 1879 and the Dartmouth Medical School in 1882. Dr. Dearing was prominent in the medical department of the Massachusetts Militia for 25 years, holding all positions from hospital steward to colonel and senior surgeon of the State. During the Spanish War he was surgeon to the First Heavy Artillery. At one time Dr. Dearing was Professor of Clinical Medicine at Tufts College Medical

School. He was a member of the Suffolk County Medical Society, the Massachusetts Medical Society, and the American Medical Association.

Dr. J. B. Cowan of Lebanon, Tenn., died recently at his home. He was a graduate of the medical department of Vanderbilt University in 1881.

Dr. Samuel Carter Van Antwerp of Vicksburg, Michigan, died at his home October 5, 1909, aged 62 years. Dr. Van Antwerp was a graduate of the University of Michigan in 1872, and was the pioneer physician of Vicksburg. He was a member of the Kalamazoo County Medical Society, and the Michigan State Medical Society.

Dr. Henrietta Paine Westbrook of Philadelphia died at her summer home at Burrilville, R. I., on October 15, aged 74 years. Though a graduate of the Woman's Medical College of Philadelphia, Dr. Westbrook had never practised medicine, but gave up her life to literary work and was the author of many sketches and novels.

Dr. Rebecca Cooper Hallowell died at Haddonfield, N. J., on October 13, at the age of 77 years. She was graduated from the Woman's Medical College of Philadelphia in the class of 1878, and later acted as Medical Missionary for the establishment, on behalf of the Women's Matronal Indian Association, of a hospital at Adun Colentz, San Diego, California.

Correspondence.

FIFTEENTH INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY.

To the Editor of the Medical Record:

Sir:—On the invitation of the Department of State of the United States Government, the Fifteenth International Congress on Hygiene and Demography will convene for the first time on the American continent in Washington, D. C., from September 26 to October 1, 1910. Section III of this congress deals with the subjects of the hygiene of infancy and childhood; school hygiene. It is believed that this will be a meeting of the utmost importance. We take this means of requesting your readers to let us know of any pieces of original work which are being done bearing upon this topic.

A. Jacobi, *President.*
Luther H. Gulick, *Secretary.*
1 Madison Avenue, New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

OPENING OF THE SESSION—DR. MIERS ON STUDY—FEEDING PRISONERS WITH THE STOMACH TUBE—DEBASED AREAS IN LONDON—SANITARY DEPECTS OF GRAVESEND—A NEW EAST END HOSPITAL—HANBURY MEDAL—OBITUARY.

London, October 1, 1909.

This is the traditional opening day of the medical schools, when new students are supposed to enter for their first session, and on which the introductory lecture addressed to them has so long held an important place, though it has of late years been supplanted in some schools by other ceremonies, such as distribution of prizes, conversaziones. Then the end of the week is not propitious for the commencement of serious work, so that the introductory, where retained, is, in some cases, postponed until Monday next. At the London Hospital a reception of old students is to take place in the college library at 5 P.M. and a dinner at the Savoy Hotel at 7:30. At St. Thomas's a dinner at the Cecil is to mark the opening, and at Charing Cross the prizes are to be distributed by Sir Clifford Allbutt in place of Viscount Ridley, who was to have undertaken the task. At Guy's Sir Hector Cameron has promised to address the Students' Physical Society on some aspects of antisepticism. At University College Sir J. Tweedy is to give an address at the prize distribution, and at the Middlesex this function will be performed by Lieutenant Shackelton. The Women's School will be addressed by Mrs. Henry Fawcett. At St. George's Dr. H. D. Rolleston gives the address in the afternoon and the annual dinner is held at the Prince's Restaurant.

At St. Mary's Hospital prize distribution the students are to be addressed by Dr. H. A. Miers, principal of the University of London. This gentleman on Monday inaugurated the eighty-seventh session of Birkbeck College with an address, in which he said many things that will bear repetition if he cares to restate them to St. Mary's students. Remarking that every friend of popular education was proud of the work done by the Birkbeck, he mentioned a possible danger of the great facilities now freely offered to London students—that of forgetting that all these provisions were useless without effort on their own part—a danger of thinking education was a process of putting something into the student. A stimulus, he admitted, of a sort was felt in the shadow of an examination at every stage, and it was a melancholy reflection that if that were taken away a great number of English students would lose their chief incentive to intellectual effort. He advised them not so much to amass facts and acquire knowledge as to understand principles and acquire wisdom. If they mastered not the details, but the principles of a subject, they would do as much for their true education as any teacher, book, or examination could do for them.

Among the founders of the college was Francis Place, the radical tailor and friend of Jeremy Bentham and James Mill, who rose to play a large part in social reforms, and whose tale Dr. Miers told in the course of his lecture. He was born within a stone's throw of the college and spent his boyhood in sordid surroundings. After his marriage the weekly earnings of himself and wife did not exceed seventeen shillings, yet, said the lecturer, he managed to educate himself and become a man of great influence among his most intellectual countrymen. "It is surely appropriate that I, his great-grandson," added Dr. Miers, to the astonishment of the audience, "should congratulate the British institution upon the good work it has done."

The House of Commons has been amused day after day by talk about the horrors of the stomach pump. The Socialists seem to have taken up the cause of the suffragettes who have been refusing to eat in prison, and have therefore been fed with the tube. Having elicited this fact, Mr. Keir Hardie exclaimed "A horrible outrage!" and he has kept up questioning the Home Office since. He has also issued a statement to the public "concerning the horrible brutality of this proceeding," calling on "British men to think over the spectacle," and telling how "horrified" he was at the "levity" displayed by members when his question was asked and at the "scene" which he declares "has no parallel in the recent history of our country." He has since been writing to the press and describing as "torture" the method of forced feeding. This seems to be a political inexactitude. It can hardly be ignorance, as during "the scene" which so touched his tender feelings he was told that the treatment is that usual in hospitals and asylums when lunatics or feebleminded persons attempt suicide by refusing to eat. Most members of the House must know that there is no cruelty in forced feeding, and some doubtless must have heard of invalids who had learned to employ the stomach tube on themselves. Well might they laugh, then, when Mr. Snowden, in support of his leader, advised the Home Office to beg the Russian Government to send us over some "experts in the most brutal and up-to-date methods of barbarism."

It is now announced that the Women's Social and Political Union will prosecute the Home Secretary, the Governor of the Gaol, and the Medical Officer for the "unjustifiable assault" on the prisoners who were forcibly fed, and that the writs will be issued to-morrow, but it is not clear, in spite of Mr. Hardie's support, that either he or the union or any outsider has a *locus standi* in such a case.

Meantime, the Socialist members have continued to question the Government as to how medical treatment is carried out, whether the prisoners are put in irons to enforce it, and other absurdities, all evidently designed to annoy the authorities and to impose on ignorant people outside. It is therefore amusing to observe that every day up to date the Home Office has been able to reply that since the ladies have been fed with the tube their health has continuously improved.

The Medical Officer of Health for Southwark has given so serious a report on one district that the health authorities has appointed a special investigation com-

mittee. The district in question is said to be very debased, an abode of vice, crime, and immorality, in which the "scum of South London takes up its abode, generally for short periods." Many shocking details are added, and the Medical Officer of Health thinks the remedy is to clean the area, and until that can be done nightly inspection is absolutely necessary. He thinks all debased areas should be subjected to nightly inspection, and as he sees no prospect of the boroughs acting together, the County Council is the only authority capable of dealing with this matter.

Dr. R. J. Reece, in a report to the Local Government Board on the sanitary state of Gravesend, says the corporation should seek the advice of a competent engineer with a view to the abolition of the present system, the efficient sewering of parts of the town not properly sewered, and the efficient flushing and ventilation of existing sewers. Dr. Reece considers that the contents of the present cesspools must find their way into the river or remain in the chalk soil, to the danger of the water supply.

On Saturday the Lord Mayor laid the foundation stone of a new hospital for women and children of Eastern London. It is situated at Plaistow, opposite a smaller hospital, of which it is to take the place, and which was founded in 1888. It is to cost £16,000, and nearly £14,000 has been raised.

On Wednesday the sixty-eighth session of the School of Pharmacy was opened and the various prizes presented to the students. The Hanbury gold medal, accompanied by a check for £50, given every two years for original research, was received in person by Dr. Alexander Tschirch, "professor of pharmacognosy" in the University of Berne, whose paper on that subject was read for him in English by Professor Greenish, dean of the school, who had assisted in the translation.

A Coroner's inquest was necessitated by the sudden death last week of Dr. Eustace Rhodes St. Clair Corbin of Beckenham. He had accompanied a patient to a consultation with Sir John Tweedy and afterward to an optician's, in whose shop he fell down unconscious and died soon afterward. Dr. Florence Willey made a post mortem, and testified that there was extensive disease of the heart, which was the cause of fatal syncope. Verdict accordingly. Dr. Corbin was a University College student, where he took the Fellowes gold medals in clinical medicine and midwifery. He graduated M.B. Lond. with honors in 1886, and had been house surgeon at the hospital and demonstrator in the college.

Dr. J. Milson Rhodes of Didsbury, Manchester, died suddenly on Saturday night. He was an authority on many questions relating to the Poor Laws and Lunacy in their medical aspects. In his "Workhouse Dietaries" he put forth information of so convincing a kind that the Local Government Board was induced by it to institute an inquiry, which resulted in the removal of many anomalies to which Dr. Rhodes had directed attention. This work was followed by others on "Epileptics and Imbeciles," "Boarding Out of Pauper Children," "The Feeble-Minded and Epileptic," and numerous contributions to allied subjects. Dr. Rhodes was an Owens College student and took the double qualification of Edinburgh in 1874, following later with M.D., Brussels. He was a member of the Manchester Medical Society, the Economical Society, and the International Society of Public Assistance, Paris, to the conferences of which he contributed various papers. He suffered from cardiac weakness, for which he took strychnine. After a heavy day he took 10 minims of liquor, but as he thought it rather too much, took 2 drams of potassium bromide. His nephew, also a doctor, stated at the inquest on Monday that he died from a collapse, which both knew might have occurred at any time during the last two or three years.

Dr. Hubert E. J. Biss, who died on the 20th inst., aged thirty-seven, was a Cambridge graduate in arts (Nat. Sc. Tripos), 1896, and medicine, M.D., 1901. He had been demonstrator in biology and anatomy and assistant in the laboratory at Cambridge. Subsequently he held resident offices at Brompton Consumption Hospital and other institutions. He also took the D.P.H., and wrote on some sanitary questions in the journals, as well as diphtheria and scarlet fever, their pathology, treatment, etc. He was assistant editor of the *Medical Press*.

Dr. Thomas Watt, who died last week, was at one time Medical Officer at Howingham, near Malton. It was while acting as such that he became so interested with the housing of the rural population that he devoted himself to reform. At the funeral service on Monday there was a large concourse of the people, and addresses were given by his brother, the Rev. C. Watt, and Mr. Glassyer. Representatives were sent by the Independent Labor party, of which the doctor was one of the founders.

THE SIXTEENTH INTERNATIONAL MEDICAL CONGRESS.

(From Our Vienna Correspondent.)

CHRONIC PANCREATITIS—LEAD POISONING—ARTHRODOSIS—LUPUS ERYTHEMATOSUS—INTRANASAL DRAINAGE—LARYNGEAL CANCER—MUSEUM OF SAFETY AND SANITATION—SANITARY USE OF OZONE—PATHOLOGY OF NERVOUS DISEASES—TREATMENT OF PARALYSIS.

BUDAPEST, September 14, 1909.

MR. MAYO ROBSON of London drew attention to chronic pancreatitis as a clinical entity apart from gallstone trouble, and he also described the frequency of inflammatory enlargement of the common duct. He pointed out that chronic pancreatitis might persist long after the original cause had disappeared and might simulate cancer of the head of the pancreas and so terminate fatally under the impression that it was incurable, when as a matter of fact suitable surgical treatment was capable of curing the condition. Robson described the symptoms, the pathological condition, the causes, and the treatment of chronic pancreatitis and showed that the anatomical variations in the relations of the common bile duct to the pancreas and in the termination of the ducts had an important bearing on the etiology of the condition. He urged the importance of preventive treatment, such as the removal of gallstones before they had produced complications, and the treatment of duodenal ulceration by gastroenterostomy. If, after a fair trial of general treatment, not too long continued, the symptoms persisted and the signs of failure in pancreatic digestion and metabolism were manifesting themselves, the question of surgical treatment ought to be seriously considered, especially when the disease was associated with jaundice. He said that rational treatment should aim at the cause, whether that was gallstones, pancreatic calculi, duodenal catarrh, duodenal ulcer, alcoholism, or syphilis. Even in the absence of obvious removable causes he advocated efficient drainage of the infected bile and pancreatic ducts, either by cholecystotomy or cholecystenterostomy, preferably the latter. His experience had taught him that if the cause could be removed at an early stage an absolute cure was possible, and though complete restoration of the gland was not to be expected, an arrest of the morbid process might be looked for and the remaining portion of the pancreas would be able to carry on the metabolic, even if incompletely the digestive, functions of the gland.

Dr. Kenneth W. Goadby of Dublin described some animal experiments on the pathology of lead poisoning. The methods of infection were: Inhalation, feeding, and inoculation. The animals thus experimented upon developed signs of well marked lead poisoning, the ones inoculated exhibiting the most acute symptoms, the animals subjected to inhalations of dusty air held an intermediate position, and the ones fed on lead compounds showed the least sign of disease. The symptoms exhibited by the animals were in every way comparable with those of man, including wasting, paralytic symptoms, and mental symptoms. Careful histological examination was made of all the tissues of the animals, and in all cases where an animal had been poisoned by lead, minute microscopical hemorrhages were to be found in all the tissues examined. No degeneration was discoverable, but minute hemorrhages were found in the nerves supplying the paralyzed muscles, the paralysis evidently having been caused by the pressure of the hemorrhage and not by an early degeneration of the nerve. Microscopical hemorrhages were also found throughout the tissues of the brain, in no case of large extent, and nearly always quite microscopic in size. The various findings described by other observers of sclerosis and other pathological thrombi changes would seem to be the result of these minute hemorrhages.

Mr. R. Jones of Liverpool, discussing arthrodesis, said that the operation should never be performed on children under eight years, nor until all deformity had been corrected by wrench and tenotomy. It must not be performed if any hope existed of muscular recovery. It should be planned so as to avoid injury of

epiphysis and so that the bones lay in good apposition. Splints should be worn until consolidation is complete.

Mr. Morris of London, in discussing the treatment of lupus erythematosus, said that the disease appeared to be essentially a chronic inflammation of the skin, local in origin, and depending on a condition of the circulation which made the integument prone to vasomotor disturbance. This might cause a predisposition to toxic infection, but neither the fact of such infection nor its nature had been positively demonstrated. Each case must be dealt with according to its peculiarities. The treatment should be constitutional and local. Under the former head must be included careful regulation of the diet, so that the intestine might not be loaded with materials that might form a favorable soil for infection. Anything like coffee and tea, which caused flushing of the face, was contraindicated. Quinine was often useful. Locally, in the hyperemic stage, cooling lotions and ointments (calamine, subacetate of lead, etc.) should be applied. Ichthyol in the form of a lotion or an ointment was the most useful of local remedies. In chronic cases also the author had found the constant application of a strong solution of ichthyol the best remedy. Iodine liniment was also useful, in severer cases linear scarification, or light touches of the thermocautery often gave good results. In subacute cases the author had sometimes used high-frequency currents, and in chronic cases the Finsen light and the *x*-rays, with success. These agents are particularly useful in the later stages, when there is thickening of the integument.

Dr. Fletcher Ingalt of Chicago described his method of intranasal drainage of the frontal sinus, consisting of enlarging the nasofrontal duct by passing in through it a small steel probe—passing over this a hollow burr, operated by an electric motor, thus making a canal 6 mm. in diameter—placing in this canal a self-retaining gold tube which remained until the canal was lined with mucous membrane and therefore became permanent. Then at the end of three or four months, or any convenient time thereafter, the tube was easily withdrawn. Without criticising any other operation, on an experience based on over 30 cases, the author believed the operation safer than any other—believed it applicable to 95 per cent. of all chronic cases of frontal sinus empyema and that it would cure 95 per cent. of the patients operated on in from two weeks to six months.

Sir Felix Semon of London presented a contribution toward the diagnosis of laryngeal cancer and related and graphically illustrated those cases of malignant disease from his own practice, in which exceptional diagnostic difficulties were encountered, and in a number of which diagnostic mistakes were made. They amounted to 13 in a total number of 246 cases of malignant disease seen in thirty-three years' practice, and the author, after faithfully recording the salient features of each of them, exhorted in conclusion his younger confrères not to consider the early diagnosis of malignant disease of the larynx as exceedingly difficult, but to keep in mind such unusual features as were present in his series of cases.

Dr. H. Tolman, in a paper entitled "The American Museum of Safety and Sanitation," said that a conservative estimate of the number of annual accidents in the United States which resulted fatally, or in partial or total incapacity for work, was 500,000. Reckoning the wage-earning capacity of the average workman at $500 a year, there was a social and economic loss of two hundred and fifty million dollars a year. It was the opinion of the engineering profession that one-half of the accidents in the United States were preventable. The Museum of Safety and Sanitation would be the means of saving thousands of lives; would lessen the economic waste of accident cases brought before the courts; it would be an experimental laboratory for every industrialist in the country; through its own laboratories safeguards might be perfected for dangers and processes now without any known device; it would be an additional center for teaching the science and preservation of health, by the means of demonstrations in preventing diseases due to impure foodstuffs, bad ventilation, occupational dusts and poisons, infection, tuberculosis, and offensive trades.

Dr. Gilbert J. Fowler, in a paper on "The Sanitary Uses of Ozone," discussed the application of ozone to the purification of water and air in the light of the most recent developments. The purification of water was considered in reference to: Organic matter in solution and suspension, color, smell, taste, organismus, *e.g.* algæ, infusoria, bacteria, and metallic impurities. It was concluded that ozone treatment of water was to be recommended: (a) where adequate sand filters were costly to erect and difficult of supervision; (b) where the amount of organic matter in solution in the water was limited; (c) where the pollution was mainly bacterial and of an intermittent character; (d) where electrical power could be obtained cheaply.

Dr. B. Sachs of New York discussed the pathology of hereditary diseases of the nervous system. Instead of speaking of hereditary disease, it might be better to speak of family diseases, realizing fully that very few diseases were conveyed directly from parent to child, but that the morbid tendency existed in one or both parents which led to the development of a family disease. There was a very marked difference between the cerebral and the spinal groups. The family or hereditary diseases of cerebral origin were due to changes in the highest nerve elements, viz., the ganglion cells; the spinal hereditary affections were due largely to diseases of, or maldevelopment of, one or more systems of white fibers. The one exception to this group was the spinal form of progressive muscular atrophy, and that was only rarely inherited. The progressive dystrophies constituted a distinct group and were not of neural origin.

Dr. Robert W. Lovett of Boston discussed the treatment of paralytic deformities in children. There were varieties of paralytic deformity. These are seven: (1) Deformity due to simple gravity distortion; (2) to adaptive shortening and lengthening of soft parts; (3) to the contraction of non-paralyzed limbs; (4) distortion from weight bearing on partly paralyzed limbs; (5) deformity of the trunk due to effort to secure equilibrium; (6) bony deformity following persistent malposition, and (7) dislocation. The use of supporting apparatus was advocated from an early period for the purpose of preventing malpositions of the paralyzed limb. The treatment of paralytic deformity was discussed first, under the head of mechanical treatment, and, secondly, the operative, both supplemented by a third therapeutic measure, the development of the muscles by muscle training, massage, and electricity. Conclusions favorable to the performance of the tendon transference operation in suitably selected cases were presented. The results of a circular of injury sent out to the members of the American Orthopedic Association were given, the conclusions from this being that the operation was on the whole useful and that periosteal insertion was preferable to insertion of tendon into tendon. The conclusions were presented that the after treatment was fully as important as the operative. The summary of the paper called attention to the fact that the treatment of paralytic deformity should consist of a combination of the three methods and that the operative should not overshadow the others, and that the operation of tendon transplantation in properly selected cases was to be regarded as a useful and satisfactory one.

Dr. Nagelschmidt of Berlin read a paper before the Section on Therapeutics on the procedure to which he himself had given the name of transthermia, by means of which he had been able to transmit a greater or less degree of heat into the deeper tissues. The method was a variation of the high-frequency current. The current differed from the D'Arsonval in that the electrical oscillations were almost without pause, of equal amplitude, and of a much lower tension. By this a new action was obtained. These waves had the power to flow from one pole to the other through the organism and to raise the temperature along their entire course. He demonstrated this by cooking a piece of meat between the poles of the battery. The deep action was shown to be as marked as the superficial. Different substrata warmed up to different amounts; distilled water warmed but little, physiological saline more; a 1.5 per cent. salt solution still more, and blood serum and corpuscle emulsions most of all. Among animal tissues the skin, besides being the most difficult of penetration, was the easiest to warm up. Following this in descending ratio came bone, muscle, fat, and nerve. The amount of the heat production was regulated by the subjective sensation of warmth, and the objective feeling of the skin to the fingers of the physician; when under a general anesthesia, by measuring the current and the surface of the electrode, and especially by placing a small thermometer deeply in the tissues. Tumors both superficial and deep could be coagulated by

this method. When a deep action alone was desired this could be produced by applying cooled electrodes to the surface. In this way deep-seated tumors could be treated without injury to the skin and without opening of blood-vessels. The method had proved itself of value in tumors, neuralgia, rheumatism, especially lumbago, various joint affections, gout, and particularly in asthma.

Dr. Josef Fabricius of Vienna said that disease of the appendix was often mistaken for gynecological troubles. When the appendix was exceptionally long or in an abnormal position it might descend into the true pelvis, and disease of that extend to the adnexæ and *vice versa*. Acute appendicitis might be mistaken for acute salpingitis, oöphoritis, acute inflammatory pyosalpinx, perforation peritonitis following rupture of a pyosalpinx, or an ovarian abscess, extrauterine pregnancy, or a twisted pedicle of an ovarian cyst or tumor of the tubes. Tenderness over the cecum was not in itself a definite sign of appendicitis, vaginal examination being also of value. The adnexæ reached to the cecum only when they were large or the uterus stood very high up. In appendicitis the tenderness first appeared over McBurney's point, in pelvic disease near the uterus. Swelling of the appendix might occur during infectious diseases. Appendicitis coming on near the beginning of pregnancy might result in an abortion. In such cases the appearance of a resistance in the right pelvis might suggest an extrauterine pregnancy. Chronic appendicitis came into gynecology frequently. It might cause pain, even light colic, at the time of menstruation, though acute appendicitis he had not seen as a result of the menses. In nervous people neuritic symptoms suggesting hysteria or epilepsy could be produced. It could have a bad influence over pregnancy, so much so that it was advisable to remove the appendix at that time. It could produce malpositions of the uterus. The author advised orientation of the uterus in every laparotomy for appendicitis, and if malposition was found correction of the same. Chronic appendicitis, by interfering with the tubes, might cause sterility or lead to an ectopic pregnancy. Intestinal obstruction might be produced by the bands of adhesions between the appendix and the adnexæ. In case of chronic appendicitis one often found a symptom complex consisting of anemia, gastric atony, and nervousness, so that appendectomy did not cure the patient until these symptoms had been treated properly. Once the author had seen abdominal actinomycoses and once ovarian tuberculosis following chronic appendicitis. Disease of the appendix might be transferred to the adnexæ, and *vice versa*, or disease of the two might occur concomitantly and independently. The speaker said that in every case where there was any suggestion of appendical disease he advised laparotomy.

Progress of Medical Science.

Boston Medical and Surgical Journal, October 7, 1909.

A Study of the Reticulated Red Blood Corpuscle by Means of Vital Staining Methods; Its Relation to Polychromatophilia and Stippling.—J. B. Hawes, 2d, reaches the following conclusions: (1) The condition known as stippling and that known as polychromatophilia, as described in his paper, are probably but different forms of the same process. (2) Reticulated red cells, "*les hematies granuleuses*" of Chauffard and Feissinger, as shown by simple vital stains, either in temporary or permanent specimens, correspond to the stippled or polychromatic cell as seen in the fixed preparation, and are due to the same cause. (3) Owing to the greater delicacy of the vital staining method, the reticulated forms will always be found in considerably greater percentages than stippled or polychromatic cells. (4) All these phenomena are evidences of cell regeneration, and are indications of the activity of the blood-forming organs. (5) Reticulation forms occur in normal blood in slightly less than 1 per cent.; in certain pathological conditions they may be present up to 22 per cent., according to some authors, or, according to others, up to even 65 per cent. (6) A study of the reticulated forms in pathological conditions of the blood, especially in secondary anemias, is of value in diagnosis, prognosis, and treatment. In benign hemorrhages causing secondary anemia the percentage of reticulated forms was very high and the percentage of polychromatophilia and stippling was much increased. In extreme anemias, as in hemophiliac cases, the reticulate percentage was below even normal limits, while practically no stippling nor polychromatophilia was found. In prognosis a large increase in reticulated forms in both primary and secondary anemia is a favorable sign that the blood-organs are actively at work.

Varicose Veins of the Leg.—H. M. Chase discusses the physiology of the condition, factors in preserving normal circulation, methods of examination, and treatment. The latter may be classified as follows: (1) Medical, to regulate and improve dietetic functions, to stimulate cardiac force and increase the tone of the vessel walls, to moderate or delay fibrous or atheromatous changes. (2) To continue normal muscular actions which in contraction will give a centripetal direction to the venous blood and aid in maintaining and continuing the velocity of the blood current. (3) Local treatment for varying conditions of tissue change resulting from venous stasis, such as eczematous conditions, serous and hemorrhagic blebs, active serous exudation, local fibrosis, edema, ulceration, and necrosis. (4) Mechanical support of the superficial blood-vessels which will direct a large portion of the venous blood through the deep veins, will relieve tension on the superficial veins, and permit a restitution of the elasticity of the subcutaneous tissue, diminish the pressure due to venous engorgement in the superficial veins, and permit a greater capillary velocity in the blood current. (5) Surgical measures. The author then elaborates the principles and details of treatment as suggested by this classification. He says that the treatment of varicose veins resolves itself largely into the application of mechanical principles which will control abnormal circulatory conditions.

A Case of Arteriovenous Anastomosis for Senile Gangrene.—An operation was done by J. C. Hubbard in a negro aged seventy-seven years. The site of the procedure was in Scarpa's triangle. Details are given. The results showed that the circulation in the foot was sufficiently improved to restore the original color in the affected extremity all but the toes. Edema of the leg, which was slight at first, later became excessive, making the leg seem to the patient full and stiff. Coincident with this edema, pain, which had decreased after the operation, became the most prominent symptom. The author asks was this pain due to pressure on nerves already enfeebled or was it due to progress of the nerve changes started by impending gangrene and not stopped by the apparent improvement in the circulation? The case demonstrates, he thinks, that an anastomosis can be performed in man which will remain patent for some time. The case teaches also that a single anastomosis between the artery and the vein renders the return of the venous blood too difficult. A complete reversal of the circulation is therefore to be recommended. It remains to be seen whether this will prevent edema, and, if so, the pain. In this particular case the pain became so severe that amputation above the knee became necessary. After the operation the tourniquet was loosened in order to test the anastomosis. From the femoral vein in the stump, red arterial blood spurted. There appeared to be no narrowing of the vessel judging by the size of the blood stream.

New York Medical Journal, October 9, 1909.

A Danger-Free Method of Using Freshly Prepared Virus (Virus Fixe) from the Brain of the Hydrophobic Rabbit.—The paper of F. Proescher is a review of recent literature along the line suggested by the title. *Virus fixe* is virus made from the dried rather than from the fresh cord. The redrying of the cord does not, according to Pasteur, influence in any manner the virulence or quality of the virus, but simply diminishes the amount in the desiccated cord. Statistics indicate that the safety of the immunization increases in direct proportion to the virulence of the material injected. At the present time probably 15,000 persons have been immunized with *virus fixe*. It is impossible to tell by animal experiments whether a certain virus is of the street (undried) or fixed variety. The practical value of using fresh *virus fixe* for treatment depends on a single factor, and that is that the *virus fixe* must be absolutely atoxic and avirulent for the human being. At the present time it is impossible to determine on account of the small dosage used, whether the *virus fixe* employed in the various laboratories has these qualifications. Careful investigations and experiments are necessary to determine the virulence for man of the street virus after passage through a single rabbit. It is not yet known whether the passage of the street virus through a single rabbit will render it avirulent for the human being. It is not necessary any more to dry the spinal cord, and at the same time the more virulent brain tissue can be used, thus eliminating the tedious and difficult dissection of the spinal cord. The using of fresh *virus fixe* is very

advantageous to both physician and patient, as it offers greater security than the old Pasteur method, due to the giving of fresh *virus fixe* on the first day, thus losing no time in the immunization with a virulent *virus fixe*, which all authorities agree does not give any protection, but affords time for possible development of rabies. By the method described in this paper, the immunization time is shortened two-thirds, and both trouble and expense are saved.

Isolated Fracture of the Transverse Process of a Lumbar Vertebra.—The patient of S. Lange was a man of 50 years who strained his back while lifting. Coming under observation some four months later, after considerable pain, an area of tenderness was found just to the left of the last lumbar vertebra in the angle between the crest of the ilium and the spine. The *x*-ray revealed what was undoubtedly a fracture of the left transverse process of the fifth lumbar vertebra. The process appeared to be tilted up, and there was an irregular fissure separating the tip of the process from its base. The author also reports a second case of a man of 35 years. Here the injury was received from a rapidly revolving crank handle. The *x*-ray showed a fracture of the right transverse process of the first lumbar vertebra, with some upward displacement of the broken fragment. These cases are very rare. Only three had been reported up to a year ago. The frequency with which the symptom, chronic sacrolumbar pain, is met with and the difficulty so often offered in the recognition of its cause lends considerable clinical importance to this type of fracture. If the fracture is unrecognized at its inception, and many such fractures are undoubtedly passed over as "sprains," nonunion or delayed union will follow, due to the fact that the loose fragment will move with every movement of the body. The pain may thus become chronic and persist for a considerable period. In some cases the patient will incline the body toward the side of the fracture. Continuance of this posture over a period of time may lay the foundation for a persistent scoliosis. The diagnosis is based upon the history of the accident, tenderness to pressure over the fracture, slight muscular rigidity, and pain of varying severity which is increased by movements of the trunk, especially walking and stooping, and relieved by lying down. If the case is seen later the *x*-ray alone will establish a diagnosis. Although the fracture *per se* is of minor importance, its recognition is of great prognostic moment in that the more serious condition, such as tuberculosis and arthritis deformans of the spine and sacroiliac joints, are thus ruled out. The recognition of this fracture has furthermore some medicolegal importance, owing to the peculiar nature of the causal trauma and the symptoms.

A Practical Test for Indican in Urine.—The following method is commended by F. C. Askenstelt: To 10 c.c. of urine in a test-tube add 10 c.c. of the ferric chloride solution and mix by inverting the tube once; then add quickly 8 c.c. of chloroform, and extract the indigo in formation by shaking the tube 400 times, holding it in a horizontal position. After this let the chloroform fall to the bottom of the tube, then pour off most of the supernatant fluid, fill the tube nearly full with water, invert it a few times to wash the chloroform, and let this again precipitate in the tube, and pour off most of the water. Repeat twice this process of washing, taking care that no chloroform escapes with the wash water, and allowing not more than 2 or 3 c.c. of the last wash water to remain over the chloroform. Now add from 13 to 15 c.c. of alcohol and mix by shaking. A clear blue fluid should result. If hazy, add one or two c.c. more of alcohol until the fluid clears up. Compare the color of this fluid with an equal quantity of a standard solution of indigo blue in the second test-tube by holding the two test-tubes in front of a white surface. This standard solution is made by pouring into the empty second tube a quantity of water equal to the amount of the fluid in the first tube, and then dropping the stock solution of indigo blue into the water, inverting the tube after each drop, until both solutions have the same amount of blue color. If this requires four drops of the stock solution the percentage is 0.0004; if five drops, 0.0005; if six drops, 0.0006, etc.

Journal of the American Medical Association, October 9, 1909.

Diet in Typhoid Fever.—W. Coleman believes that the solution of the essential problems of the typhoid fever diet will be found in the answers to two questions: 1. Shall the typhoid fever patient be given enough food to meet his energy requirements? 2. How much food may be considered necessary for this purpose? The starvation diet, formerly the accepted process for all fevers, has lingered in typhoid, but the practice has gradually advanced from the 300 calories in 24 hours of Graves and Trousseau to the milk diet of Flint furnishing 1,400 calories and the 2,000 calories diet of Bushuyev. There is strong experimental and clinical evidence in favor of giving the typhoid patient sufficient food to meet his energy demands without overfeeding or improperly feeding. Partial starvation lowers the resisting powers. The emaciation which is so characteristic of the disease is, Coleman believes, largely due to the pyrexia and the toxins, though it is not known definitely how these latter act. Shaffer and Coleman have found in their cases that the losses due to these causes can be prevented by a high caloric carbohydrate diet, and the most potent factor of the emaciation is therefore partial starvation. A normal man at ordinary rest requires about 33 calories per kilo of body weight each day, and if we add to this the 25 per cent. addition to make the febrile increase which, according to Krehl, is demanded in typhoid, the patient requires 41 calories per kilo of body weight, which for a man weighing 150 pounds would make a minimum diet of 3,000 calories per diem. Coleman has worked out the diet, which consists in the main of milk, cream, milk sugar, and eggs, with the addition of small amounts of stale bread or toast, with butter *ad lib.* The daily quantities were about 1½ quarts of milk, 1 to 2 pints of cream, from ½ to 1½ pounds of milk sugar, and from 3 to 6 eggs. The use of each of these remedies is explained and their use, and the reasons for their use. The milk sugar and cream can be given in the form of ice cream, in part at least, or with the eggs in the form of custard. The food has been given at two-hour intervals, except that the patient has not been wakened at night. The greater the variety and the more palatable the dishes, the more contented the patient. Meat and meat juices are prescribed by him in the diet and limited during convalescence. The amount of food will, of course, vary with different patients, but may be calculated on the basis of 40 calories per kilo of body weight *per diem*.

Intradural Tumor of the Cord.—J. Grinker, after remarking on the still sparse number of successful operations for intradural tumor of the cord, reports in detail a typical case in the upper dorsal cord, successfully operated on to the extent of complete restoration of sensation and partial restoration of motion, both of which had been abolished. The case resembles somewhat the typical first case of Horsley, and the tumor was of the same nature—a fibromyxoma. If the diagnosis had been made earlier, before degeneration had occurred in the motor tracts, it is probable that the success would have been complete. The reasons why so few recoveries are thus far recorded, that have been given, are that spinal tumor is not easy to diagnose or localize, and failure of operation usually means death; also the discovery in many cases that the tumor is inaccessible, and, further, that in any case the danger to life during and after operation is very great. While not underestimating these objections, Grinker is still of the opinion that an exploratory laminectomy is to be recommended, even with only a probable diagnosis. The patient should be told that inaction would be almost inevitably fatal. "In spite of the great activity displayed in this branch of surgery during the last ten years, the total number of cases with operations up to date has not exceeded 150. And of this number the percentage of recoveries has only risen in the hands of the most expert surgeons when working conjointly with neurologists."

Vulvar and Vaginal Neuritis and Hyperesthesia.—I. S. Stone calls attention to certain neglected disorders of the genital tract, and especially to certain nerve affections, neuritis, and hyperesthesia of the vulva and vagina, which are not sufficiently recognized by the average practitioner. The patient is generally a neurasthenic or neurotic, and is usually suffering from associated disease, which is often due to impaired function rather than to organic change. There is tenderness and occasional swelling of the parts, and painful micturition. They are usually treated for some slight apparent erosion, and Stone believes that the pain in cases of urethral caruncle is due to this cause, rather than to the caruncle itself. He has often seen such caruncles removed without relief, and says that unless there is associated cystitis the failure is generally due to neurasthenia. It is not always possible at first to distinguish between cases of hyperesthesia and neuritis, but it is comparatively easy if one is accustomed to distinguish these in other parts of the body. The diagnosis between these two, however, is not absolutely necessary, and it is also hard to say just which part of the organs is the seat of the disease. He finds that the sensitive area is usually about the vestibule or introitus. Occasion-

ally he finds it on or near the cervix. Two illustrative cases are reported. When the diagnosis has been once made the treatment becomes a matter of simple attention to the general health of the patient, the use of emollients, or drying powders, and the avoidance of all irritating applications. It should be remembered that any fluid may cause burning and smarting if there is a neuritis, and tender surfaces should be protected as much as possible.

Intestinal Autointoxication and Ear Disease.—J. H. Stucky argues for the recognition of autointoxication from the intestines as a cause of ear, nose, and throat disorders. Since in the eye we may have obliteration of function and toxemia, he asks, why may not we for the same reason have a similar condition in the ear? That we do meet toxemia of the auditory apparatus he says he has frequently demonstrated. In this class of cases we have some disorder of the nervous, digestive, excretory, or circulatory systems that exaggerates a comparatively trivial irregularity of the ear into serious deafness. Labyrinthine hyperemia is often caused by alcohol, gout, rheumatism, and certain drugs, and a hyperplasia of the labyrinthine capsule and certain systemic conditions, like gout and lithemia, due to a toxemia which he has shown to be of intestinal origin, have also a large causative influence. If gout and lithemia can cause ankylosis or trouble elsewhere in the system, why not in this place? He agrees with good authorities that there can be no doubt that the general constitution of the patient furnishes the main basis for the etiology of otosclerosis, and he has often found in diseases of the middle and internal ear and accessory sinuses of the nose, marked evidence of toxemia of intestinal origin, as shown by the excess of indican in the urine, and when this condition was relieved there was marked betterment or entire relief of the symptoms. He does not believe that every functional disease has a structural derangement to account for it. He has seen gastrointestinal disorders severe enough to destroy life without leaving any evidence of inflammatory elements. Imperfect nutrition or overnutrition and defective elimination may produce the toxin requisite for these effects, and the result is the toxemia showing itself in obscure neuroses of the eye, ear, nose, and throat, as well as other evidences of systemic poisoning. He promises in a subsequent paper to give more in detail the specific manifestations of these pathological conditions, the treatment employed, and the results obtained.

The Cause of Pellagra.—C. C. Bass gives an account of experiments made to test the Wassermann reaction in pellagra. The technique followed was the original Wassermann, except that lecithin was used instead of syphilitic liver extract. The hemolytic serum used was sheep corpuscles, serum of sensitized rabbit inactivated, a temperature of 56° C. for thirty minutes, and guinea-pig serum for complement. The patient's serum was inactivated before being tested. All six cases gave strong positive reaction. All the patients gave negative histories for syphilis: three were the mothers and one was the father of healthy children. One of the tests was made on blood taken twenty-four hours after death, and is, therefore, not to be thoroughly relied on. One patient denied eating corn-meal, though the diagnosis of pellagra seemed correct. Since the Wassermann reaction seems to be limited to protozoan diseases except in a few cases of advanced tuberculosis and leprosy, the results of these experiments, so far as they go, would seem to favor the protozoan rather than the corn-meal theory of the etiology of pellagra. The reaction may be of service in the diagnosis of earlier mild cases, and this study adds another disease to be considered in interpreting a positive Wassermann reactions, *i.e.* Bass' results are confirmed by a larger series of experiments.

Tuberculosis.—P. H. Ringer reports a case of renal tuberculosis occurring in a patient after severe exertion in building a house, and terminating in acute miliary tuberculosis within a year. The chronological order of events seems to have been as follows: An old healed apical tuberculosis, only discovered at autopsy; mobilization of the bacilli, probably due to violent physical effort; lodgment of bacilli in the right kidney, with establishment of renal tuberculosis and bladder symptoms; spread of infection to left kidney; breaking down of areas in the right kidney and discharge into a vein, giving rise to general dissemination throughout the lungs, and doubtless throughout the nervous system as well. The special interest in the case is its illustration of the relations of cause and effect in the revival of the disease by immobilization of the bacilli by physical strain, and their temporary halting place in the right kidney before spreading to the body at large.

The Lancet, October 2, 1909.

Hysterical Deafness Treated by Suggestion.—Case reported by P. M. Yearsley and H. E. Wingfield. The patient was a woman of 37 years. Nothing noteworthy was found on examination. The functional tests were somewhat conflicting in their results. Apparently, she was quite deaf. She was placed under the immediate care of Dr. Wingfield, who saw her on nine different occasions. At the first treatment her hearing returned for about two hours after she had left the doctor's office, but her deafness then returned. On the third occasion she said she could hear quite well, but the moment she heard she said she forgot what was said to her. Later, after all the sittings were over, she relapsed into her original condition. The authors comment on the rarity of these cases, but say that suggestion has been known to be successful in some cases, and that the case here considered certainly appears to have been one in which hypnotic treatment would have been successful had not circumstances prevented a longer trial.

Pathology of Lead Poisoning.—K. W. Goadby and F. W. Goodbody discuss the various modes of lead poisoning and the symptoms produced thereby. They conclude that the essential and primary action of lead intoxication is the production of minute and microscopical hemorrhages in various portions of the body, including the nervous system. That the clinical symptoms of lead palsy and its good prognosis when treated early are explainable by the presence of minute hemorrhages in the peripheral nerves. The pressure of these minute hemorrhages in the nervous system also gives an explanation of the varied pathological findings of many previous workers.

The Theory of Vision.—The paper of F. W. Edridge-Green is an elaboration of the points comprised in the following assumptions: (1) that the cones of the retina are insensitive to light, but sensitive to chemical changes in the visual purple. Light falling on the retina liberates the visual purple from the rods and it is diffused with the fovea and other parts of the rod and cone layer of the retina. The decomposition of the visual purple by light chemically stimulates the ends of the cones (probably by the electricity which is produced) and a visual impulse is set up which is conveyed to the brain by the fibers of the optic nerve. (2) That the visual impulses caused by the different rays of light differ in character just as the waves of light differ in wave length. Then in the impulse itself we have the physiological basis in the sensation of light and in the quality of the impulse, the physiological basis of the sensation of color. (3) That the quality of the impulse is perceived by a special perceptive center in the brain within the power of perceiving differences possessed by that center or portions of that center. According to this view, the rods are not at all concerned with transmitting visual impulses, but only with the visual purple and its diffusion.

British Medical Journal, October 2, 1909.

Uncured Rice as a Cause of Beriberi.—W. G. Ellis relates his experience in one of the hospitals of Singapore in regard to the effect on patients of diets of cured and uncured rice respectively, in addition to other foods. The matter was tested out in various ways, and it was proved to the author's satisfaction that uncured rice was the cause of many cases. Certain facts of interest in the general management of beriberi cases are added, one being that the return of the knee jerk in recovering cases may be delayed for years. The rice preferred by the author is that grown in Spain. It is soaked in water for forty-eight hours, the water being once changed, then placed in boilers and steamed (not under pressure) till the grains burst, generally a matter of from ten to twelve minutes. It is then sun-dried and afterwards goes through the mills, being husked in the ordinary way.

Note on Formalin Iodine Catgut.—This method of preparing catgut is preferred by F. J. Steward, who steeps the commercial formalin catgut in small skeins in 1 per cent solution of iodine in water for ten days. This is an extremely simple method, makes a strong suture, is very resistant and smooth, uniform in diameter, elastic, and easy to handle.

A Plea for a More Living Pathology.—The paper of H. Sainsbury is hard to abstract, but interesting to read. The object of an autopsy is not merely to find what lesion a patient died of, but why he died from it. This is perhaps a matter of words, but it is also a change in our viewpoint. We should look at life rather than death. The author does not refer to cases in which the lesion directly incapacitated [illegible] vital [illegible] as a hemorrhage into

the medulla, etc., but rather to fatty, fibroid, caseous, and calcific lesions. Under these latter conditions the end often comes suddenly. Life is an overcoming of momentum against resistance. When an organ partly dies as a cirrhotic liver or kidney, in which a tissue of a lower order replaces true secreting glandular tissue, the new fibroid elements may be said to add themselves to the internal resistance of the body. The attention of the autopsy student should be more directed to the compensatory powers of nature, as that of the heart, for instance, against increased capillary resistance, the vicarious workings of functionally allied parts, anastomotic adjustment, etc. We should determine not only where the body was unsound, but also where it was sound. Now, in doing this we should fall back on the history of the case during life. In such a way we shall learn just how much the damaged organ preserved its functional capacity. We shall endeavor to demonstrate the interaction of living parts. The toxemias will not lend themselves exactly to this associative illustration without the aid of the chemist. Toxemias do not always cause the same symptoms in the same class of disease, *e.g.* a granular kidney may cause coma, convulsions, uncontrollable vomiting, or diarrhea. The disease germ is in a sense *sui generis,* and therefore not capable of placing in the same class with those morbid sequences which we have been considering. It is a cause of disturbance, as a mechanical injury, exposure to heat, the incidence of a poison are causes of disturbance—the disturbance once set agoing, the lines of propagation depend upon the structure of the fabric disturbed. It is the potency of the germ that we want, and we have reason to hold that this potency has less relation to the form of the germ than to the intrinsic qualities of its protoplasm—namely, its powers of elaborating a virus. The germ castigates less as rod or flagellum than as toxin; the morphology of the germ, therefore, should be supplemented, as far as possible, by endeavors to demonstrate the chemical nature of the poison carried and the direction and intensity of its working. The same principles, therefore, will guide us in the demonstration of the germ as of the morbid tissue; we shall aim at exhibiting its dynamics as a toxifier.

Berliner klinische Wochenschrift, September 20, 1909.

Arteriosclerotic Variations in Blood Pressure of the Individual.—H. Engel says that the diagnosis of the early stage of arteriosclerosis stands on a weak foundation, especially as regards to objective symptoms. The increase of blood pressure is of but little value, as it also occurs in heart disease, nephritis, etc. In arteriosclerosis, however, the process is usually not quite symmetrical, more atheromatous patches occurring in one vessel than in another. As the blood pressure is dependent upon two factors, heart strength and arterial resistance, differences in the caliber of different vessels will cause the pressure in the different arteries to vary. Careful comparative blood-pressure observations of the two arms will frequently demonstrate a difference of from 5 to 15 mm. pressure between the two sides in cases of arteriosclerosis. Such a difference is an important diagnostic sign. These differences must, however, be constant, and observed at a number of examinations. A single reading is liable to error. This sign is also of value in differentiating a primary arteriosclerosis from a sclerosis secondary to nephritis, as in the latter case the variation between the two sides does not occur.

Münchener medizinische Wochenschrift, September 21, 1909.

The Inheritance of Syphilis Based on Serological and Bacteriological Researches.—K. Baisch has carried out a series of experiments to ascertain the truth of the facts concerning the inheritance of syphilis. His method consisted in examining the mother, the placenta, and the fetus in cases of miscarriage, both by searching for spirochete and by seroreactions. In all, 140 cases were examined. From the experiments the following conclusions were reached: To ascertain the laws of the inheritance of syphilis the Wasserman reaction alone is insufficient; it must be combined with bacteriological examinations of the placenta and fetus. With negative reaction in the parents an absence of spirochete is also necessary, in a partially macerated fetus, to rule out syphilis. The hemolysis inhibiting substance is not passed through the placenta from mother to child or *vice versa.* The appearance of the hemolysis hindering substance is dependant upon the presence of spirochete in the organism. The cause of premature death and maceration of the child is syphilis in 80 per cent. of the cases. In the other 20 per cent. twists in the cord, malformations, nephritis, or possibly tuberculosis are responsible. The typical habitual abortion during the first four months does not belong to the symptomatology of syphilis. In the neighborhood of 75 per cent. of the mothers of syphilitic infants show either no or indefinite signs of syphilis. If the mothers of syphilitic children give positive reactions, they are truly syphilitic, even if clinically healthy. Also, mothers who give negative serological reaction are in all likelihood infected. Here we are dealing with an inhibitor of the reaction. The Colles' law, which declares the immunity of the mothers of syphilitic children, and Profeta's law as to the immunity of children of syphilitic parents are explained in that the mothers and children are resistant to syphilis because they have been in reality already infected. Colles' law has no exceptions. The best chances for healthy children of syphilitic parents are given by a systematic and energetic course of specific treatment before and during pregnancy.

Investigations into the So-Called Salt Fever and the Chloride Excretion in Infants.—Friberger discusses the results obtained by Meyer and Rietschl in producing a rise of temperature in infants by giving sodium chloride by mouth and subcutaneously. In an attempt to confirm the work he was unable to obtain anything resembling the regularity of results reported by the Berliners, either in healthy or ill infants. Distinctly larger doses of salt were required to cause the reaction when given *per os* than when given hypodermically. Metabolic investigations varied to such an extent that no conclusions could be drawn. It was noticed that the sodium chloride given by injection was excreted more slowly than when administered *per os.* Investigations of the subcutaneous tissue at the site of the injection a few hours later showed a collection of lymphocytes, large mononuclears, and some polymorphonuclear cells. It is therefore possible that the salt fever is due to the mechanical trauma at the point of injection, and not to any constitutional action of the salt.

Study of Prowazek's Trachoma Bodies and Their Diagnostic Significance.—Grüter investigated fifty cases of trachoma and many others of acute or chronic follicular catarrh, some springtime catarrhs, and a few others eye diseases and normal patients. Of the 50 trachoma cases, 31 showed the picture of the acute disease, with profuse discharge. In 21 of these Prawazek's bodies were found. The number varied greatly in individual cases. Chronic cases treated with astringents gave consistently negative results. The bodies were found most frequently in the cases at the height of the disease, with profuse discharge. In nine acute untreated cases the results were negative. Examinations of the fibrous trachomas and the cases without trachoma were in every case negative. An absolutely definite indication is given only in those cases in which the Prawazek's bodies are found. A negative finding is not definite.

Scoliosis Following Infantile Paralysis.—M. P. Desfosses advances the theory that the cause of scoliosis is not osseous, but is due to a primary atrophy of the muscles of the back, accompanied by atrophy of the vertebræ. One of the principal causes of scoliosis is infantile paralysis, affecting the muscles of the thorax and lumbar region. The musculature of the back is very complex, very difficult to study in its different groups, and hence not well understood. There is a functional independence of the dorsal and lumbar regions. Infantile paralysis affecting the thoracic region will produce a scoliosis with the convexity toward the healthy side, while paralysis affecting the lumbar region will give a curvature with convexity toward the paralyzed side. Consequently, a paralysis of dorsal and lumbar region at once will give a double curvature.—*La Presse Médical.*

Difficulties of a Second Cesarean Section Repeated in the Same Woman.—A. Brindeau enumerates the possible complications of cesarean section that may render a second section more difficult and dangerous in the same woman. Several operators have repeated the operation one or more times in the same woman. The difficulties are hernia and eventration which rarely occur; adhesions; thinning of the uterus at the point of the cicatrix; and adhesions of the placenta to the cicatrix. Adhesions are quite frequent; they may be so slight that they are easily separated, or so firm that it is impossible to enter the uterus without opening the peritoneal cavity. The intestines may be involved in the adhesions, or they may simulate ventrofixation. The uterine wall may be so thinned and friable that the removal of the uterus becomes necessary. Adhesion of the placenta over the cicatrix is a rare complication.—*L'Obstetrique.*

Book Reviews.

Semmelweiss. His Life and His Doctrine. A Chapter in the History of Medicine. By Sir William J. Sinclair, M.A., M.D.; Professor of Obstetrics and Gynecology in the University of Manchester, Manchester; at the University Press, 1909.

While something of the story of Semmelweis's struggle to convince an unbelieving generation of the true nature of puerperal sepsis is known to most medical men, the full greatness of his intellect and tragedy of his life are probably but seldom appreciated. The book in which he finally collected the evidence of many years' observation and experimentation, and which was his culminating attack on those who opposed his doctrines with a rancor that is hard to comprehend to-day, had until very recently long been inaccessible even in German. Under the auspices of the Hungarian Academy of Sciences the collected works of Semmelweis were republished in 1905, but until the appearance of the present volume English readers have had little or no opportunity to familiarize themselves with the actual contents of his writings, and in particular of the most important, entitled "Die Aetiologie, der Begriff, und die Prophylaxe des Kindbettfiebers," a volume of over five hundred pages published in 1860. Sir William Sinclair has fulfilled the office of biographer and commentator with much judgment, and tells the story of Semmelweis's life and epitomizes his labors with sympathy and understanding. That he ascribes what is perhaps undue importance to the part played by some of his own compatriots in the final triumph of the teaching of the Hungarian obstetrician is natural enough, but it is a little hard to forgive the somewhat disparaging manner in which he speaks of the efforts of Oliver Wendell Holmes in the same direction, though the author's phrase that "If Semmelweis could have written like Holmes his 'Aetiologie' would have conquered Europe in twelve months" is a gracefully expressed tribute. For medical men of all ages no more inspiring reading can be suggested than the well-known lives of Pasteur, Helmholtz, and Huxley, and the present life of Semmelweis may well be added to this list.

The Errors of Mind Healing. Compared with the Miracles of Christ and His Disciples in the Healing of the Afflicted, as Viewed by a Physician. By Reinhold Willman, M.D. St. Joseph, Mo.: The Advocate Publishing Company, 1909.

The clergy and laity having entered the medical domain as healers, the author of this small publication, apparently in self-defence, has carefully reviewed the Scriptures and finds, from that authority at least, that they have not a leg to stand on. His book is replete with Scriptural quotations to this effect, which he intimates will be of service to the busy doctor whose knowledge of the Scriptures, unfortunately, may not be so profound as that of his materia medica. They may also be perused with profit by the lay reader. The author's descriptions of disease, however, embodied in the book seem to us an unnecessary part of it for the medical reader, and altogether too technical for the lay reader. Doubtless, also, there are some weaknesses in the author's coat of mail which the Knights of the Emmanuel movement, and of Eddyism, etc., will disclose to him when they take up the weapons of defence.

Genetic Psychology. An Introduction to an Objective and Genetic View of Intelligence. By Edwin A. Kirkpatrick, B.S., M.Ph., Author of "Fundamentals of Child Study." New York: The MacMillan Company, 1909.

Both the special student of psychology and the general reader fond of studying animal behavior will find this book of absorbing interest. It is based on the theory that "simpler forms of minds have developed into more complex forms, and the simpler feelings and ideas into those of a higher type." The beginnings and growth of consciousness from the lowest species of animal to the highest races of man are here studied, not so much with a view simply to compare and grade the intelligence of different species and races, as to ascertain thereby "what changes have taken place in the evolution of mind in the race, the order of such evolution, and the relation to each other of different types of mental activity." It is a new science. Genetic psychology begins with structure and behavior. It finds in the various organisms certain characteristics that are common to all; they are composed of protoplasm, they possess activity, and they have conscious states. The third common characteristic of all organisms, however, viz., conscious states, can only be inferred in animals from structure and behavior, "when their behavior has the same characteristics as behavior in ourselves that is accompanied by consciousness." Space does not permit of a general analysis of the book. The above gives some idea of its scope. Mental development in individuals is not discussed extensively but is left, the author states, for a subsequent volume.

Physiology and Pathology of the Urine. With Methods for Its Examination. By J. Dixon Mann, M.D., F.R.C.P., Physician to the Salford Royal Hospital; Professor of Forensic Medicine in the University of Manchester. With illustrations. Second edition, revised and enlarged. London: Charles Griffin & Co., Limited, 1908.

When the first edition of this work appeared, about five years ago, it was at once recognized as one of the very best books on the urine. At the same time it was found to differ from practically all of its competitors in that, while giving all necessary descriptions for ordinary clinical methods of investigation, it also supplemented these with details of the more elaborate processes required for research investigations. The present revision has been most thorough, much of the book having been rewritten in the light of modern advances in biological chemistry. Concise accounts are given of the most recent investigations in metabolism (so far as it affects the urine), and ample references are added, so that the reader may consult the original papers. Many new and important methods are described, and several substances which are only occasionally present in the urine are dealt with in this edition. This volume is, so far as we know, the most thorough and advanced treatise on the urine, and is confidently recommended to all who desire something more than a mere guide to uranalysis or a help to diagnosis.

Mental Medicine. Some Practical Suggestions from a Spiritual Standpoint. Five Conferences with Students at the Johns Hopkins Medical School. By Oliver Huckel, S.T.D.; Graduate University of Pennsylvania; Student at Oxford and Berlin Universities; Pastor Associate Congregational Church, Baltimore. With an Introduction by Lewellys F. Barker, M.D., Professor of Medicine in Johns Hopkins University. New York: Thomas Y. Crowell & Co., publishers.

This little volume, written by a clergyman, offers a safe and sane exposition of the ground on which the minister and the physician may cooperate in caring for the sick and afflicted, while at the same time it aims to elucidate many of the methods of self-treatment, independent of all "passing movements," along those lines of mental hygiene and spiritual control which experience has proved efficacious and which seem most likely to be of permanent value. The new cooperation of church and medicine really began with the physicians, the author states, and he says, further, that "the largest responsibility and development of the work must be in the physician's hands, the minister's part, when required, being merely cooperative, but nevertheless important." Psychotherapy he considers a new adjunct in practical theology, but its general practice in connection with religious institutions he condemns. The extravagancies and inconsistencies of Christian Science are avoided, yet cheerfulness, optimism, "don't worry," and calmness are constantly preached. The general topics of the five conferences mentioned in the title are as follows: "Mental and spiritual factors in the problems of health"; "The therapeutic value of faith and prayer"; "Possibilities in the control of subconsciousness"; "Some elements in morbid moods," and "The higher factors in the reeducation of the nerves." These conferences were really lectures to medical students, under the auspices of the Y. M. C. A., but they are presented in a clear and popular style, and apparently bear medical indorsement.

Aseptic Surgery. By Charles Barrett Lockwood, F.R.C.S.: Surgeon to St. Bartholomew's Hospital. Third Edition. London: Henry Frowde and Hodder & Stoughton, 1909.

This is not a text-book on surgery, but it will form a very valuable companion to any work on the subject. It contains notes of the author's demonstrations in the wards and operating theatre. They were originally intended to help the house surgeons, dressers, and nurses in getting ready the instruments, dressings, and materials, themselves and the patients, and also to help in attaining an aseptic environment. The methods are dealt with as simply and briefly as possible; at the same time the author makes very clear the reasons upon which the various details are based. Those who are acquainted with the author's other works will know what to expect in this, and those who are not so acquainted will find this volume a suitable introduction to writings which are at once authoritative and interesting.

Society Reports

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Twenty-second Annual Meeting, Held at Fort Wayne, Ind., September 21, 22, and 23, 1909.

The President, Dr. William Henry Humiston of Cleveland, Ohio, in the Chair.

After an address of welcome by Dr. H. A. Bruggemann, president of the Fort Wayne Medical Society, which was responded to by Dr. James Edgar Sadlier, Poughkeepsie, N. Y., the reading of papers was begun.

Advantage of the Combined Intra- and Extraperitoneal Ureterolithotomy for the Removal of Stones from the Lower Ureter.—Dr. Ernst Jonas of St. Louis said the proper operation for the removal of stones from the lower ureter (brim of the pelvis down to the bladder) must not only offer the simplest technique for the removal of the stones, but must permit an examination into possible etiological factors. The above condition might produce ureteritis, periureteritis, or increase the normal bend of the ureter to such a degree that it became kinked. As a result, small kidney stones might be arrested or increased in size in the ureter or a stone might be primarily formed in the ureter and remain there *in situ*. The only operation which enabled us to remove these causes for ureteral stone, and thus prevent recurrence of the stone, was the combined intra- and extraperitoneal ureterolithotomy.

Dr. John Young Brown of St. Louis said he had frequently been impressed with the fact that the appendix might be removed when macroscopically there was no indication that it was at fault. He did not know of any condition that was more difficult to differentiate than certain forms of chronic appendicitis and stones in the ureter. In the last year he had had nine cases in which the differential diagnosis was exceedingly difficult. In one case he found a shadow of a supposed stone in the ureter, but which proved to be a concretion in the appendix. He had another case sent to him with a diagnosis of appendicitis. He found blood in his urine. He skiagraphed the patient, and found a shadow which seemed to indicate a stone in the ureter. He did the combined operation, and not only removed a stone from the ureter, but found the appendix adherent to the right ureter, and he was inclined to believe that the condition around the appendix had a good deal to do with the development of the stone in the ureter.

Dr. Alexander Hugh Ferguson of Chicago said that the procedure varied with the side of the body. If the colicky attacks were on the right side, we should think of the appendix, and there was an indication for opening the abdomen. If the attacks were on the left side, and the patient was a man, there was no indication for opening the abdomen to remove such a stone, because it could be done more safely without the complication of an additional cut in the peritoneum. In women these stones could be reached through the bladder, when they were low down, depending upon their size, etc.

Dr. H. W. Longyear of Detroit wanted to say a word with reference to the differential diagnosis between ureteral pain and pain in the appendix. He had seen many operations on the appendix that were not justified and were prompted by the pain in the ureter under a mistaken diagnosis. In these cases there were storms of uric acid coming from intestinal toxemia. Large quantities of uric acid were thrown out from the kidney, passed down the ureter, causing inflammation of the ureter and pain, and when on the right side it was apt to be mistaken for appendicitis, and the temperature arising from the toxemia simulated appendicitis still more. These cases should be examined very carefully, so that this mistake might be avoided.

Dr. Miles F. Porter of Fort Wayne recalled a recent case in which there was typical ureteral colic and anuria. The patient had had for years a clear case of Bright's disease. In this case, as the subsequent post-mortem revealed, there was no calculous formation whatever. Moreover, the case illustrated the value of the skiagraph. The skiagram showed no ureteral calculus.

Dr. C. C. Frederick of Buffalo said there was no question but what there were many cases of pain in the right ureter for which the appendix in the past had been blamed and removed. He had seen a number of cases of this kind in his own practice, as well as in that of others, and he had been forced during the last three or four years to a realization of the fact that pain upon the right side on pressure deep down over McBurney's point did not always mean that a patient had chronic appendicitis, and he believed in many instances the trouble was in the ureter.

Dr. M. I. Rosenthal of Fort Wayne said that some four or five years ago he read a paper in which he reported a case of ureteral stone, complicating appendicitis. This was the only case he had then seen of ureteral calculus complicating appendicitis. Since then he had been careful to investigate the right ureter in operations for appendicitis, and he had not met with another such case. This would indicate that this complication was not frequent, although it did occur.

Dr. Hugo O. Pantzer of Indianapolis stated that in operating on a case of gangrenous cholecystitis, with a discharge of the contents of the gall-bladder into the peritoneal cavity, he was led to examine lower down, and found at the bifurcation of the abdominal aorta a number of stones which were hard and fixed to the feel. He removed one of these stones and found it to be a calcareous degeneration of tuberculous glands. The history of the case would seem to show that this woman, fifty years of age, had in early life a tuberculosis appertaining to this lower part.

Dr. John W. Keefe of Providence said that in one case he introduced a wax-tipped catheter and found markings on the wax. The catheter was introduced in the pelvis of the kidney, and on the day the patient was to be operated on he again passed the wax-tipped catheter to the kidney, made his incision in the loin, and found the catheter in contact with the stone in the kidney, showing that the first markings on the wax were correct.

Dr. K. I. Sanes of Pittsburg cited a case illustrating the difficulty of making a differential diagnosis between ureteral trouble and appendicitis, saying that this difficulty was not only met with in chronic, but in the acute cases of appendicitis.

The Surgical Treatment of Tumors of the Bladder.—Dr. John W. Keefe of Providence, R. I., said that the surgery of tumors of the urinary bladder was in a transitional state. The last word had not been said. While the perineal and vaginal routes had been abandoned by most surgeons, some now preferred the urethral, while others the suprapubic (extraperitoneal), and yet others the abdominal intraperitoneal route, or a combination of both. The medical treatment of tumors of the bladder was often prolonged until surgery was of no avail. The suprapubic operation was the method most frequently employed at the present time, although the abdominal intraperitoneal route had many points in its favor. It gave one plenty of room in which to operate, and one could see exactly where to excise or cauterize the growth. The author summed up as follows: "1. Cystoscopic examination to determine the site and character of the tumor. 2. Ureteral catheterization. The catheter is left in the ureter as a guide during the operation. 3. The high Trendelenburg position. 4. Opening the abdominal cavity to locate the growth accurately, to aid in separating the peritoneum from the bladder over the site of the tumor,

and also to allow plenty of space in which to operate. 5. An assistant locates the growth in the bladder with a cystoscope during the operation. 6. Closure of the peritoneal cavity, the growth now being removed through an extraperitoneal wound. 7. Immediate suture of the bladder. 8. The patient voids urine or is catheterized at frequent intervals."

Dr. C. C. Frederick of Buffalo had operated upon three cases for malignant disease of the bladder. In the first case the tumor was located in the posterior wall of the bladder, in a woman, just back of the trigone. Following the removal of the tumor she made a good recovery, went on for two or three years, and he supposed was going to get perfectly well. But she had a recurrence to the left side of the original scar. She did not have a secondary operation, and eventually died of anemia.

Dr. Ernst Jonas of St. Louis said that with the cystoscope we were usually able to settle definitely the size of the tumor, but not its character.

Dr. M. I. Rosenthal of Fort Wayne related a case of cancer of the uterus which involved the bladder. In this case he did a radical operation for the removal of the uterine cancer, also removing a piece of the bladder in a woman fifty-eight years of age. She was still in fairly good health.

Operative Enlargement of the Pelvis of the Non-Pregnant Woman.—Dr. John N. Bell of Detroit stated that the operation of pubiotomy as a means of effecting delivery in moderately contracted pelves, where a trial at labor had taken place and efforts to deliver with the forceps had failed, was now an established operation. The writer did not wish to be placed in the position of advocating this procedure in preference to premature delivery at the eighth month, or primary cesarean section at term, but for discussion assumed that the operation was a justifiable one, and to that end presented arguments tending to such a conclusion.

Dr. E. Gustav Zinke of Cincinnati said he could not see what we could possibly gain by attempting to enlarge the pelvic ring in the non-pregnant state in the hope of facilitating labor at the end of term. The skiagraph presented by the author showed very little space gained in the line of separation of the bone by the pubiotomy that was performed. From what he had learned in listening to this paper he had received no inducement to adopt the procedure mentioned in the paper.

Dr. Albert Goldspohn of Chicago pointed out that the chief objection to this procedure was that when such a separation in the pelvic ring was made at the time of childbirth a very much greater separation of this bone occurred during the transit of the child, a separation of two inches occurring in extreme cases.

Dr. Ralph Waldo Lobenstine of New York could not see any possible advantage in doing this operation, with all due respect to the author. With the test of labor in a pelvis that would allow a baby to go through, with only a gain of one centimeter by pubiotomy, the baby would pass through without such an operation. In this particular type of pelvis, justominor pelvis, the most surprising results occurred without any operation, where we had an external conjugate of seventeen centimeters and the other measurements corresponded, because we got marked flexion of the child's head, whether we were dealing with an exterior or posterior position, this flexion permitting the head to be driven out through the justominor pelvis.

Chylous Cyst of Iliac Mesentery.—Dr. Charles E. Congdon of Buffalo reported a case in a boy six years old, on whom he operated, making the usual incision as for an appendix operation. On opening the abdomen a tense cystic tumor presented. The tumor resembled an ovarian cyst, but was more elastic, and it had the color of omentum. On enlarging the abdominal incision, the tumor was found to be the distended iliac mesentery, beginning about eighteen inches above the ileocecal valve. It was ovoid, with a valley lodging the bowel, and dwindling toward the posterior mesenteric attachment into a wedge-shaped separation of the mesenteric layers. The ileum corresponding to the mesenteric cyst was compressed into a white cord, while above it was distended. After incising the cyst about two quarts of milky fluid gradually drained away, there was a reduction of tension, allowing the vessels of the bowels to fill and the pallor disappear, while the relief of pressure caused the lumen of the bowel to become patulous, and the distention above passed away. The cyst was sutured to the abdominal incision, and was drained by a rubber tube held in place by a stitch, otherwise the abdominal incision was closed with through-and-through sutures of silkworm gut. Relief was almost immediate.

Dr. Miles F. Porter of Fort Wayne related a case in which, upon opening the abdomen, he found he had a volvulus to deal with, but in unraveling the volvulus he found it was due to what proved to be chylous cysts of the mesentery. He made a resection of the gut, but the patient died from the continued progress of the peritoneal infection.

Dr. Ernst Jonas said, in regard to intestinal obstruction produced by chylous cyst, he wished to emphasize the importance of not giving medicines with a view to relieving such intestinal obstruction when it was caused by the cysts. We should never try at this stage in surgery to remedy ileus by medicines given by mouth, as it was impossible to accomplish anything by them in any case of true obstruction.

Dr. Alexander Hugh Ferguson had never encountered a case of chylous cyst of the mesentery in his surgical experience, and he thought it was well in discussing such papers to point out the relative infrequency of these cases.

President's Address.—President Humiston discussed the Gilliam operation for retrodisplacement of the uterus, saying he had employed it in a large number of cases, with gratifying results.

Dr. Hugo O. Pantzer of Indianapolis read a paper in which he discussed some phases of puerperal sepsis, and reported a number of cases.

The Embryo Abdominal Surgeon with Inadequate Preparation and Knowledge.—Dr. J. Henry Carstens of Detroit said that in every large center, say the county seat, there ought to be a hospital and a surgeon, or surgeons, who have been prepared by a thorough course of hospital training, and they should limit their practice to surgery, and not compete with their colleagues. State boards should take up this question and issue a special license to those who wanted to practise special lines of surgery. In conclusion, he would say: "1. Abdominal surgery by embryo surgeons should be prohibited. 2. Thorough preparation in a proper hospital as an assistant for one year should be the minimum requirement. 3. Those who want to practise abdominal surgery should furnish evidence of qualification. 4. Nothing herein contained should prevent any general practitioner from doing abdominal surgery in an emergency."

When Shall We Operate for Ruptured Ectopic Gestation?—Dr. R. R. Huggins of Pittsburg said it was his habit to delay operation for a few hours in ruptured tubal pregnancy when all signs pointed toward a temporary cessation of the hemorrhage. In the vast majority of instances the hemorrhage had ceased temporarily when the consultant was called. The length of time which had transpired since the hemorrhage began varied. The attending physician would usually say that when he first saw the patient she was in a state of collapse, but that now, which was several hours later, there was some improvement. The pulse was slightly better, the air hunger

had disappeared, etc. A pulse, which was hardly perceptible when he first saw the patient, was now easily counted, and was of better volume. Reaction had already begun. The formation of a clot in the pelvis had plugged the bleeding point and the force of the blood stream was now so low that for a time, at least, there was little danger of recurring hemorrhage. Who could say, and by what means were we to determine, how long this period of apparent rescue from death by nature's efforts might continue? We all knew, owing to the increased blood supply to the pelvic organs during pregnancy, how profusely a small wound made in the uterus, or, in fact, in any part of the pelvis, would bleed. Without careful consideration of the above demonstrated facts, experiments upon animals in the study of this subject were of no practical importance. It was irrelevant to compare hemorrhage from other parts of the body to that which occurred from the torn vessels of a congested pregnant tube. In five or six per cent. of the cases of ruptured tubal pregnancies the hemorrhage was tremendous, and the symptoms correspondingly grave. The patient was pulseless and usually restless, with the anxious look so characteristic of extreme hemorrhage. The blanched mucous membranes and deathly pallor indicated the gravity of the condition and at once suggested the diagnosis. Recent papers advocating delay in operation had served an important purpose, because they had emphasized the fact that the patient usually rallied from the primary hemorrhage, and that it was unnecessary as a rule to operate while the patient was in extreme shock. It was undoubtedly true that in a large percentage of the cases a few hours could be well spent in allowing the patient to react so that operation would be attended by less danger. That it could be postponed indefinitely without great risk to the patient had not been true in the speaker's experience. It was unnecessary to dwell on the dangers of peritonitis, intestinal obstruction, and prolonged convalescence, which would result occasionally if operation was indefinitely postponed.

Dr. H. W. Longyear of Detroit said there should be no hesitation on the part of the surgeon in regard to the necessity of operating immediately in cases of recent ruptured tubal pregnancy.

Dr. Hugo O. Pantzer of Indianapolis stated that standing, as we did in this class of cases, oftentimes in the presence of doubt, where life was menaced, we could not decide otherwise than to chance it, with the doubt in favor of an operation.

Dr. Wm. H. Humiston of Cleveland said that this was an important paper, especially after the information had been given out from other sources that in a large majority of cases we could delay operation, and that perhaps an operation might not be necessary. Delay was dangerous. There should be very little trouble in making a diagnosis of ruptured ectopic pregnancy. If the rupture was sufficient to cause shock, one could not tell whether the shock would be overcome or not, and he did not hesitate to operate upon all of these cases that came into his hands, whether the patients were in shock or not.

Dr. Thomas B. Noble of Indianapolis thought it was bad teaching to advise delay in operating on cases of ruptured ectopic pregnancy. When Dr. Robb advocated procrastination, he said that some women would die as the result of such teaching. He subscribed *in toto* to the advice given by the author of the paper, and affirmed that these cases should be operated on immediately.

Dr. A. B. Miller of Syracuse, N. Y., said we should not procrastinate in operating upon these cases of ruptured ectopic pregnancy promptly. In over a hundred cases operated on immediately, he had lost only three.

Dr. John Young Brown of St. Louis had seen quite a number of cases of ectopic pregnancy, and he had not been able to figure out from this experience why gynecologists should differ as to the proper time to operate on these cases. With our modern methods of combating shock, and particularly by the use of salt solution by hypodermoclysis and by the method which Andrews had accentuated in the treatment of gunshot wounds, where the hemorrhage was severe, viz., buttonholing the upper abdomen as soon as it was opened, and starting the salt solution to flow immediately upon the opening of the abdomen to combat shock, if not for irrigation, a large majority of these patients could be saved by prompt action.

Dr. Albert Goldspohn of Chicago said that of something like eighty cases of ectopic pregnancy he had dealt with in one way or another he had only known of two patients to die from this affection who were not operated on.

Dr. C. C. Frederick of Buffalo had operated on about 130 or 140 cases of ectopic pregnancy in his city. Five per cent. of these had been rapidly bleeding cases, and the other 95 per cent. were cases in which rupture had taken place, and there were symptoms of recurrent bleeding extended over a period of two, three, four, or five weeks, or even six months. He had operated on women who had recurrent hemorrhages five or six months after the primary rupture. He recalled one case in which hemorrhage stopped; the woman did not have another rupture, and she was not operated on. All things considered, he was in favor of early operation in cases of ruptured ectopic pregnancy. He believed we should insist on stopping hemorrhage in these cases, as well as bleeding, which might take place in any other part of the body, namely, by tying the bleeding vessel and stopping the hemorrhage.

Dr. M. I. Rosenthal of Fort Wayne said it had been his practice to operate on these cases of ruptured ectopic pregnancy as soon as the diagnosis was made. In all of the cases that he diagnosed early and operated on, there had been no deaths, but in those that were operated on late he got a mortality in each case.

Dr. E. Gustave Zinke said it was just as wrong to say that every case of ectopic gestation must be operated on as it was that every case of this nature did not need operation. There were patients who recovered without operation. This should not be forgotten. The members probably knew of instances where operation had been proposed, with counsel and without counsel, was refused by the family, and patients had recovered, and they had the laugh on the operators. He agree dwith Dr. Robb, and said he must protest against operating in every case of ruptured ectopic pregnancy.

Dr. J. Henry Carstens of Detroit said if a woman was suffering from an internal hemorrhage, as that from a ruptured ectopic pregnancy, she ought to be operated upon promptly. He believed in operating on these cases promptly and arresting the hemorrhage. If he did not do it, he said, he could not sleep very well.

Dr. John Young Brown of St. Louis described a case in which there was an artificial anus following an operation for intussusception. In this case there was complete occlusion of the large bowel for three years. He described the method of restoring its continuity.

Rupture of the Uterus.—Dr. Ralph Waldo Lobenstine of New York presented a study based on seventy-eight cases treated at the New York Lying-in Hospital. He said that ruptures of the uterus during labor might be divided into complete and incomplete ruptures of the vaginal vault. Of the 78 cases in the series, there were 46 complete ruptures, 29 incomplete, and 3 ruptures of the vaginal vault. The common location for the rupture was the lower uterine zone. There were two fundamental types, the longitudinal and the transverse, but there was often more or less fusion of these types. In the list there were 26 that probably started as the vertical type,

and 20 as the transverse. Of the 26 longitudinal tears, 18 occurred on the left side, 6 on the right, and 2 near the midline. Of the 20 transverse ruptures, 13 occurred on the anterior wall and 7 on the posterior. Of the 46 cases treated in the hospital, there were 3 cases of rupture at the uterovaginal junction in these series. Such ruptures were seen most frequently as the result of transverse presentation and of trauma due to faulty instrumentation. The posterior vaginal vault was injured more frequently than the anterior. The spontaneous ruptures were due to a tremendous distention and stretching of either anterior or posterior vaginal vault. The pelvic contraction was usually of high grade.

Calcareous Degeneration of the Fibroad Uterus.—Dr. Walter B. Dorsett of St. Louis read a paper on this subject and presented the specimen. On the opening of the abdomen the tumor was found lying loosely in the pelvis and unattached. On grasping the mass the operator was reminded of the sensation usually imparted in the handling of uterine fibroids with a long pedicle. A supravaginal amputation was done, and the abdomen closed within a few minutes. The patient made an uninterrupted recovery, and left the hospital within eighteen days, well, and relieved of her distressing symptoms. The ligation of the renal artery of the rabbit by Litten, and his subsequent discovery of deposition of calcium salts in the renal tubules, probably proved that the true etiology of calcareous deposits lay in a retrograde process, due to deficiency of the blood supply. It could readily be seen that during the normal atrophic changes in the uterus, due to decreased determination of blood toward the uterus, degenerative changes were apt to occur.

Dr. J. Henry Carstens said that some thirty or more years ago a woman came to the dispensary with fibroid tumors. At that time they did not operate on these tumors so frequently as they did to-day. She was not operated on then. About five years ago she presented herself with three tumors which were jammed in the pelvis, causing obstruction of the bowels and bladder. He operated on her, removing one tumor about six inches long and four inches in diameter. These tumors were so hard that he could not cut them open, but had to split them with a hatchet to show the calcareous deposits. No matter how long these cases were allowed to go, these tumors either underwent calcareous degeneration or became malignant, so on general principles all fibroid tumors ought to be removed.

Dr. Hugo O. Pantzer reported a case which was similar in every respect to the one related by the author of the paper.

Ovarian Pregnancy at Term.—Dr. Walter C. G. Kirchner of St. Louis reported a case of extra uterine pregnancy at term. The clinical symptoms were those associated with tubal pregnancy. At a later stage the patient had the usual symptoms attending uterine pregnancy at term. The tumor mass originated in the right ovarian region, and as pregnancy advanced the tumor was pushed toward the left side. The patient felt fetal movements about the fifth month of pregnancy. The condition was complicated by prolapse of the uterus with pronounced edema of the cervix. The patient was submitted to operation, and on doing a laparotomy a cyst-like tumor was delivered through the abdominal opening. The mass resembled an ovarian cyst, and contained the fetus. This was found to be full term and well developed. It was easily resuscitated, and it was in good health. The tumor mass was complicated by omental and intestinal adhesions. The appendix was adherent and appendectomy was performed. The left tube was free. The right tube was incorporated with the outer surface of the gestation sac. Ovarian ligament was connected with the gestation sac. The sac originated in the right ovarian region, where a broad pedicle had formed, which was ligated and severed. In this region also the main blood supply was obtained. The gestation sac contained the placenta and fetal membrane. The placenta was not associated with either tube, and was free in the abdominal cavity. It occupied a central and anterior position in the gestation sac. The diagnosis, ovarian pregnancy, was based on the presence of the uteroovarian ligament, the normal condition of both tubes, the location of the tumors, and the microscopical evidence of the examination of the gestation sac.

Dr. E. Gustav Zinke said ovarian pregnancy was a very rare thing, and he was glad they brought before them a case which left no doubt in their minds as to its real character. It was remarkable what nature would not do under these circumstances, when the ovum was implanted ectopically. The most frequent cases of ectopic gestation which go to full term were those where the tube held out to the last. It was comparatively rare, it was true, but these were the cases in which there were no adhesions between the abdominal viscera and the ectopic gestation sac. The next in frequency was the ovarian, but here very often rupture took place because of the brittle character of the ovarian tissue. There was another variety of ectopic gestation which went to term, but which was the rarest of them all, and that was in cases of tubal rupture, or in tuboovarian pregnancy rupture took place sufficiently to permit the amniotic sac, with the decidua reflexa, which was formed under these circumstances, to escape into the abdominal cavity. Here the placenta continued to grow within the tube and ovary, as the case might be. Sometimes it made its way outside of the structures and implanted itself on the pelvic wall. Occasionally it happened that the membranes were broken because of the movement of the fetus, and then the fetus was found free in the abdominal cavity.

Dr. Ernst Jonas said he recalled a case operated on by Dr. Tuholske when he was assisting him, where in the second month of pregnancy the entire ovum was swept away from its seat of implanation in the right tube into the free abdominal cavity, implanted itself in the region of the liver, changed the liver tissue, the peritoneum covering the kidney, and parietal peritoneum to such a degree that it was able to change these tissues to true decidual tissue. The pregnancy went on to term and the child was removed at the end of pregnancy alive. The month died twelve hours after the operation. He did not know at the time why she died. The specimen which he had in his possession showed it would have been impossible to have removed the placenta by force from these organs.

Dr. A. B. Miller said that a specimen of an ovary which contained an ovum perhaps of two months' development had been recently placed in the pathological museum of his college at Syracuse. The case was operated on by a neighboring surgeon, he supposing he was simply dealing with an ovarian cyst. The patient came to him complaining of more or less pain, and on examination there was a small globular mass found in the pelvis. Without taking the history of the patient as to the possibility of this being a pregnancy the woman was operated on, the ovary removed and found to contain this small embryo.

A Study of Four Hundred and Forty Operations on the Appendix, with Remarks.—Dr. Edward J. Ill of Newark, N. J., deplored the late diagnosis and the too frequent use of the hypodermic syringe; but for these the general results would be much better. Among the 440 operations 40 per cent. were males, 60 per cent. females. In 81 women the appendix was removed incidentally, while other surgical conditions prevailed and many were shown to be normal by the pathologist. He deplored the frequency with which the appendix was removed simply because the abdomen was opened, and believed that no operation should be done except for the express purpose

of removing symptoms of disease for which the patient sought our advice. Any prolongation of the operation might add to the patient's danger and certainly to his discomfort during convalescence. The youngest person operated on was five years old and the oldest one was sixty-five years old. Forty-three per cent. were suppurating cases. Among the 189 septic cases there was a localized abscess in 109; there was diffuse suppurative peritonitis in 70; what seemed to be a general peritonitis was recorded in 8 cases; and 2 cases had septicemia. The total number of deaths was 32, or 7.2 per cent. Increased experience showed a marked reduction in the death rate. Thus in the first 100 it was 18 per cent.; in the second 100 it was 6 per cent.; in the third 100 it was 5 per cent., and in the fourth 100 it was 3 per cent. The total number of deaths in the non-suppurating cases was 2, or 0.8 per cent. The percentage of deaths in the suppurating cases was 14.3 per cent. Late and hopeless cases accounted for this high death rate. An interesting fact in the death rate was the personal one in the after treatment. Thus in 198 cases that were looked after personally by the writer, the death rate was 3.6 per cent., while in 185 cases looked after by the attending physician the death rate was 10.3 per cent., or nearly three times as great. The death rate of the diffuse suppurative peritonitis was 10 per cent. The writer had collected from various hospital reports throughout the country 7,833 operations for appendicitis. The death rate from the non-suppurating cases was 3.7 per cent., while the suppurating cases showed a death rate of 26 per cent. The author was never obliged to reopen the abdomen for late symptoms or adhesions. He advised removal of the appendix in all cases if it could be done in a reasonable time, depending on the condition of the patient. He urged the use of absorbable suture material in all septic cases. He had used most of the techniques recommended for the removal of the appendix, but had always returned to the cautery above the ligature and the purse-string suture. He insisted that much mischief had been done by not draining septic cases. In these cases he had adopted the right lateral semiprone posture in such a way that the opening in the abdomen was in the most dependent part of the peritoneal cavity. The drain could thus be brought out through the upper end of the incision, thus reducing to a minimum the danger of hernia, of which he had seen less than 1 per cent. in his cases, and this also did away with the stab incision in the loin. The position was kept up for twenty-four hours.

A New Point in Diagnosis Between Appendicitis and Tubal Diseases.—Dr. Robert T. Morris of New York said that hypersensitiveness at the site of the right group of lumbar ganglia indicated that the appendix alone was the center of irritation. Hypersensitiveness of both right and left groups of lumbar ganglia indicated that some pelvic structure was the center of irritation. In cases in which there was a question if the appendix or some pelvic structure was causing local or reflex disturbance, they could commonly make a differential diagnosis at once by making deep pressure over the sites of both groups of lumbar ganglia and noting whether these groups or only the right group were sensitive to an important degree.

Is the Routine Exhibition of the Preoperative Purge Defensible?—Dr. Edwin Walker of Evansville, Ind., read a paper on this subject in which he drew the following conclusions: Purgatives could do harm and should be given only when indications were clear. The profession should abandon the slipshod, routine methods now in vogue and should teach the laity, both by precept and example, the evils of the purgative habit. The practice of purging all patients before surgical operations was unnecessary and injurious; they were made more uncomfortable, were weakened, and the condition of the intestinal canal was not rendered more favorable, but, on the contrary, germ activity was stimulated, just as it was in enteritis, increasing the probability of infection when the gut was opened and there was, in addition to this, more postoperative tympany. A diet of digestible food for twenty-four hours or more and a fast of eight or twelve hours before would put the intestine in the best possible condition for any operation, especially on the intestinal canal, except where obstructive lesions existed, and for these purgatives were worse than useless and other measures were required. In a few cases of milder fecal stasis a purgative several days before operation followed by enemas was of service. These were, however, extremely rare. The routine use of any powerful drug was to be deplored and the habitual preoperative purge was indefensible. The continuance of this practice indicated stasis of the surgical mind.

Cesarean Section, Abdominal and Vaginal, Compared and Contrasted.—Dr. Miles F. Porter of Fort Wayne said: (1) With a living and viable child the abdominal is the operation of choice; (2) the vaginal operation is probably never indicated in placenta previa; (3) in cases demanding quick delivery where the only obstacle is an undilated os, the vaginal operation should be done; (4) infection should not decide us in favor of either operation, but the fact that its existence adds to the mortality of both should admonish us that neither is to be regarded as an operation of *dernier ressort*; (5) with a dead or dying mother and a living, viable child, the abdominal operation should be done; (6) better knowledge of the indications for these operations and a timely resort to them would materially reduce both the maternal and fetal mortality and morbidity.

Methods of Drainage in Abdominal and Pelvic Surgery.—Dr. James F. Baldwin of Columbus, O., said that in this paper he urged the more frequent resort to vaginal drainage in pelvic cases in which pus was present or extensive adhesions and drainage through a stab incision in certain cases of appendicitis. He advised the use of gauze not so much for real drainage as to keep the intestines from contact with raw or infected surfaces. He deprecated the use of the word drainage in these cases and suggested that the word "fluffage" would be more appropriate for the purposes intended. The gauze was passed through an incision in the vaginal vault from above down, the opening in the vault being of ample size, and the gauze being then so placed as to lightly fill the pelvis. In this way the gauze kept the intestines out of the pelvis and at the same time absorbed all discharges. The gauze was left in place one week and then withdrawn. Sterile douches were then used until the cavity thus left became obliterated. He had used this method for many years and in a large number of cases with entirely satisfactory results, both immediate and remote.

How Can We Best Educate Our Women to Seek Relief Early from Carcinoma of the Uterus?—Dr. C. C. Frederick of Buffalo said that the statistics of operations both should admonish us that neither is to be regarded as German clinics than in this country, not because they had more skillful operators, but because the women were operated upon earlier, their women having been taught to consult the surgeon earlier when they had symptoms of malignant disease of the uterus. He thought there was a belief among general practitioners in this country that hysterectomy for carcinoma of the uterus was an unsuccessful operation, in so far as it prevented recurrence. Such had been the case and would continue to be so long as women so suffering were not operated upon earlier than they had been in the past. Early radical operations gave good results, and they ought progressively to give better and better results. Hysterectomy for carcinoma of the body of the uterus gave notably better results even in late cases than when the cervix was involved. Our women

should not only be taught that early operation gave better results, but also that the severity of the operation and the mortality and the morbidity were decreased thereby.

Phlegmasia Alba Dolens.—Dr. William A. B. Sellman of Baltimore reported a case of this nature in connection with an ovarian tumor. He presented photographs showing the size of the tumor, the amount of abdominal distention, and the swollen limb. He considered the phlegmasia dolens in this case was due to pressure upon the iliac vessels on the left side, and that this pressure was immediately relieved with removal of the tumor. The patient was fortunate in the rapid restoration of the circulation and in not having had a clot form, which might have destroyed her life by the entire clot or a portion passing to the heart.

Removal of Upper Portion of Rectum and Sigmoid.—Dr. Thomas B. Noble of Indianapolis related the case of a married woman, thirty-three years of age, in whom he extirpated the upper portion of the rectum and sigmoid for cancer. In connection with this case he showed an instrument which he thought would be helpful in this class of cases. It was the result of a study and use of Murphy's button. It had some advantages over the button in this class of work, in that it could be introduced more quickly; it served as a splint to the soft parts; admitted of irrigation of the colon, and the prevention of impaction, and by continuous drainage kept the bowel quiet, thereby favoring prompt and perfect union. He believed it was a useful means to the ideal end, namely, an intact abdomen, intact intestine, and competent anal sphincters.

Malignant Tumor of Undescended Testicle.—Dr. O. G. Pfaff of Indianapolis said that the patient was a man, thirty-eight years of age. Examination disclosed a tumor the size of a fetal head, occupying the left lower abdomen and pelvis. The tumor was freely movable within moderate limits, but was apparently attached by a pedicle to a point near the internal inguinal ring. The mass was considered to be a malignant tumor of the undescended left testicle, and three days later the man submitted to operation. Through an incision made to the left of the median line the relationships of the mass were easily made out. The pedicle was attached to the internal ring, and there were some recent adhesions to the bladder, which were broken up easily, the pedicle ligated, and the mass removed. The man made an uneventful recovery from the operation, but within five months died of malignant disease. He did not see him after he left the hospital, and did not learn as to the location of the later growth other than that it seemed to affect both the bladder and the bowels. The microscopical examination of the growth showed it to be a large round celled sarcoma.

Terminal Events in Gallstone Disease.—Dr. Charles N. Smith of Toledo, O., said that gallstone disease was very prevalent, afflicting from 7 to 10 per cent. of adults dying in the public hospitals of England, Germany, and America, was a contention apparently substantiated by the records of thousands of post-mortem examinations. Rupture of the suppurating gall-bladder into the general peritoneal cavity was by no means an unusual terminal event, having occurred five times in his own experience. Of these five cases four made a complete recovery after operation, while the remaining one, a desperate and delayed case, with a widespread peritonitis, died on the table as the abdominal incision was completed. From observation of these and other cases and from a study of the literature of the subject, he was convinced that the frequency with which rupture of the gall-bladder occurred as a terminal event in gallstone disease was scarcely appreciated. These cases were commonly diagnosed as peritoneal infection from appendicitis, operated on as such, and so recorded unless gallstones, correcting the diagnosis, were found in the peritoneal cavity. Of the many terminal events of gallstone disease, malignancy was without question the most hopeless from the standpoint of cure. That primary malignant disease of the gall-bladder and duct was preceded by gallstones in practically every instance was the experience of surgeons and pathologists. It would seem that a due appreciation of the frequent occurrence and the serious import of these complications must lead to the surgical removal of gallstones as a conservative and prophylactic measure long before the opportunity was given for the onset of these terminal events. That this might be done would require a more general recognition of the initial symptoms of gallstone disease, with diagnosis based thereon, rather than upon the symptoms produced by these same terminal events.

Dr. Milas F. Porter emphasized what the author had said regarding the relative frequency of the terminal events of gallstone disease and the consequent importance of operating on cases of gallstones before these more serious results occurred. He was interested in what the author said regarding posterior gastroenterostomy in those cases in which the pylorus was obstructed because of adhesions about it or the gut below; or because, on the other hand, of adhesions that were hard to break up which hung the pyloric orifice up under the liver. This had occurred a number of times, and in some of these cases the separation of the adhesions had not only been difficult, but accompanied by considerable trauma of the liver, and it was not unattended by danger. In many cases after these adhesions were liberated, one would still have the greater difficulty to overcome, namely, their reformation in the position they were before, and he was therefore impressed with the fact that in many of these cases they could be better treated by posterior gastroenterostomy, in so far as the relief of this feature was concerned.

Dr. Thomas B. Noble referred to that condition in which by pericholecystitis there were changes occurring in the stomach due to engorgement by the inflammatory exudate upon the pyloric area. In such conditions we would have gastric neuroses, as well as true anatomical disturbances following. While the author had advised gastroenterostomy in such conditions, the speaker preferred the Finney operation. He did not favor establishing an artificial opening between the intestine and stomach unless every other procedure failed. But the Finney operation maintained the normal route, made drainage free and perfect, and in the five cases in which he had practised it he had had very satisfactory results.

Dr. Howard W. Longyear of Detroit read a paper on nephrocoloptosis which was illustrated with numerous lantern slides.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. A. B. Miller of Syracuse, N. Y.; *First Vice-President*, Dr. Charles N. Smith of Toledo, O.; *Second Vice-President*, Dr. Raleigh R. Huggins of Pittsburg, Pa.; *Secretary*, Dr. William Warren Potter of Buffalo, reelected; *Treasurer*, Dr. X. O. Werder of Pittsburg, Pa. Syracuse, N. Y., was selected as the place for holding the next annual meeting; time, September 20, 21, and 22, 1910.

Diphtheritic Enteritis.—R. E. McKechnie reports the case of a girl of six years of age who was taken ill at Suva, Fiji, with a mild dysentery, which lasted until she reached Vancouver. She had several stools each day containing blood, mucus, and pus. Examination of the stools excluded both ameba and the Shiga bacillus, but showed many streptococci. Streptolytic serum caused these to diminish, but the symptoms did not abate. Later cultures showed diphtheria bacilli. Diphtheria antitoxin caused immediate improvement in the symptoms, and after two days a cylindrical cast of the bowel four inches in length was passed. Recovery was uninterrupted. The cast proved to be a true diphtheria membrane. The patellar reflexes were absent, and a paralysis of the anus, lasting two weeks, developed.—*The Montreal Medical Journal.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Ohio State Board of Medical Registration and Examination.

June 8, 9, and 10, 1909.

ANATOMY.

1. Enumerate the bones forming the orbit.
2. Give the nerve supply of the stomach.
3. Name the ligaments of the knee-joint.
4. Describe the lungs, briefly.
5. Describe histologically the structure of the kidney.
6. Give the arteries arising from the thoracic aorta in order, beginning at the heart.
7. Give the composition of bones and classify them.
8. Name the structures forming the larynx.
9. Describe the gastrocnemius muscle.
10. Describe the femur.

PHYSIOLOGY.

1. What are some of the properties of protoplasm?
2. Describe a neuron.
3. What is ameboid movement?
4. What are capillaries, and what function do they perform?
5. What forces contribute to the flow of blood through the veins?
6. What is reflex action?
7. In what does digestion and nutrition consist?
8. What function is performed by hydrochloric acid in digestion?
9. What is the nutritive value of proteids? Name some articles of food containing a large proportion of proteid.
10. How should cow's milk be modified to resemble human milk?

CHEMISTRY.

1. Milk: Give its composition. What impurities are most common and how would you detect them?
2. What is the chemical difference between acids having the termination ous and ic? What names are given to compounds of such acids?
3. What effect do alkalies have on gastric secretions?
4. Name and describe three general methods for the purification of water.
5. Explain where and how HCl is made in the human body.
6. How are urates formed in the system, and how would you recognize them?
7. What is a calcium sulphide? Give its properties and uses.
8. What are the common properties of the mineral acids?
9. State the toxicological effect of carbolic acid and the therapeutic measures you would employ in a case of poisoning.
10. What is meant by physiological antidotes? Name some you consider physiological for strychnine poisoning.

MATERIA MEDICA AND THERAPEUTICS.

1. Name and give the physical characteristics and properties of the official salts and preparations of mercury commonly employed.
2. Name the more important official preparations of digitalis. Under what conditions would you prescribe each?
3. Name the various serums whose place in medicine is recognized, and give uses of each. Also state modes of administration.
4. In what form should the iodides be administered? With what are they incompatible?
5. Discuss the comparative value of ether and chloroform as general anesthetics. Give contraindications for each, and treatment for untoward effects.
6. In what particular conditions would you advise suggestive therapeutics? State briefly how you would manage a case requiring this treatment.
7. What symptoms follow the continued use of cocaine? How would you treat a cocaine habitué?
8. What indications would suggest digitalis or the nitrite group in cardiovascular disease?
9. Define alkaloids, give their common characteristics and physical properties.
10. When would you use galvanism and when the faradic current?

PRACTICE OF MEDICINE.

1. Name four diseases in which a leukocyte count of over 25,000 is probably present.
2. Differentiate a large ovarian cyst from hydronephrosis of the right kidney.
3. Differential diagnosis of lead colic.
4. Name the cardinal symptoms of aortic stenosis.
5. How would you treat bronchopneumonia in a child?
6. Diagnose empyema. How treat it?
7. Differentiate gallstones and appendicitis.
8. What is paranoia?
9. How would you manage a case of pulmonary tuberculosis in an ordinary family and home, with a view to the prevention of infection to others?
10. What is the difference between active and passive hyperemia?

DIAGNOSIS.

1. State pathological significance of an excessive respiratory action of the abdomen—abdominal respiration.
2. A persistently frequent pulse in persons without fever, what affections may it suggest?
3. What pathologic significance is attached to amenorrhea?
4. What results follow a back pressure of the superior cava?
5. State physical signs of pyloric stenosis.

SURGERY.

1. Describe a compound, comminuted fracture, and give general treatment for same.
2. Where are ununited fractures most commonly found? Give some of the causes and treatment.
3. Describe ileus, and give treatment.
4. What injuries are common to the knee-joint? Give treatment for same.
5. Give diagnostic symptoms and treatment of incipient coxalgia.
6. Describe symptoms and give treatment of flat-foot.
7. Give diagnostic symptoms of tuberculous kidney.
8. Give technique of suprapubic prostatectomy.
9. Give symptoms and surgical treatment of renal calculi.
10. Describe surgical management of chronic cystitis.

OBSTETRICS.

1. What factors make up the expulsive forces of labor?
2. What group of symptoms and what signs in particular would suggest to you pregnancy in a primipara at two months' gestation?
3. Give the measurements obtained by external pelvimetry that would indicate a normal birth canal. What value can be placed upon such measurements?
4. What advantage, if any, to mother and child is gained by intermittent contractions of the uterus during labor?
5. In endeavoring, wholly by external examination, to determine the presentation and position of the fetus at about term, what anatomical guides are employed?
6. Describe the development of the bladder in embryo.
7. Make a differential diagnosis between a fibroid of the uterus and an ovarian cyst.
8. Give briefly the etiology and treatment of suppurative inflammation of a vulvovaginal gland.
9. Give the causation and general symptomatology of subinvolution of the uterus.
10. What treatment would you suggest for senile vaginitis?

DERMATOLOGY, SYPHILOLOGY, AND DISEASES OF THE EYE, EAR, NOSE, AND THROAT.

1. Describe scabies. What is the cause of the disease? How is it treated?
2. What is dermatitis? Mention its varieties.
3. Describe psoriasis.
4. Are there any general characteristics to distinguish syphiloderma from other diseases of the skin?
5. What is syphilitic gumma?
6. How do you recognize astigmatism subjectively and objectively?
7. Define glaucoma, enumerate its varieties, and mention principal symptoms.
8. Describe symptoms of catarrhal otitis media.
9. Describe mucous polypi of nasal cavities and give their causes.
10. Chronic laryngitis: Symptoms and causes.

PATHOLOGY, BACTERIOLOGY, AND HYGIENE.

1. What is the microscopical appearance of the kidney during acute congestion?
2. Name the different kinds of tissue degeneration.
3. Name four possible sequelæ which may follow peptic ulcer of the stomach.
4. Describe the microscopical appearance of a gumma.
5. What is the so-called "nutmeg" liver? How caused?
6. What is the morphology of Bacillus mallei?

7. What diseases are caused by the following bacteria: Shiga's bacillus, Koch-Weeks bacillus, Klebs-Loeffler bacillus, Diplococcus of Neisser, bacillus of Unna Ducrey?

8. What is a trap? What purpose does it serve in drains?

9. Describe the construction of a filter for river water to be used for drinking purposes by the people of a small city.

10. How many cubic feet of air is necessary for each patient in a general hospital?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

Ohio State Board of Medical Registration and Examination.

June 8, 9, and 10, 1909.

ANATOMY.

1. The bones which enter into the formation of the orbit are: The frontal, sphenoid, ethmoid, superior maxillary, malar, lacrymal, and palate.

2. *Nerve supply of the stomach:* The pneumogastrics, and the sympathetic.

3. *Ligoments of the knee-joint:* Anterior, or Ligamentum Patellæ; Posterior; Internal lateral; Two external laterals; Capsular; External crucial; Internal crucial; Transverse; Coronary; Ligamentum mucosum; and Ligamenta alaria.

6. Coronary arteries, innominate, left common carotid, left subclavian, pericardial, bronchial, esophageal, posterior mediastinal, intercostals, and subcostal.

7. *Composition of bones:* (1) Organic matter (gelatin and blood-vessels); and (2) inorganic matter (calcium phosphate, calcium carbonate, calcium fluoride, and magnesium phosphate).

Bones are classified as: Long, short, flat, and irregular.

8. *Structures forming the larynx:* Nine cartilages, viz., Thyroid, cricoid, epiglottis, two arytenoids, two cornicula laryngis, and two cuneiform. The thyrohyoid membrane, cricothyroid membrane, thyroarytenoid ligaments, capsular ligaments, hyoepiglottic ligament, thyroepiglottic ligament; and, interiorly, the vocal cords.

PHYSIOLOGY.

1. *Properties of protoplasm:* (1) Irritability, or power of responding to a stimulus; (2) power of movement; (3) power of assimilation; (4) power of growth; (5) power of excretion, and (6) power of reproduction.

2. *A Neuron* is the unit of the nervous system; it consists of a nerve-cell with its processes and terminations.

3. *Ameboid movement:* The ameba puts out from its sides projections of the protoplasm; and later the whole mass flows into these projections, and thus the ameba changes its position and its shape. The white blood corpuscles and some other cells also exhibit this same movement.

4. *Capillaries* are tiny blood channels, generally consisting of a single layer of endothelial cells, and connecting the smallest arterioles with the venules. *Function:* It is here that all the changes occur which take place between the blood and the tissues of the body. Oxygen and the products of digestion and absorption are conveyed to the tissues, and carbon dioxide and waste matters are taken up and carried away from the tissues.

5. *The forces contributing to the flow of blood through the veins* are: The action of the heart, aspiration of the thorax, contraction of the muscles, and the valves in the veins.

6. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve.

7. *Digestion* is the process by which the food is converted into material suitable for absorption and assimilation.

Nutrition consists in the absorption and assimilation of such physiological principles as are necessary to preserve the normal structure and function of the body.

8. *The function of the hydrochloric acid in digestion:* "Hydrochloric acid exerts its influence in a variety of ways. It is the main agent in the derivation of pepsin and rennin from their antecedent zymogen compounds: it imparts activity to these ferments; it prevents and even arrests fermentative and putrefactive changes in the food, by destroying microorganisms; it softens connective tissue, it dissolves proteids and acidifies the proteids, thus making possible the subsequent action of pepsin."—(From Brubaker's *Physiology.*)

9. The proteids are necessary for life; they build up and repair the tissues of the body; they also supply heat and energy. A large proportion of proteid is found in: Beef, beans, cheese, fish, fowl, peanuts.

10. *To make cow's milk resemble human milk:* The cow's milk must be diluted and sugar of milk must be added. These modifications must be made in such proportions as to bring the percentage composition of the two milks as near alike as possible.

CHEMISTRY.

1. Milk consists of water and solids (Proteids, fats, sugar, and salts). These are (roughly) about 4 per cent. each of proteids, fats, and sugar in cow's milk.

The most common impurities are: (Dirty) water, microorganisms, boric acid, formaldehyde, salicylic acid, flour, arrowroot, coloring matters, etc.

2. Acids with the *ic* termination contain more oxygen than the corresponding acids with the *ous* termination. Thus: HNO_3 is nitric acid; HNO_2 is nitrous acid.

The salts from the *ic* acids end in *ate;* those from the *ous* acids end in *ite.* Thus: KNO_3 is potassium nitrate; KNO_2 is potassium nitrite.

3. The alkalies, if given just before meals, increase the flow of the gastric juice; but if given towards the end of gastric digestion, they are antacid, and neutralize any excessive acidity.

4. Water may be purified by: Distillation; boiling and filtration; and by precipitation, with the aid of an alum or ferric salt.

5. HCl is made in the human body in the glands of the stomach. *How* it is made is not known. It is supposed to be derived from the chlorides of the blood. One view is that it is due to a reaction between the chlorides and phosphates of the blood, thus:

$$NaH_2PO_4 + NaCl = Na_2HPO_4 + HCl.$$

There are other views, but the matter is not settled.

7. A calcium sulphide is a binary compound whose molecule consists of one atom of calcium and either one or two or five atoms of sulphur, CaS., CaS_2, or CaS_5. The monosulphide, CaS, is a white amorphous substance, but slightly soluble; when heated, it shines in the dark. It is used for making luminous paints, also as a depilatory.

8. *Common properties of the mineral acids:* They are acid in reaction and in taste, are irritant, and corrosive.

9. *Symptoms of carbolic acid poisoning:* Buccal mucous membrane is whitened and hardened; vomiting; burning pain in mouth, esophagus, and stomach; pulse and body temperature are lowered; the pupils are contracted; collapse, and finally death. The urine may become dark.

The treatment of carbolic acid poisoning consists in administering white of egg, sodium sulphate, or saccharated lime, followed by lavage. Alcohol is said to be antidotal.

10. *Physiological antidotes* act as such by combating the physiological action of the poison.

Physiological antidotes for strychnine: Chloral hydrate, chloroform.

MATERIA MEDICA AND THERAPEUTICS.

2. The more important official preparations of digitalis are: The tincture and the infusion. Of these the tincture is generally given for its action on the heart, and the infusion for its diuretic action.

3. Antidiphtheritic serum (dose 3,000 units) is official; tuberculin, tetanus antitoxin (dose ℥ijss to ℥v), antistreptococcic serum (dose ℥ijss to ℥v), and some others are also used.

Sera may be administered by hypodermic injection or by mouth. The use of the above mentioned sera is indicated by their names.

4. Iodides should be administered in a syrup, such as the compound syrup of sarsaparilla. No other drug should be administered with it

The iodides are incompatible with the mineral acids, metallic salts, ammonia, alkaloids and their salts.

5. As a general rule, ether would be the anesthetic of choice. But chloroform may be used: (1) in hot climates; (2) when large numbers of persons have to be rapidly anesthetized; (3) in brain surgery; (4) in labor; (5) in patients who are known to take ether badly; and (6) in the conditions mentioned below, in which ether is contraindicated.

The following contraindications for ether and chloroform are from Hare's *Practical Therapeutics:* "Ether should not be used by inhalation in bronchitis or acute nephritis because of its irritant properties; in peritonitis

or gastritis, because it is apt to induce vomiting; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood-vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma; and if anemia is present and an examination of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible.

"*Chloroform* is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idiosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although ether is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

7. *Symptoms of continued use of cocaine:* Emaciation, mental and moral impairment, delusions, circulatory disturbances, and insomnia.

Treatment consists in sustaining the patient's strength; nitrite of amyl or ammonia may be inhaled; belladonna and caffeine have been tried; stimulants are indicated.

9. *Alkaloids* are organic nitrogenized substances, alkaline in reaction, and capable of combining with acids in the same way that ammonia does.

General properties of alkaloids: Alkaloids are of two kinds, volatile and fixed. The volatile alkaloids are liquid, readily volatile without decomposition, and consist of C, H, and N. The fixed alkaloids are for the most part solid and crystalline, not, or only partially, volatile without decompositon, and consists of C, H, N, and O.

Most of the alkaloids are alkaline in reaction, of a bitter taste, and of white color.

Most of the alkaloids are nearly insoluble in water, but are soluble in alcohol, chloroform, ether, and benzine; their salts are generally soluble in water and alcohol, but insoluble in the other solvents just named. They combine with acids to form salts in the same way that ammonia does.

PRACTICE OF MEDICINE.

1. In diphtheria, pneumonia, scarlet fever, and empyema, the leucocyte count is probably over 25,000.

2.

HYDRONEPHROSIS	OVARIAN CYSTS
1. Enlargement unilateral and from above downward. Growth fixed in region of kidney.	1. Enlargement at first unilateral; later symmetrical and from below upward. No fixation.
2. Expression unchanged.	2. Facies ovariana.
3. Growth usually slow.	3. Growth relatively rapid.
4. Intestines may be in front of tumor.	4. Intestines in the flanks above and back of tumor.
5. Fluid not necessarily albuminous; may contain calculi.	5. Fluid albuminous; no calculi.
6. Vaginal touch negative.	6. Tumor usually felt by vaginal touch.
7. Urine may contain pus, blood, or albumin.	7. Urine generally normal.
8. Cystoscopy shows absence of urine through ureter on affected side.	8. Urine flows through ureter on both sides.
Exceptions.—In case of a movable kidney the tumor may not be fixed.	*Exceptions.*—In case of adhesions the cyst may be fixed.

(From Dudley's *Gynecology.*)

4. In *aortic stenosis:* A systolic murmur heard over the aortic area, transmitted into the carotids, and usually accompanied by a loud first sound. Hypertrophy of the left ventricle, increased area of cardiac dullness, apex beat is displaced downward and to the left, the pulse is generally small and infrequent.

6. *Empyema is diagnosed* by: High and irregular fever, sweats, chill, diminished breath sounds and vocal fremitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis. Absolute diagnosis is made by aspiration, showing the fluid to be pus.

Treatment: Aspiration, drainage, irrigation, resection of ribs (Estlander's operation), or resection of chest wall (Schede's operation).

7. In *gallstones:* The pain is in the region of the liver; it radiates to the right scapula and toward the umbilicus; chills and sweats are common; also vomiting, and sometimes symptoms of collapse and jaundice; calculi may be found in the feces.

In *appendicitis:* The pain is at first diffuse, but later becomes localized over the appendix in the right iliac fossa; nausea, vomiting, and constipation may be present; tenderness over the appendix and rigidity of the right rectus abdominis muscle are present; there is generally moderate fever.

8. *Paranoia* is a primary chronic form of insanity, occurring especially in degenerates, and marked by hallucinations and delusions which are systematized, *i.e.* exhibit a logical connection and sequence, so that the patient from his perverted ideas, in which he firmly believes, draws logical and coherent influences. (From Duane's *Medical Dictionary.*)

10. In *active hyperemia* there is an excess of arterial blood in a part, with, generally, acceleration of flow.

In *passive hyperemia* the excess of blood is in the veins and capillaries, and the flow is retarded; it is generally due to some mechanical obstacle.

DIAGNOSIS.

1. "The causes of excessive respiratory action of the abdomen—*i.e.* of the diaphragm—are found in conditions which render movement of the thorax painful, such as pleurisy, pleurodynia, or fracture of a rib; or which mechanically hinder thoracic expansion, as in double pleural effusion, calcification of the costal cartilages, emphysema (permanent inspiratory form of the thorax throwing extra work upon the diaphragm), the rare scleroderma of the chest wall, and ossifying myositis. Inaction of the thorax may also be due to paralysis of the muscles of inspiration, as in injury or diseases of the cervical portion of the cord or bulbar paralysis, or spasm of the same muscles in strychnine poisoning or tetanus." (Butler's *Diagnostics of Internal Medicine.*)

2. *A persistently frequent pulse in persons without fever may suggest:* Phthisis, exophthalmic goiter, Addison's disease, pernicious anemia, chlorosis, locomotor ataxia; also neurasthenic conditions, sexual excesses, abuse of alcohol, coffee, or tobacco.

3. *Amenorrhea may indicate:* Hysteria, melancholia, mental overwork, anemia, phthisis, nephritis, diabetes, cancer, malaria, leukemia, morphine habit.

4. *Back pressure in the superior cava* is followed by: Cyanosis of the lips and face, clubbing of the fingers, and (with tricuspid regurgitation) a systolic jugular pulse.

5. *The physical signs of pyloric stenosis* are: The stomach may be observed to be dilated, a tumor may be felt at the pylorus, splashing or succussion sounds may be obtained.

SURGERY.

2. *The united fractures are most commonly found* in: Patella, olecranon, coracoid process, humerus, neck of femur.

Causes: Wide separation of the fragments, interposition of soft parts, want of rest, defective blood supply, bone disease.

Treatment: Continued immobilization in plaster of paris, with use of limb (if it does not increase the displacement); rubbing the ends of the bone together; refreshing the bony ends and fixing by plates, or wires, or screws; or retentive apparatus.

4. *Injuries common to knee joint* are: Sprains, dislocations, penetrating wounds, fracture into the joint, fracture of patella, rupture of quadriceps tendon or of ligamentum patellæ, displacement of semilunar cartilage.

5. *The early symptoms of hip-joint disease* are: Night cries (in a child); lameness in the morning; a slight limp; tendency to become tired on slight exertion; wasting; spasm; pain; swelling; and deformity (either real or apparent).

Treatment: In the early stages, rest in bed is indicated, with extension; also tonics, restoratives, fresh air. If necessary, the limb should be straightened and put up in plaster-of-paris, or a brace or other mechanical appliance should be used. Intraarticular injections of iodoform have been recommended. Resection of the hip may be necessary.

7. *The diagnostic symptoms of tuberculous kidney* are: Frequent micurition, with pus, and sometimes blood in the urine; pain and tenderness over the kidney, enlargement of kidney; chills, fever, and sweats; tubercle bacilli may be found in the urine; the cystoscope will show a retracted ureteral meatus on the affected side; the symptoms are not made worse by movement or improved by rest.

OBSTETRICS.

1. *The factors in the expulsive forces of labor* are: The uterine contractions and the contractions of the diaphragm and of the abdominal muscles.

2. At two months none of the certain signs would be present. Cessation of menstruation, in a woman who had previously been regular, with morning sickness, increased frequency of micturition, softened cervix and breast signs (enlarged breast, more prominent veins, deeper pigmentation) would all be very suggestive, especially in a primipara.

7.

UTERINE MYOMA	OVARIAN CYSTOMA
1. Slow growth.	1. Usually more rapid growth.
2. Facial expression unchanged. Face may be full and flushed; later pale from hemorrhage.	2. Facies ovariana.
3. General health usually unimpaired except from loss of blood, if submucous or mural; may be painful.	3. General health early impaired from emaciation. Not painful.
4. Abdomen usually very asymmetrical from irregular shape of tumor.	4. Abdomen more symmetrical, especially when tumor is large.
5. Abdominal veins not usually enlarged.	5. Usually enlarged, especially in large polycysts.
6. Action of kidneys normal.	6. Kidneys less active.
7. Usual menorrhagia.	7. Menstruation unchanged or diminished.
8. Elasticity, not fluctuation. No percussion wave.	8. Fluctuation marked. Percussion wave marked.
9. Surface firm and usually lobulated.	9. Surface yielding; in monocysts, regular; in polycysts, irregular.
10. Vaginal touch and conjoined examination show tumor dense and firm, and, unless pedunculated, continuous with uterus. Uterus large and heavy.	10. Uterus normal, except displacement from pressure. Tumor compressible, fluctuating, detached from uterus.
11. Uterine cavity much elongated.	11. Not materially elongated. (This is a most important diagnostic point.)
12. Uterus moves with tumor.	12. Does not move with tumor.
13. Negative results from aspiration, but aspiration is not advised.	13. Positive results from aspiration, but aspiration is not advised.
Exception.—A subperitoneal myoma with a long pedicle moves independently of the uterus, and the uterine cavity is not necessarily lengthened. If the myoma has degenerated to a fibrocyst there will be more or less fluctuation, and aspiration may yield positive results.	*Exception.*—A cyst with semisolid contents yields negative results on aspiration. Fluctuation, if present, is indistinct, and percussion wave is absent or indefinite.

(From Dudley's *Gynecology.*)

10. *Treatment of senile vaginitis:* When the subjective symptoms are not annoying, do little or nothing. Vaginal douche with hot normal salt solution; or corrosive sublimate solution (1 in 10,000), followed by saline solution; tampons of ichthyol and glycerin (1 to 10); ulcers may be painted with a mild solution of silver nitrate occasionally.

DERMATOLOGY, SYPHILOLOGY, AND DISEASES OF THE EYE, EAR, NOSE, AND THROAT.

1. *Scabies* in a contagious animal parasitic disease, due to the *Sarcoptes scabici*, characterized by burrows and a multiform eruption, and attended by severe itching. The eruption usually occupies certain areas where the skin is thin; these are the interdigital spaces, the flexor surface of the wrist and arm, the anterior and posterior axillary folds, the mammæ and nipples (in women), the umbilicus, the buttocks, the penis, the inner side of the thighs and legs, and the toes. The face is exempt except occasionally in infants. The itching is intense and worse at night. The affection is curable, but dermatitis may result from over treatment.

Treatment consists in a thorough scrubbing with soap and warm water, followed by friction to dry the skin, and the application of sulphur ointment; the latter to be repeated morning and night for three days. The whole process may need to be repeated one or more times.

4. *Syphilitic skin eruptions* are characterized: By not itching; by being of a coppery or raw ham color; by being painless; by polymorphism, macules, papules, pustules, etc., being present at the same time; by being generally symmetrical.

PATHOLOGY, BACTERIOLOGY, AND HYGIENE.

2. *Kinds of tissue degeneration:* Cloudy swelling; fatty infiltration and degeneration; amyloid, mucoid, hyaline, and colloid degenerations; glycogenic infiltration; hydropic; and bone caries.

3. *Four possible sequelæ of peptic ulcer of the stomach:* Hemorrhage, perforation, gastroduodenal fistula, peritonitis.

7.

BACTERIA	DISEASES CAUSED BY
Shiga's bacillus.	Dysentery.
Koch-Weeks bacillus.	Conjunctivitis.
Klebs-Loeffler bacillus.	Diphtheria.
Diplococcus of Neisser.	Gonorrhea.
Bacillus of Unna-Ducrey.	Chancroid.

8. *A trap* is a bend in a pipe; it contains water, and serves to prevent the passage of sewer gases into houses.

10. The air space for sick people should be at least one-fourth more than that allowed for well people. Hence, 1,000 cubic feet + 250 cubic feet = 1,250 cubic feet of space should be allowed in hospitals for each person. Of course, as much more than this as is possible, provided it is properly warmed and distributed, is desirable.

BULLETIN OF APPROACHING EXAMINATION †

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. —
Arizona*	Ancil Martin, Phoenix	Phoenix	
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Nov. 9
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec 7
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 4
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov 9
Delaware	J. H. Wilson, Dover	Dover	Dec 14
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Jan. 11
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 10
Georgia	E. R. Anthony, Griffin	Atlanta	
Idaho*	W. F. Howard, Pocatello	Boise	Apr 5
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 11
Iowa	Louis A. Thomas, Des Moines	Des Moines.	
Kansas	F. P. Hatfield, Olathe	Kansas City	
Kentucky	J. N. McCormack, Bowling Green	Louisville	Dec.
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 17
Maine	F. W. Searle, Portland	Portland	Nov 9
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 14
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 14
Minnesota	W. S. Fullerton, St. Paul	St. Paul	May 10
Mississippi	S. H. McLean, Jackson	Jackson	
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	
Montana*	Wm. C. Riddell, Helena	Helena	
Nebraska	C. A. Carr, Lincoln	Lincoln	Nov 10
Nevada	S. L. Lee, Carson City	Carson City	Nov 1
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 4
New Jersey	E. L. B. Godfrey, Camden	Trenton	June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jan. 10
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	Feb 1
N. Carolina	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 4
Ohio	Geo. H. Matson, Columbus	Columbus	Dec 14
Oklahoma*	F. P. Davis, Enid	Guthrie	Jan. 11
Oregon	B. E. Miller, Portland	Portland	Jan 1
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	Dec 14
Rhode Island*	G. T. Swarts, Providence	Providence	Jan. 4
S. Carolina	H. H. Wyman, Aiken	Columbia	June
S. Dakota	H. E. McNutt, Aberdeen	Watertown	Jan 12
Tennessee	C. A. Abernathy, Pulaski	Memphis Nashville Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Greenville	Nov 9
Utah	P. W. Fisher, Salt Lake City	Salt Lake City	Jan 3
Vermont	W. Scott Nay Underhill	Montpelier	Jan 11
Virginia	R. S. Martin Stuart	Lynchburg	Dec 15
Washington*	T. C. McFadden, Seattle	Spokane	Jan 4
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg	Nov 9
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan 11
Wyoming	S. B. Miller, Laramie	Laramie	

* No reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State

Colorado.—Applicants graduating after January 1, 1912, must furnish satisfactory evidence that when they matriculated in the medical college from which they were graduated they had previously been matriculated in and had pursued one year's study in an accredited college of liberal arts.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

KLINISCHE UND EXPERIMENTELLE STUDIEN ZUR PATHOLOGIE UND THERAPIE DER TUBERKULOSE IM KINDESALTER. Von Dr. BAUER und Dr. ENGEL. 4to; paper; 734 pages; illustrated; 6.50 marks. Curt Kabitzsch, Würzburg, Germany.

PRACTICAL THERAPEUTICS. By HOBART AMORY HARE, M.D., D.Sc. 8vo; cloth; 958 pages; illustrated. Lea & Febiger, New York and Philadelphia.

DAS GEBURTSHILFLICHE SEMINAR. Von Dr. WILHELM LIEPMANN. 4to; cloth; 331 pages; illustrated. August Hirschwald, Berlin, Germany.

ENZYKLOPÄDISCHES HANDBUCH DER HEILPÄDAGOGIK. Von Prof. Dr. med. A. DANNEMANN. 4to; paper; 191 pages; M. 3.00. Carl Marhold, Halle, Germany.

THEORIE UND PRAXIS DER EISENTHERAPIE, nach dem gegenwärtigen Stande der Wissenschaft. Von Dr. HANS SCHIROKAUER. 8vo; paper; 38 pages; M. 1.00. Carl Marhold, Halle, Germany.

ÜBER NICHTDIABETISCHE GLYKOSURIEN. Von Prof. Dr. FERDINAND BLUMENTHAL. 8vo; paper; 40 pages; 75 pfge. Carl Marhold, Halle, Germany.

ÜBER DIE INDIKATIONEN DER HOCHGEBIRGSKUREN FÜR NERVENKRANKE. Von Geh. San.-Rat Prof. Dr. med. A. NOLDA. 8vo; paper; 26 pages; M. .50. Carl Marhold, Halle, Germany.

KINDERAUSSAGEN. Von Dr. HERMANN HAYMANN. 8vo; paper; 43 pages; 1.00 M. Carl Marhold, Halle, Germany.

DISEASES OF THE NOSE, THROAT, AND EAR. By KNIGHT and BRYANT. 8vo; cloth; 631 pages; illustrated; $4.50 net. P. Blakiston's Son & Co., Philadelphia, Pa.

STATE BOARD OF HEALTH OF NEW JERSEY; 32nd Report, 1908. Cloth; 8vo; 650 pages. News Printing Co., Paterson, N. J.

PEDIATRICS. Edited by ISAAC A. ABT, M.D. ORTHOPEDIC SURGERY. Edited by JOHN RIDLON, A.M., M.D. Cloth; 8vo; illustrated; 242 pages. Year Book Pub. Co., Chicago, Ill.

PRACTICE OF MEDICINE. By JAMES TYSON, M.D. 8vo; cloth; 1438 pages; illustrated; $5.50 net. P. Blakiston's Son & Co., Philadelphia, Pa.

MEDICAL DIAGNOSIS. By J. C. WILSON, A.M., M.D. 8vo; 1435 pages; illustrated; $6.00 net. J. B. Lippincott Co., Philadelphia, Pa.

SELECTED PAPERS ON HYSTERIA AND OTHER PSYCHONEUROSES. By Prof. SIGMUND FREUD. Authorized Translation by A. A. BRILL, Ph.D., M.D. 8vo; 200 pages; paper. Journal of Nervous and Mental Diseases Publishing Company, New York, 1909.

ÜBER ASTHMA UND SEINE BEHANDLUNGEN. Von Dr. M. SAENGER. 8vo; paper; 82 pages; illustrated; M. 1.50. S. Karger, Berlin, Germany.

KLINISCHE MITTEILUNGEN AUS DEM GEBIETE DER OHREN- UND NASEN- KRANKHEITEN. Von Dr. VICTOR LANGE. 8vo; paper; 126 pages; illustrated; M. 3.60. S. Karger, Berlin, Germany.

ÜBER DIE MEDIZINISCHEN FOLGEZUSTÄNDE DER KATASTROPHE VON COURRIÈRES. Von Dr. EDUARD STIERLIN. 8vo; paper; 188 pages; M. 6.00. S. Karger, Berlin, Germany.

LEUCOPATHIES, METASTASES, ALBUMINURIES, ET ICTÈRES LEUCOPATHIQUES. Par le Dr. ÉMILE FEUILLIÉ. 8vo; paper; 195 pages; illustrated. G. Steinheil, Paris, France.

SURGICAL DIAGNOSIS. By EDWARD MARTIN, M.D. 8vo; cloth; 772 pages; illustrated. Lea & Febiger, New York.

A BOOK OF QUATRAINS. By FREDERIC ROWLAND MARVIN. 12mo; cloth; 101 pages. Sherman, French & Co., Boston, Mass.

STUDIES IN TUBERCULOSIS. By HENRY CLARKE, M.A., M.D. (Cantab.). 4to; cloth; 52 pages. Archibald Constable & Co., Ltd., London, England.

NERVOUS DISEASES, ORGANIC AND FUNCTIONAL. By M. ALLEN STARR, M.D., Ph.D., LL.D., Sc.D. 8vo; cloth; 911 pages; illustrated. Lea & Febiger, New York.

TEXT-BOOK OF SURGERY. By GEORGE EMERSON BREWER, A.M., M.D. 8vo; cloth; 915 pages; illustrated. Lea & Febiger, New York.

MANUAL OF OTOLOGY. By GORHAM BACON, A.B., M.D. 8vo; cloth; illustrated. Lea & Febiger, New York.

DOCTOR RAST. By JAMES OPPENHEIM. 12mo; cloth; 316 pages; illustrated; $1.50 net. Sturgis & Walton Co., New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of October 16, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	427	152
Diphtheria	223	14
Measles	100	4
Scarlet Fever	112	6
Smallpox	—	—
Varicella	38	—
Typhoid Fever	116	13
Whooping Cough	53	8
Cerebrospinal Meningitis	8	6
Malarial Fever	—	—
Totals	1,077	203

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended October 15, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
District of Columbia, Washington	Sept. 25–Oct. 2	2	..
Massachusetts, Boston	Sept. 25–Oct. 2	1	..
Minnesota, Duluth	Sept. 17–24	1	..
Missouri, St. Louis	Sept. 25–Oct. 2	1	.
Montana, Butte	Sept. 23–30	3	..
New Jersey, Newark	Sept. 18–25	1	..
North Carolina, Charlotte	Sept. 24–Oct. 1	2	..
Ohio, Dayton	Sept. 25–Oct. 2	2	..
Wisconsin, Milwaukee	Sept. 25–Oct. 2	1	..

SMALLPOX—FOREIGN.

Brazil, Rio de Janeiro	Aug. 23–Sept. 12	6	2
China, Shanghai	Sept. 1–7	1	On U.S.S. *Wilmington*
Egypt, general	Aug. 12–19	101	16
Cairo	Sept. 2–9	1	2
France, Bordeaux	Aug. 27–Sept. 4	..	01
Paris	Sept. 11–18	1	..
Germany, Konigsberg	Aug. 22–28	1	1
India, Bombay	Sept. 1–7	..	1
Madras	Aug. 28–Sept. 3	2	..
Indo-China, Saigon	July 31–Aug. 7	1	1
Italy, general	Sept. 12–19	9	..
Naples	Sept. 12–19	10	2
Mexico, Monterey	Sept. 19–26	..	1
Russia, Moscow	Sept. 4–11	3	2
Odessa	Sept. 4–18	17	3
Riga	Sept. 11–18	2	..
St. Petersburg	Sept. 4–11	8	6
Warsaw	Aug. 7–14	..	1
Spain, Barcelona	Sept. 13–27	..	5
Valencia	Sept. 11–18	1	..
Vigo	Sept. 11–18	..	2
Uruguay, Montevideo	July 1–31	6	..

YELLOW FEVER.

Ecuador, Guayaquil	Aug. 27–Sept. 11	..	4
Mexico, Merida	Sept. 28–Oct. 1	1	1
Tekik	Oct. 1	1	..

CHOLERA.

China, Chefoo	Sept. 15	..	Present
Germany, Russ	Sept. 19	1	1 vicinity
Stolzenhagen	Sept. 18	1	..
India, Bombay	Sept. 1–7	..	27
Rangoon	Aug. 21–28	..	4
Japan, Nagasaki	Sept. 9	7	From S.S. *Taim Maru*
Korea, Chemulpo	Sept. 15	..	Present
Netherlands, Halsteren	Sept. 1–7	1	..
Hoogvliet	Sept. 1–7	1	..
Pernis	Sept. 1–7	1	..
Russia, Moscow	Sept. 4–11	3	1
Straits Settlements, Singapore	Aug. 21–28	..	1
Sumatra, Djambi	July 1–31	205	108

PLAGUE—INSULAR.

Hawaii, Hilo	Sept. 4–11	1	1

FOREIGN—PLAGUE.

Ecuador, Guayaquil	Aug. 27–Sept. 11	..	14
India, Bombay	Sept. 1–7	..	27
Rangoon	Aug. 21–28	..	19
Indo-China, Saigon	July 31–Aug. 21	18	18
Japan, Kobe	Sept. 15	..	Epidemic present.
Nagasaki	Sept. 15	..	Present in quarantine.
Shimonoseki	Sept. 15	..	Present
Mauritius, general	July 15–Aug. 5	..	9
Morocco, Casablanca	July 15–Sept. 17	..	4
Siam, Bangkok	Aug. 21–28	9	9

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Original Articles.

RELIEF OF URINARY AND GENITAL CONDITIONS THROUGH SURGERY OF THE SEMINAL VESICLES;

INCLUDING A SUMMARY OF THE AUTHOR'S EXPERIENCE.*

By EUGENE FULLER, M.D.,

NEW YORK.

PROFESSOR OF VENEREAL AND GENITOURINARY SURGERY NEW YORK POST-GRADUATE MEDICAL SCHOOL, VISITING GENITOURINARY SURGEON TO THE CITY AND POSTGRADUATE HOSPITAL, ETC.

IN my early years as a devotee of genitourinary surgery the fact became strongly impressed upon me that surgical thought and attention had hitherto been focused almost wholly on the urinary tract, the genital tract, with the exception of the testicle and epididymis, having been scarcely considered. The surgeon would in those days occasionally make a rectal examination to determine the condition of the prostate, but palpation of the seminal vesicles was rarely attempted or even considered. The text-books of the time made mention of a class of gleets which were either incurable or at best got well only after the individual affected had in despair given up the surgeons. Sexual disturbances rarely received any serious attention.

Feeling that this neglect of the genital tract accounted for the fact that a considerable percentage of patients failed to obtain relief, I began systematically to make a digital examination per rectum of the prostate and seminal vesicles of all genitourinary patients, and as a result introduced the procedure of stripping the seminal vesicles as a method of cure for inflammatory and atonic conditions of these organs.† This method of treatment is technical, requires much practice in the rectal touch, a pliable finger, and judgment on the part of the surgeon in regulation of the amount of pressure to be employed. In my hands it has proved eminently satisfactory and curative in the great majority of cases. It fails in some very chronic and advanced cases of seminal vesiculitis, especially where the lesion is so extensive as to involve not only the seminal vesicles themselves but also the outlying tissues in the post-prostatic space.

An argument against the treatment in cases where the lesion is severe lies in the fact that many months are required in such cases to effect a cure. Certain individuals cannot devote a long time to treatment and so cannot be cured in that manner. To some cases the stripping treatment is not adapted and if tried gives poor or bad results. To this class especially belong the highly inflammatory cases.

As a radical surgical procedure to be employed to effect a cure in such cases of seminal vesiculitis as were not amenable to the more palliative method of treatment just mentioned, I presented to the profession in 1901 my operation of seminal vesiculotomy.* In that article, which was in the nature of a preliminary report, only five cases having then been operated upon, the procedure was described.

Since then, as the result of large experience, I have modified the technique in a few details. In order to make clear my present method of operating I will quote from the original article just mentioned the procedure there described, introducing in that description the later modifications:

"In the first place, it must be remembered that the perineal and pelvic structures to be submitted to operation are soft, yielding and elastic. In order

FIG. 1.—The position of the patient in the author's operation.

to facilitate an accurate dissection through such tissues they should be made to assume as stable a position as possible, and that can only be accomplished by putting them on the stretch, thus making them taut. This can be accomplished by flexing the thighs sharply, as in the extreme lithotomy position. The patient with his thighs so flexed is put belly downward on a Trendelenburg table, the buttocks protruding somewhat over the end while the flexed thighs straddle the table. The end of the table is then inclined upward quite sharply."

Although the bodily position represented in Fig. 1 is the same as that I now employ, I found that it was very difficult to maintain the body in position with that kind of table and with the thighs hanging straddled over the sides of the table. I have consequently abandoned that arrangement, and now have my patient on a perfectly level table in the

*Read before the American Urological Association at the Atlantic City meeting, June 7, 1909.

†"Seminal Vesiculitis," *Journal of Cutaneous and Genito-urinary Diseases*, New York, Sept., 1893. "Persistent Urethral Discharges Dependent on Subacute or Chronic Seminal Vesiculitis," *Ibid.*, New York, June and July, 1894. "Disorders of the Male Sexual Organs," Lea Bros., 1895.

*A new operative method to expose the seminal vesicles and prostate for purposes of extirpation and drainage. *Journal of the Medical Association*, May 4, 1901.

knee-breast position with the knees well separated, both the thigh and knee joints being sharply flexed. Fig. 2 represents this modified position. While the operation is in progress it is necessary that an attendant should stand at either side to see that the flexed position of the patient be maintained, and to

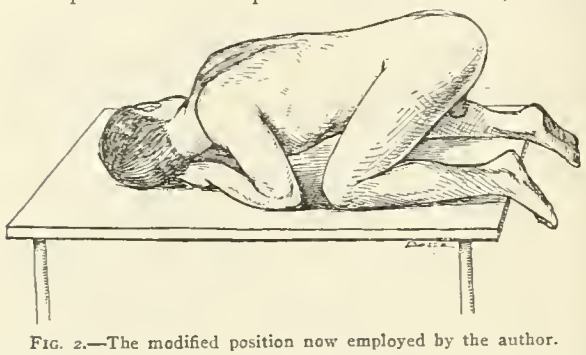

Fig. 2.—The modified position now employed by the author.

make sure that the knees do not slip off the lateral edges of the table or become approximated. In the original article I stated: "An antiseptic, lubricated cotton tampon, to which a tape is attached, is then pushed into the previously cleansed rectum, well up into the region of the sigmoid, in order to guard against bowel leakage during the operation." This tampon I have now dispensed with, having found it not only more or less in the way of operation but also unnecessary. The bowel after free catharsis is carefully irrigated shortly before operation with physiological saline solution.

"The next step is the external incision. This consists of two somewhat converging longitudinal cuts, which are connected at their dependent and proximal extremities by a transverse cut. The longitudinal cut to the operator's right begins a little above the border of the patient's coccyx and just inside the body of his right ischium, and extends downward and slightly inward, keeping just within the border of that bone, passing the tuber ischii and ending somewhat below that tuberosity at a point laterally and about three-fourths of an inch anteriorly to the anterior margin of the anus. The longitudinal cut to the operator's left corresponds exactly to the one just described, it lying in like manner along and just within the body of the left ischium. The transverse cut connects the converging ends, dividing the perineum transversely about three-fourths of an inch anterior to the anterior margin of the anus. Fig. 3 shows the line of the incision. The line of incision being so marked the next step is to incise deeply along the longitudinal cuts, going through the fatty tissue of the ischiorectal space and dividing above a few of the lower fibers of the gluteus maximus muscle. The transverse cut is then deepened, the anterior layer of the deep fascia being cut through. Great care should be taken in cutting down transversely to keep sufficiently away from the anus to avoid wounding the sphincter muscle. The forefinger of the operator's left hand should next be inserted into the rectum, the ball of the tip being turned downward against the anterior rectal wall, while the corresponding thumb presses against the loosely dissected rectum, the hand at the same time exercising upward traction as illustrated in Fig. 4. The gut is thus held up in the grasp of the thumb and forefinger, while with his right hand the operator employs the knife to dissect more deeply, cutting through the levator ani muscle and the visceral layer of the pelvic fascia. It must be borne in mind, in this connection, that the pathway of the dissection, which is between the urethra and rectal wall, is very narrow. The forefinger in the rectum acts in this deep dissection as a most important guide. The stroke of the knife in making it should be inward and at the same time toward the rectal wall. The tip of the finger should always be moved so that it is just behind the portion of the rectal wall where the dissection is being made. This being done there is no danger of perforating the rectal wall, and at the same time the direction of the dissection, keeping along close to the rectal wall, is such that the urethra escapes damage. In case the lower portions of the lateral incisions have not been deep enough to sever the fibers of the levator ani muscle they can now be made so. This accomplished, the rectal flap of the wound can be still further raised. The knife is then for the time being discarded and the operator's right forefinger inserted along the dissection, keeping just below the rectal wall till it passes through the cut in the visceral layer of the pelvic fascia and enters the lymph space which lies between the prostate and the rectal wall. This space being reached, the left forefinger should also be passed in alongside the right and the path of the wound over the prostate divulsed by separating the fingers. This much accomplished, it is comparatively easy, by a continuance of this separating process with one or both fingers, to strip the loose rectal connections off from the seminal vesicles and the posterior bladder wall, leaving those parts exposed to direct surgical attack."

The foregoing account was the original description of the operative steps taken in making the dissection. I find at present that it is not necessary to lift up the rectal flap by grasping it between the left thumb and forefinger, as shown in Fig. 4, in order to facilitate the deep dissection. In fact, I now consider my original procedure in this particular somewhat faulty, in that such traction tends to put the bowel wall on the stretch, thus increasing the danger of its being perforated by the tip of the left forefinger. I find that it is unnecessary to lift up the bowel wall at all. I make the same use of the left forefinger as originally described but do not use the left thumb. If only the lateral incisions are made deep into the ischiorectal fat the natural elasticity of the rectal tissues will cause sufficient retraction of the rectal flap, as the transverse dissection proceeds, to obviate the necessity of any upward traction. One and a half to two inches pre-

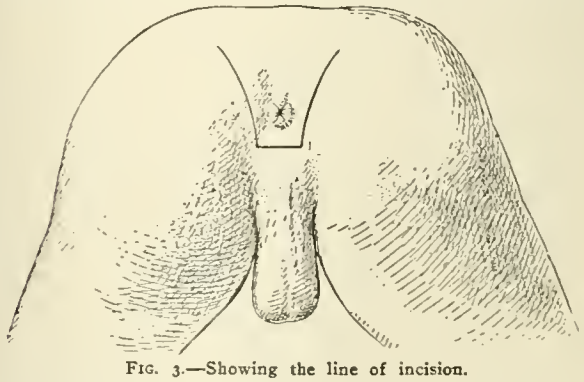

Fig. 3.—Showing the line of incision.

sents the amount of natural retraction, as illustrated in Fig. 5. Besides greatly minimizing the danger of accidental perforation of the rectal wall this retraction satisfactorily exposes the track of dissection. In my present procedure also after the knife has been discarded and the finger tip employed in

the deep lymph space to separate the rectal wall from the prostate and the seminal vesicles, I do not divulse the wound with both forefingers nor do I use both these fingers together in the track of dissection. I accomplish all this work with the right forefinger alone, and all the while the right fore-

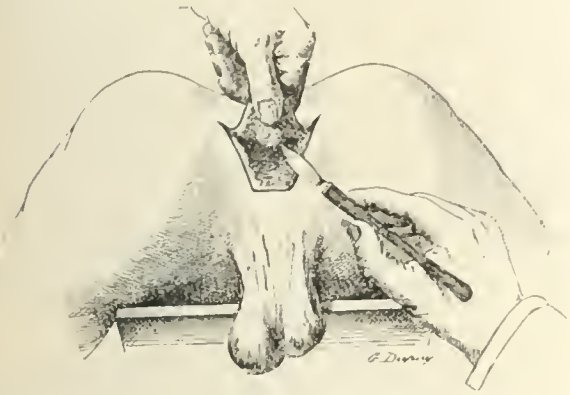

Fig. 4.—The manner in which the dissection is accomplished.

finger tip is peeling the rectal wall off from the lower structures the left forefinger tip maintains its position in the rectum, guiding, as it were, the lower finger in its work and preventing it from directing the dissection pressure against the rectal wall, thus endangering perforation. As the rectal wall only separates these two fingers, it is easy to appreciate the distinctness with which the left finger tip can feel the right as it accomplishes its work of separation. The rectal wall having been thus separated from the seminal vesicles the left forefinger is withdrawn from the rectum while the tip of the right forefinger is maintained in the dissection and made to press gently but firmly over the apex of the right seminal vesicle. A long, grooved director is next passed by the free left hand along and under the right forefinger until the end of the instrument reaches the apex of the right seminal vesicle and lies just under the right finger tip. The left hand then holds the director firmly in that position, while the right finger is withdrawn. The right hand then takes a scalpel, the blade of which is passed along the groove of the director until the point of the knife enters the apex of the seminal vesicle (Figs. 6 and 7 illustrate this procedure). After the point has so entered, the shaft of the scalpel is lowered and a free cut of about one and one-fourth to one and one-half of an inch is made with the belly of the blade along the course of the seminal vesicle, freely laying open the cavity of the organ. This cut is made with the belly of the blade rather than with the point of the scalpel, for if made with the point the incision might be accidentally too deep, the floor of the bladder being opened. The incision so made is then divulsed with the finger tip, thus widely opening the sac cavity. By an exactly similar procedure the cavity of the left seminal vesicle is next opened. The cavities thus opened can be exposed with the finger tip and, if found filled with granulation tissue, curettage can be employed. Oftentimes the finger nail may be most efficient for this purpose, although, in advanced instances, a sharp steel instrument may be necessary. Seminal vesiculotomy is not a bloody operation; no vessel, as a rule, of sufficient size to require a ligature being encountered. The cavities of the seminal vesicles so opened are each separately packed with gauze, the end of each packing being left protruding from the external wound. Two soft rubber drainage tubes are then placed between the gauze packing and the rectal wall. The lateral edges of the incision are next brought into natural apposition by sutures, the transverse portion of the cut only being left open for the ends of the drainage tubes and the gauze packing. In the after treatment no irrigation into the ends of the tubes is advisable. The gauze is removed at the end of the fifth day; the drainage tubes at the end of the ninth or tenth day. The bowels are moved daily, to guard against rectal fecal distention. In some cases urinary retention follows operation; consequently, the surgeon should be prepared to have a soft catheter passed if necessary. There is generally little systemic disturbance after this operation. A bulky gauze dressing held in position by a T bandage is the form of external dressing employed. The operation generally necessitates a stay in a hospital of three weeks, the first two weeks being in bed.

I am generally asked the two following questions by all patients before operation: (1) "Is the procedure dangerous to life?" (2) Does the operation tend to destroy or injure the sexual power?"

In answer to the first, I can truthfully state the operation is not dangerous. I have so far performed it 126 times with no mortality at all. The answer to the second is that the operation tends to preserve and strengthen the sexual power rather than the contrary. No portion of the sexual apparatus is removed by the operation; the seminal vesicles, natural cavities, being simply opened and given the benefits of surgical drainage to rid them of chronic inflammation. No new surgical principle is introduced in this operation. Other natural cavities, such as the urinary bladder, the renal pelvis, the gall-bladder, the mastoid, etc., have long and

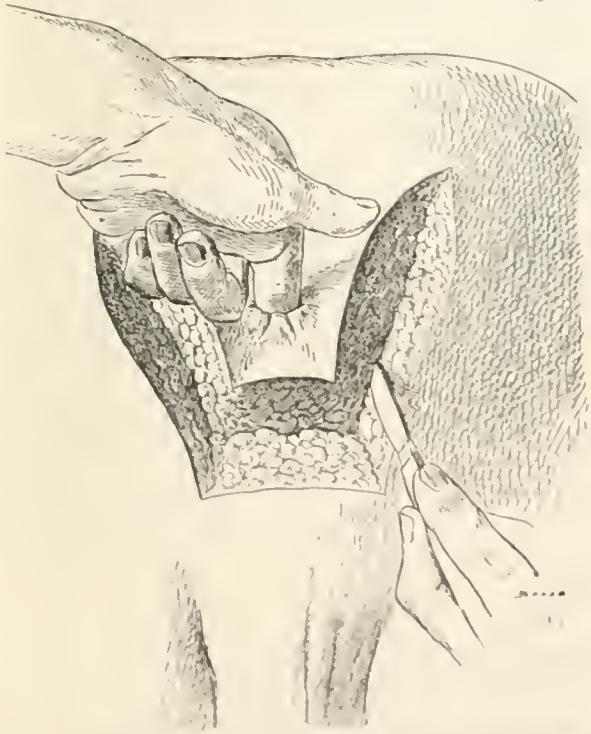

Fig. 5.—The present method of accomplishing the dissection without using the thumb to raise the rectal flap.

generally benefited from surgical drainage, consequently why is it not natural to suppose that surgical drainage of the seminal vesicles should not likewise be beneficial? The obstacles which stand in the way of a general adoption of this operation by the profession are the surgical problems it presents.

Consequently, I expect, its application will be confined somewhat to surgeons who particularly interest themselves in the genitourinary direction. In the first place, the surgeon should be skilled in the rectal touch so that he can thereby not only differentiate in diseased conditions the prostate from the

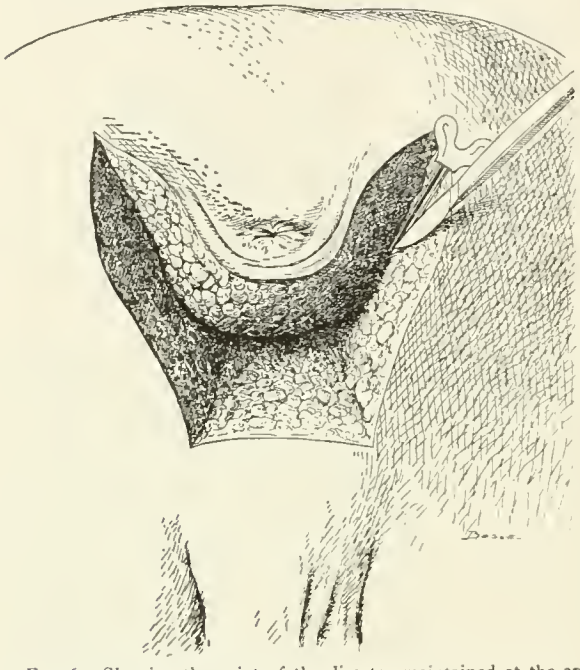

Fig. 6.—Showing the point of the director maintained at the apex of the right seminal vesicle, while the scalpel is passing along the groove preparatory to incising the organ.

seminal vesicles, but also be able to definitely locate the seminal vesicles and to appreciate the grade and quality of existing inflammation. The operation in its performance depends much, as does litholopaxy, on the sense of touch, rather than on that of sight. Guyon has often said that a genitourinary surgeon should see, as it were, with his fingers. Again, the dissection required calls not only for a good knowledge of the anatomy of the part, but also for skill in the use of the knife, as the path of dissection between the bowel and the urethra and the bladder is narrow. Still, after practice, the operation should not be looked upon as difficult or tedious. Preliminary practice on the cadaver ought to render one otherwise fitted, fully capable of performing it.

The clinical symptoms which seminal vesiculotomy may be called upon to relieve are numerous and varied. They can be grouped under the headings of urinary, genital, and generalized. In most instances careful questioning in getting clinical history will disclose the fact that symptoms belonging to two, or perhaps all three, of these groups, exist in a given case, although the chief or troublesome symptom or symptoms may be confined to one group only.

The urinary symptoms may consist of chronic or relapsing urethral discharge, shreds, pus, or bacteria in the urine, frequent painful or difficult urination, and, at times, even retention. The genital symptoms vary greatly and depend on the quality and nature of the lesion existing in a given instance in the seminal vesicles. Thus in acute inflammatory conditions there is apt to be great and painful excitation of the sexual function, aside from localized pain generally referred to the deep perineum, less frequently to the rectum, the neck of the bladder, the suprapubic or inguinal region, or to the sacrum. There may be frequent and largely uncontrollable priapism which is generally painful. At night especially is this symptom apt to be annoying, the patient stating that he is repeatedly awakened by that cause. Emissions, frequently painful, sometimes bloody in character, and followed by mental depression and nervous disturbances, are often a feature. Sexual craving, often leading the individual to excesses, frequently exists, but if the surgeon makes inquiry of such a patient, he will find that little or no satisfaction or relief follows the sexual act. In fact, it is often found that the exercise of the function simply serves to increase an uncomfortable and distressing condition of sexual craving. As the case becomes more chronic, the sexual symptoms enumerated progressively decrease in intensity, and others appear, such as sexual weakness, premature ejaculation, feeble or incomplete erections, and loss of sexual desire or ambition. Absolute impotency and entire loss of power are associated with the very chronic cases of seminal vesiculitis.

The generalized symptoms can be subdivided under the headings of neurasthenic—or nerve reflex—mental, and rheumatic. Seminal vesiculitis has the same effect on the nervous organism of the male that ovarian inflammation has on that of the female. If an individual be naturally phlegmatic, few or no such symptoms may coexist. In a highstrung person, however, they are markedly in evidence. The symptoms of neurasthenia are so well known that it is hardly necessary to detail them in this connection. When, however, a young or middle-aged man comes under my observation with marked symptoms of neurasthenia or hysteria, I invariably examine him both clinically and physically with reference to his sexual function and his seminal vesicles, and it is rare indeed when I do not discover the coexistence of a marked lesion of the seminal vesicles. The mental symptoms associated with this condition are in the nature of depression, confusion, apprehension, and melancholy.

The rheumatic symptoms are very important. They are occasioned by a systemic absorption from

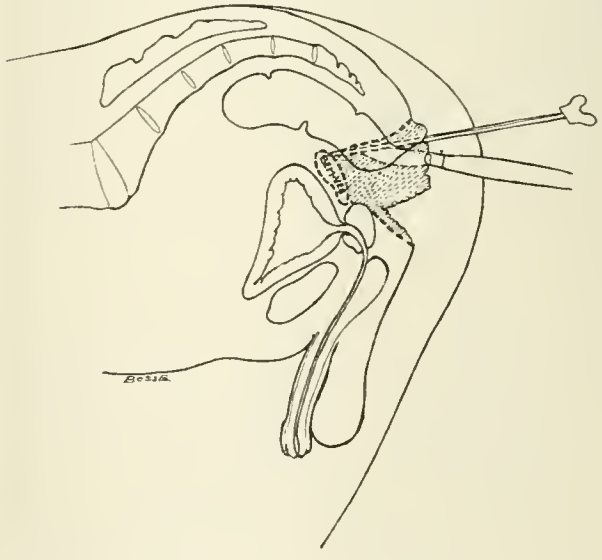

Fig. 7.—A schematic section to show the position of the director and scalpel with reference to the seminal vesicle.

a focus of seminal vesicular inflammation. The old term, gonorrheal rheumatism, is the one usually employed to describe this form of trouble. This nomenclature is, in my opinion, unsatisfactory and more or less erroneous. I make this statement because this form of rheumatism can exist entirely in-

dependent of the gonococcus. I have observed rheumatism of this description associated with a very chronic seminal vesiculitis, in a patient who had never had either gonorrhea or even sexual intercourse. There was a streptococcus involvement of the seminal vesicles in this instance, and a seminal vesiculotomy with drainage relieved the rheumatism. In numerous other instances, where chronic or relapsing rheumatism, depending on the existence of a chronic seminal vesiculitis, has come under observation and been relieved by the operation mentioned, the date of a possible or probable antecedent gonorrhea has been very remote, marriage often having intervened without evidence in the clinical recital of a propagation of any infection. From these observations, and from the fact that in the acute cases the remote joint symptoms subside in the short space of twenty-four to forty-eight hours after the establishment of seminal vesicular drainage, I have been led to wonder whether some toxin, connected perhaps with the gonococcus, the streptococcus, or some other germ, may not be the direct cause for these rheumatisms, rather than any one germ or combination of germs.

As it is probably not generally evident how the many clinical symptoms mentioned can result from seminal vesiculitis, it is advisable to make some explanatory remarks, especially in relation to urinary symptoms, since these last apparently serve particularly to mislead the average diagnostician. Chronic or relapsing urethral discharge as a symptom dependent on an existing catarrhal state of the seminal vesicles, is now quite generally accepted. That reflex symptoms of urinary urgency, unaccompanied by inflammatory products in the urine, can exist as a symptom of such disease, is not as yet very generally recognized. It is, however, a common symptom. Symptoms of true cystitis, together with pus and bacteria in the urine, also are not infrequent. I especially called attention to this condition in an article entitled "Operative Cure for a Hitherto Unrelieved Class of Cystites." (*Am. Jour. of Urology*, December, 1906).

"In the early performance of seminal vesiculotomy, the operation was undertaken for the relief of the usual symptoms, chiefly of a sexual nature, which accompany chronic inflammatory involvement of the seminal vesicles. In the study of the results of these cases I found incidentally that in a number of them symptoms of cystitis, which had coexisted with those of a sexual nature, spontaneously disappeared after convalescence from the operation. This fact led me to make a careful cystoscopic study of the bladder in a series of cases of seminal vesiculitis. I found as a result that in those of them where the bladder was involved, the lesion was confined to the base of the organ, in fact to that part of the structure lying over the seminal vesicles. In some of them where the inflammation about the seminal vesicles had been extensive, I found, likewise, that the inflammation invading the base of the bladder had been extensive and had extended further than the underlying portions of the seminal vesicles. In all these cases the other portions of the bladder were normal or nearly so in appearance. From these cystoscopic studies it seems reasonable to infer that the lesions of the vesical bases accounting for the cystites were really peripheral ones, the center foci for which were the infected seminal vesicles, the germs in the bladders having penetrated the intervening tissues from the cavities of the seminal vesicles. In other words, I classed the bladder inflammations as localized pericystites. In mild cases, the cystoscope showed the vesical mucous membrane of the area involved, red, infiltrated and edematous, while in the severe types, granulation tissue had in large measure taken the place of the mucous surface. Here and there on these granulations would be pus flocculi, films of inflammatory exudate and spots of hemorrhage. In some of the advanced cases, the least instrumental contact with the surface granulations was sufficient to provoke a fairly free hemorrhage. On one of them a triple-phosphate crustation had formed. As a result of these investigations, I felt confident that a cure of this form of pericystitis would follow spontaneously after the operative elimination of the chronic infection in connection with the seminal vesicles. Acting on this conviction, I have cured through seminal vesiculotomy a number of these cases, all, in fact, on which I have so far operated."

In that article there followed a detailed clinical report of four such operative cases.

Retention of urine, as a symptom, occurs generally in connection with acute suppurative cases of seminal vesiculitis where the periseminal vesicular loose tissues become invaded by a purulent or serous exudate, the inflammatory process having penetrated the sac walls. An extensive tumefaction occurs in the pent up post-prostatic space between the trigonum and the rectal wall. This tumefaction is frequently sufficient to cause retention, exactly in the same manner as can prostatic hypertrophy. This action is generally observed in connection with acute gonorrhea, wherein the infection runs a virulent course. In my article, "Operative Surgery Applied to the Seminal Vesicles," (MEDICAL RECORD, May 21, 1904), there is recorded a detailed clinical history of five such cases, these having occurred among my first 21 instances of seminal vesiculotomy.

Little more will be here said in further explanation of the genital symptoms, not because these symptoms are not most important, but because after the brief description of them already given their relation to seminal vesiculitis ought to be understood.

Where nervous and mental symptoms predominate, mistakes in diagnosis are frequent. Such patients, perhaps, as a rule, consult a physician rather than a genitourinary surgeon, and in a recital of their symptoms no special mention is apt to be made of genital derangements unless such facts are brought forth as the result of direct questioning from an alert consultant. Many times I have found individuals supposed to be suffering from sciatica, lumbago, nervous dyspepsia, inflamation of the appendix, neuralgia of the testicles, and other allied pains, to in reality have seminal vesiculitis, a cure of which relieved them of the reflex symptoms causing complaint. The worst forms of mental and nervous disturbances dependent on this lesion are apt to occur in the cases of young men of an average of twenty-five, the commencement of their seminal vesiculitis having occurred at or before puberty. The appreciation of this fact led me to write an article entitled "A Plea for the Sexual Protection of Young Boys" (*Am. Jour. of Dermatology and Genito-Urinary Diseases*, St. Louis, vol. xvi., No. 9), in which the following clinical description is given: "In my clinics and practice it is not uncommon to encounter young men of an average of twenty-five so wrecked nervously and mentally that they can at best barely support themselves by their own exertions, whereas, in most instances the story

is that they cannot apply themselves sufficiently to follow any employment. It is generally found that any degree of sexual excitement seems, in the patient's opinion, to aggravate the nervous and mental symptoms complained of. Sexual power has, as a rule, been so much impaired that sexual intercourse is impossible, or at best very imperfect. There is more or less mental confusion, lack of initiative, bashfulness, difficulty in suppressing emotion, shyness, and melancholy. The surgeon's first impulse on seeing such a case might be to class it as one of congenital weakmindedness associated with masturbation, and to turn it hurriedly aside as incurable, and consequently uninteresting. Many cases, with these general symptoms, do belong to that class, but there are others that do not, and it is these others that now demand attention. In this latter class it will be found from an investigation of the early clinical history that the patient as a young boy was strong, mentally alert and, as a rule, good looking and generally attractive.

"At an early age, ranging from eleven to fourteen, there will be a history of the commencement of sexual intercourse, a mature woman having been the offender and instigator of the practice. It will be further learned that the woman, for her own gratification, taxed the boy excessively and over a considerable period. The injurious effects of thus taxing the sexual function before puberty may not in the clinical history immediately show themselves. But it will be found that the boy, as he approaches puberty, will have become dull and apathetic in his studies, and of uncertain stamina mentally. There may or may not be a history at this time of some masturbation. There may be a story of some sexual indulgence at a later period, but by the time the age of twenty-one is reached sexual desire and force is, as a rule, pretty well lost, or if not sexual attempts or excitement are usually found to be so disturbing mentally and nervously as to cause the patient to shun, if possible, both these conditions."

Gonorrhea contracted at an early age may also be the primary factor in this class of cases. In the article just quoted, the results—highly favorable from operation in five such cases—are reported. In this connection, the study and relief of gonorrheal rheumatism has received from me much attention. In an article entitled "The Relation of Gonorrheal Rheumatism to Seminal Vesiculitis, and its Cure by Seminal Vesiculotomy" (*Annals of Surgery*, June, 1905), I reported the first cases—four in number—ever operated upon or treated in this manner. The results were extremely satisfactory. In a further report on the subject (*New York Medical Journal*, May 30, 1908), I make the following statement:

"In the acute bedridden cases the effect of the operation is most marked. In twenty-four to thirty-six hours the pain in the joints disappears, and by the fourth day the swelling. Some stiffness and some atrophy of the muscles are of course left after the rheumatic process has disappeared in these acute cases, requiring massage and passive movement.

"In the chronic cases pain disappears in a week or ten days, and at the end of two weeks massage can be prescribed. In the very chronic cases it may take two to three months of massage and exercise to limber up the joints which have been robbed of their function. In fact, one has the same problem in these cases which the surgeon has after resolution from a fracture of long standing. It is well known that in chronic gonorrheal rheumatism massage and manipulation make matters worse, whereas in these cases, convalescent after seminal vesiculotomy such treatment is beneficial, because there is no longer the systemic absorption of the toxine. One point I have noticed after operation in quite a number of these cases is that in the third week after operation there may be a mild and temporary recrudescence of the rheumatic symptoms, whereas in the two weeks immediately after operation there had been a complete recessation of all such symptoms. Such recrudescence, I take it, is due to a somewhat premature closure of the tract of the incision before a complete elimination by drainage of all the toxins has taken place."

On this account I am now very careful in these cases not to remove the drainage tubes until the twelfth or fourteenth day after the operation, provided they can be retained in position so long. Sometimes, where the healing is prompt, the tubes are forced from their position sooner. In such cases, the forcible retention of the tubes, after nature tends to expel them, is surgically unnecessary, besides being painful to the patient.

As already stated, I have to date performed seminal vesculotomy 126 times without any mortality. I have previously reported my first twenty-one cases ("Operative Surgery Applied to the Seminal Vesicles," MEDICAL RECORD, May 21, 1904). My 105 cases operated since that report I will here briefly tabulate. I group these cases under four headings, in accordance with their clinical symptoms. Thus, if the urinary symptoms are most prominent, a case is grouped under the urinary heading, although in that particular instance there may, and probably did, exist, less prominently, symptoms belonging to another clinical group.

The table is shown on page 723.

Out of the whole 126 cases 7 of them had a tubercular involvement of the seminal vesicles when operated upon or that process commenced in the part promptly after operation. No permanent benefit was accomplished by the operation in these 7 cases. In fact, had I known beforehand of the tuberculosis or the tendency thereto I would not have operated. Very likely the operation in some of these cases did harm by disseminating the tubercular focus. In suspected cases my rule is to make the diagnostic tests and not to operate in case tuberculosis of the part can be demonstrated. In one case, 73, the patient one year after operation declared he had not been in the least benefited. Case 95 left the hospital dissatisfied. This was the only case in which a phlebitis developed, the left leg being involved. Case 83 was not benefited. This man when examined in the clinic gave a long list of mental and nervous disturbances. He had a marked seminal vesiculitis. I suspected mental degeneracy. After operation the patient's behavior in the ward was so scandalous that his degeneracy became manifest.

These 10 cases are the only ones out of the whole 126 wherein the operation did not cure or was not at least attended by sufficient benefit to warrant its having been performed.

Out of the 35 cases of rheumatism operated upon, 15 were severe, acute cases; 13 of these were promptly cured and 2 radically relieved when last seen on leaving the hospital and probably cured. Three were subacute cases; 2 of these were cured; 1 of them represented a tubercular case and so was not eventually satisfactory. Two were cases representing recurring or relapsing attack. Both of

Urinary	Genital	Nervous and Mental	Rheumatic
23. Retention abscess, acute gonorrhœa—cure.	22. Impotency—cure	31. Mental depression, nervous reflexes—cure.	38. Acute—cure.
24. Persistent discharge—cure.	30. Sexual incapacity—cure.	32. Numerous marked reflexes—cure.	42. Acute—cure; in continuous good health three years after.
25. Marked symptoms of cystitis—relief.	34 Sterility and faulty sexual function—cure Impregnated wife two years after.	39. Reflex pains in back and elsewhere—cure	44. Acute—cure
26. Chronic discharge; later developed tuberculosis.	35. Sexual incapacity—cure.	40. Nervous and mental—greatly improved, wants to be operated on again for further improvement.	45 Acute—cure
27. Marked cystitis—cure.	43. Impotency—power restored.	41. Marked melancholy, reflexes—cure.	48. Severe case of considerable duration—prompt relief but later some relapse.
28. Marked cystitis—cure	47. Impotency, power restored.	58 Marked neurasthenia, temporary relief, but later tuberculosis.	50. Acute—prompt relief, some temporary relapse.
29. Discharge, bacterial urine, bladder irritation—cure.	49. Sexual incapacity, left hospital satisfactory; not seen since	63 Marked reflexes—cure	51. Severe and of considerable duration; temporary relapse from sexual excess—cure.
33. Marked cystitis—cure.	53. Impotency—cure	64. Marked mental and reflex, left hospital satisfied; not seen since.	52. Very chronic, quick relief from pain, but some time before joint movements are wholly recovered.
36. Difficult and frequent urination; threatened retention—cure.	55. Impotency—very satisfactory at discharge from hospital, not seen since.	72. Very neurotic; this proved to be a tubercular case; no relief from operation.	54. Very chronic and extensive involvement; some temporary relapse due to sexual intercourse soon after operation—cure
37. Relapsing discharge, and relapsing attacks of epididymitis—cure.	70. Sexual incapacity—cure.	73. Mental and neurotic; no satisfactory relief from operation.	56. Severe case, seven months' duration—cure, slight temporary relapse after operation.
46. Relapsing discharge and persistence of bacteria in urine—cure.	81. Impotency; left hospital satisfied.	77. Mental and neurasthenic; —cure	57. Severe case, seven months' duration—cure.
59. Relapsing discharge and painful urination—cure.	82. Impoteney; left hospital satisfied.	83. Mental and neurasthenic; this case proved one of mental degeneracy (paranoia); no improvement from operation.	61. Acute—cure.
60. Retention; seminal vesicular abscess—cure.	85. Impotency—cure.	84 Marked mental and neurasthenic from early abuse; great improvement.	66. Extremely rheumatic and generalized; much relief from operation; some relapse; patient transferred and lost from observation.
62. Very difficult urination; threatened abscess—cure.	91. Impoteney — cure married and has a child	87. Marked mental and neurasthenic; much better when last seen. Six months after operation.	67. Acute—left hospital relieved.
65. Relapsing discharge; left hospital satisfied.	95. Impotency; left hospital dissatisfied	88. Very bad mental and neurasthenic case of twenty years' standing; now very satisfactory two years after operation.	71. Many months' standing, numerous joints—cure.
68 Frequent urination—cure.	105. Marked sexual weakness; left hospital improved.	90. Marked mental and neurasthenic, dating from puberty; better but not well six months after, when last seen.	76. Subacute—cure.
69. Frequent urination and cystitis—cure.	107 Impoteney—cure, married.	103. Mental and neurasthenic, discharged improved.	78. Severe relapsing attack—cure.
74. Marked relapsing discharge and urinary disturbance—cure.	108. Impotent—cure; but wishes he were still stronger	124. Marked mental and neurasthenic from gonorrhœa contracted at puberty—cure	80. Recurring and severe; left hospital in very satisfactory condition.
75. Discharge; pain on urination; satisfactory on leaving hospital.	114 Marked sexual weakness; greatly improved; and satisfactory when last seen two months after discharge from hospital.	125. Marked neurasthenic—cure	92. Chronic involvement of hip; improved but not well three months after, when last observed.
79. Great urinary frequency with pain; urine loaded with pus and bacteria; greatly improved when seen six months after operation; urinated every 2½ hours without pain; still some bacteria in urine.	116. Marked sexual weakness; left hospital satisfied.		93. Chronic synovitis; left knee—cure.
86. Marked symptoms of chronic cystitis; marked temporary relief; later, tuberculosis developed.			94. Acute—cure.
89 Frequent, urgent and painful urination—cure.			96. Acute—cure.
98. Chronic discharge and urinary pain—cure, when seen one year after, though not wholly satisfied at time of discharge from hospital.			97. Very chronic and general involvement; in bed or on crutches eight years. Walked without crutch or cane to Acad. of Med. for exhibition four weeks after operation.
104. Chronic discharge and urinary urgency—cure.			99 Very acute—cure.
106. Urinary urgency and pain; left hospital relieved.			100. Marked acute involvement; bedridden three months—cure.
109. Great urinary frequency and pain; reports greatly relieved but not yet well, six months later			101. Acute—cure.
110. Urinary urgency and pain; left hospital relieved but later developed tuberculosis			102 Subacute; improved, but later developed active tuberculosis.
115. Relapsing discharge and urinary disturbance; left hospital in very satisfactory condition,			111. Marked involvement, cardiac lesion. Much improved for six months, then failed apparently from progress of cardiac lesion, and relapsing rheumatic symptoms then appeared.
118. Marked symptoms of cystitis with great pain on urination; urination very frequent; patient states he has had his bladder opened six times suprapubically and perineally, each such operation having left his condition worse—cure.			112 Very chronic involvement of both knees and ankles; left hospital much improved; six months later ankles were well but motion had not then been restored to knees. General health much better I expect this case may not have had the benefit of sufficient massage
119 Symptoms of cystitis; left hospital relieved.			113. Most chronic case of all, eighteen years progressive duration; most joints involved; general condition very bad, very marked improvement for six months following operation, now at nine months there are relapsing symptoms
123. Relapsing discharge—cure			117 Very chronic case, thighs and knees flexed latter very rigid even under anæsthesia; general conditions bad Marked emaciation; left hospital six weeks after operation, greatly improved, but in need of much massage and passive motions, not heard from since.
126. Symptoms of chronic cystitis—cure.			118 Acute—cure
			120 Subacute—cure
			121 Acute—cure.
			122 Acute—cure.

these were cured. Seven represented chronic cases of many months' standing. Severe muscular atrophic changes were not, however, as yet present. Of these, 5 were promptly cured; 1 was eventually cured, although there was a temporary relapse of symptoms a month after operation; 1 was temporarily relieved, but relapsing symptoms recurred, during which time the patient was lost to observation.

Of the 8 extremely chronic cases, most of them of years, duration, 4 were cured; 1 so greatly relieved when last seen soon after leaving the hospital that a probable complete cure occurred; 1 was greatly relieved, but at the end of six months had not yet gotten the full use of all his joints. This case is a probable cure, secondary massage only being now required. One case after six months began to fail from cardiac insufficiency due to aortic lesion; 1 case after marked relief for six months is now, at nine months, suffering considerably from a recurrence of symptoms. In this case the rheumatism had been progressive for eighteen years, and the patient's physical condition at the time of operation was very poor indeed.

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CLINICAL VARIETIES OF PERIODIC DRINKING.*

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Singled out and separate from habitual drinking is a type of alcoholism characterized by its periodicity. There are recurring attacks of intemperance and debauch, lasting from a few days to several weeks. Between the attacks, the subjects are either temperate or abstemious, or have a distinct distaste for liquor, and, for the first few years at least, bear none of the physical or mental stigmata of alcoholism. The periodic character of this variety of inebriety has long caused it to be compared with another paroxysmal disease, epilepsy. And since Gaupp, in a carefully prepared monograph on dipsomania, published in 1901, drew the lines closely together from cases of his own and from literature, there has been a gradually growing conviction that dipsomania is one of the larval forms of epilepsy. It cannot be denied that there are striking points of similarity between typical cases of dipsomania and epilepsy. Many dipsomaniacs have had convulsions and in nearly all of them may be found the same neuropathic antecedents as are met with in the histories of epileptics. Again, the action of alcohol upon a diseased or intolerant brain recalls in many ways certain symptoms of epilepsy. Intolerance to alcohol, to the results of which the Germans have given the name pathological drunkenness, is essentially epileptic in character. In it, after the ingestion of very small quantities of spirits or even beer, the individual becomes immediately flushed and excited, violent and often dangerous to others. A similar intolerance is common in epileptics, and is particularly liable to induce states of automatism in which the patient is no longer responsible. It is also frequent in other cortical diseases or degenerations, of which it may be the earliest diagnostic sign. Notable among the brain conditions in which intolerance is encountered are general paresis, degeneration of the cerebral arteries, and the state of depressed cortical function which often follows traumatic injuries of the head.

In addition to these general similarities an attack of dipsomania has certain psychic characteristics in common with those of grand mal. In both the patient becomes, for a short time before the attack, restless, anxious, dissatisfied; he reproaches himself for misconduct which had long lain forgotten; and all this without reasonable cause. This premonitory depression is constant in true dipsomania and is becoming more and more recognized as a cardinal symptom of epilepsy. In addition, retrograde amnesia, as well as amnesia for parts of the attack itself, is common in both conditions.

I have notes of a case of a young man, by nature temperate and self-controlled, in whom the attacks recurred every two or three months, sometimes less frequently. The antecedent depression was marked, and readily recognized by the family. The seizures were characterized by wild intemperance, debauch, and violence. There were distinct losses of memory for parts of the attack itself, and often also for several hours preceding the first drink. The apparently hopeless outlook in this case, which I have watched for five years; its explosive character without any psychic cause which can be ascertained, and the bad family history, seem to mark it definitely as dipsomania of epileptic nature, dependent on the same cortical irritation as causes epilepsy. Certain cases cited by Gaupp also seem equally incontestable. But such cases are rarities.

Perhaps no one sees so many varieties of alcoholism in their formation period as a neurologist practising in a large city. And of the various cases of periodic drinking I have seen, the one mentioned is the only one in which epilepsy seemed the only explanation. In the others, various causal factors pressed forward for recognition, equally or more deserving of attention than epilepsy. So I now believe that many of the so-called epileptic dipsomanias can be better explained on some other hypothesis; that what seem at first sight as epileptic explosions can frequently be reduced to certain phases of mental disease, the clinical characteristics of which soon become blurred by alcohol, or to the influence of some recurring psychic motive.

The importance of such a distinction is real, both for prognosis and treatment. True dipsomania has the same prognosis and treatment as epilepsy. Periodic drinking from other causes offers more hope for amelioration in that the cause, when found, is more get-at-able; and the case as a whole can be better understood and more rationally handled, if its causal factors are revealed.

In the listed types of mental disease, alcohol plays a varying role. It is not conspicuous in dementia precox or in melancholia. In fact, the generally received belief that mental depression causes periodic drinking seems true only insofar as it applies to depression within the limits of sanity. Under the stress of business reverses, family troubles, failing health, many become tipplers. Some become periodic drinkers. The most familiar type of this is the emotional, high strung man who gets wildly drunk, often for sev-

*Read at a meeting of the New York Psychiatrical Society on May 5, 1909.

eral days, after quarrels with his wife. But the recurring attacks of depression in which the depression is out of sane proportion to the causes alleged to have induced it—that is, the recurring depressive cycles of a manic-depressive insanity, seem rarely if ever to incite to inebriety.

In general paresis sudden attacks of inebriety are extremely common, as is to be expected from the epileptic associations of this disease. It is only when these attacks precede the physical signs or the mental deterioration that diagnosis is difficult.

In the manic phases of manic-depressive insanity, periodic drinking occurs in a way to obscure the clinical picture. In these cases the mental disease is accountable for the inebriety; but the effects of alcohol so far change the ordinary clinical behavior that it is usually only after two or three attacks that the true nature of inebriety is discovered. The two following cases illustrate this:

One is that of a young man who has been committed to Bloomingdale thirteen times in the past ten years. I appeared in one commitment, but for details of the history I am indebted to Dr. S. B. Lyon. The original diagnosis was dipsomania, and the patient's wife still believes alcohol to be at the root of all the trouble. In the beginning of the attacks while drinking, he is confused, delusional, and disordered, with more or less excitement. During the attacks, he is abusive, denounces his commitment as unjust, and threatens court proceedings. Before some of the commitments, he has been violent and made assaults. On one occasion he improved sufficiently to be removed by his mother. Two days later, he was drunk again with return of mental symptoms—he was dirty, disheveled, excited, garrulous, talked rapidly, profanely, and disconnectedly—a condition lasting several months.

Another case of this character is the following:

A man, 37 years of age when he first came under observation, had proved himself of more than ordinary business capacity. He had built up a successful business and had made shrewd investments. At college he had been regarded as intemperate. He used to go off on sprees, though not a regular drinker, and acted queerly. He was married in 1904, the bride being aware of his reputation. Shortly after his marriage, he refused for a time to speak to his wife, felt that he had lost all his money, felt that there was no hope for him, and threatened suicide. During this time he did not drink at all. In August, 1905, he began to drink and was intoxicated most of the time. At the same time, he became expansive. He bought a great many things that he had no use for, though he almost always got good bargains. A piece of real estate that he bought at this time was sold at double the price he paid for it. He would play the piano all night and would go out in his night clothes at four o'clock in the morning to feed the dogs and chickens. He kept the whole house awake with his orgies, drinking constantly; he would lock himself in the wine closet for hours at a time. Though very drunk, he appreciated fully the object of a visit from two examiners in lunacy and swore he would not be locked up. Placed in confinement, the evidences of alcoholism rapidly left him and he remained in a condition of mild reasoning mania. He reasoned with such skill that no sheriff's jury would have held him, and as he insisted on liberty or an *inquirendo*, he was discharged. He immediately became much depressed, bore no ill will toward those active in his commitment and did not drink at all. Later he resumed drinking wine at dinner without apparent ill effect and without intemperance. For three years he was well, temperate, successfully engaged in business. There was one period of excitement and intemperance which lasted several weeks, but for which no special medical attention was necessary. In the autumn of 1908, he began to drink again. He would insist on making several cocktails for everyone who called; he wrapped a napkin about his waist, served all drinks himself and said he was the butler. And, as before, would lock himself in the wine closet for hours. He developed persecutory ideas. Thought that detectives were after him, that the people on the street were making remarks about him, that people in neighboring houses were mocking him. He was placed, without commitment, in a private sanatorium. He thought he was committed and would not cross the threshold of his room in the fear that the police would get him. He had developed some important signs of alcoholism. The knee jerks were absent. And another sign, the occurrence of which as an alcoholic symptom is overlooked in most text-books, was that the pupils did not respond to light. After a few weeks' abstinence, both the knee jerks and the light reflex became normal. But he still was insane and was committed.

He was filthy in his habits and would spend his days making messes of food and odd bits of rubbish, which he called inventions. He was confined altogether for about two months, at the end of which time he was well enough to be discharged. He again became depressed, all delusions left him, and he had no desire to drink.

Both of the above cases seem to have classed themselves pretty definitely as manic phases of manic-depressive insanity. By some peculiarity of personal disposition or environment the expansive periods announced themselves by sudden outbursts of inebriety; and the resulting alcoholism marred the clearness of the mental picture. But the diagnosis was long in doubt, and by the lay mind both patients still are believed to be periodic drinkers.

Outside the sphere of well defined psychoses are many mental states touching the abnormal and characterized by instability, by impulsiveness, by excessive psychomotor reactions. It seems reasonable to think that further examination in this field may throw much light on periodic drinking.

Many of the psychic causes and the psychic effects of alcohol are interchangeable. In studying the mental states which lead to drinking, we may find one that seems important, and mark it down as an essential cause. Then, later, when observing the effects on character of alcoholism, we come again, with startling frequency, upon the same feature which caught our eye when studying causes. It may have become, perhaps, discolored, and present lines more sinister, but is none the less unmistakably the same as we knew it as a cause. Take, for example, fear. Fear as a cause of drinking has become a proverb, and

so requires neither exploitation nor comment. As a symptom, fear is disseminated through the whole clinical fabric, from the timidity of the besotted vagabond to the wild terror of the victim of alcoholic hallucinations. Thus fear is both a cause and an effect. So it is with many other of the factors busy in the genesis of this world disease. We see them as causes and, shortly afterwards, they are looking at us branded as effects. Like sheep at pasture, they jump their boundaries.

Sexual desires, wrong moral attitudes, idleness, jealousy, all appear indifferently in the category of causes or effects. And in studying the springs of inebriety, we may do worse than begin with the effects. Two of these latter—sexual excitement and jealousy—deserve especial scrutiny. The relationship which exists between the sexual appetite and the stimulant which best arouses it needs only to be mentioned to be recognized. Indiscriminate license, sexual perversion, sexual crimes, all are the results of intoxication, as readily appears in every treatise on psychiatry and legal medicine. But that certain forms of alcoholism owe their existence to sexual desire is not so well established. Normal intercourse has nothing to do with drinking; and the alcoholic hilarity which enhances the popularity of the brothel stimulates desire rather than results from it. But in periodic drinking, the generative feature stands out more closely. Procreative tendencies are themselves more or less periodic in their appearances; and their impulsive character is revealed by such degenerates as exhibitionists and curl cutters or by such imperative ideas as are found in the psychoses which result from sexual traumata in childhood. I have yet to meet a periodic drinker who was not an erotomaniac as well. One patient whom I have observed for fifteen years and who has been incarcerated in almost every institution within 100 miles of New York has never gone on a spree from which harlots were excluded. With him, contemporaneously with the idea of the initial drink, came the idea of sexual gratification. And when his family went to look him up, they would always find him in a house of prostitution, never in a bar-room. It is true that in many dipsomaniacs, the erotic ideas do not make their appearance until the stimulant has aroused desire. But in the case just described they appeared as soon as, if not sooner than, the impulse to drink; and there would be no difficulty in mustering other cases of this class. So it seems worth while to give attention to the hypothesis that some cases of dipsomania arise in the sexual centers rather than in the motor cortex—and that they are a part of a general neuropathic state and are psychogenic in origin, having no direct relationship to epilepsy. Cases in this class distinguish themselves from epileptic dipsomania in that aggressive physical violence is not conspicuous during the attacks; that the attacks can persist over many years without pronounced mental deterioration; and that, as time goes on, the attacks may become less severe and less frequent.

Another variety of periodic drinking is sometimes met with in personalities mildly paranoid, usually of the jealous type. Jealousy is among the most frequent of the psychic symptoms of chronic alcoholism, and consequently when one encounters a case of alcoholism with jealous delusions one is apt to infer that the delusions are toxic products. But this is not always correct. In a number of cases that have come under my notice subsequent events have shown that the periodic drinking was a fortuitous circumstance. The paranoid state was amplified by it, but existed independently of it—and in one case in particular was only moderately intensified by the alcohol.

This case was that of a lady of highly neurotic temperament and a jealous disposition. After having borne her husband several children she became infected with syphilis. The infection is believed to have occurred at a gynecological operation. The husband never had syphilis. But the occurrence of the misfortune intensified the wife's jealous state of mind. She wished to know everywhere her husband went; would upbraid him for his alleged attentions to other women; and frequently insulted different female members of her own family on the ground that her husband was unduly attentive to them. Her attitude toward her husband was fluctuating; at one time solicious and affectionate, at another she would work herself up into a jealous rage, upbraiding him and accusing him of all manner of improper acts of which he was guiltless. On these occasions, she would take to drink, which intensified her fury. Once she developed a typical jealous mania. She went to the police and set detectives on her husband's trail; interviewed the newspapers; threatened divorce; put a truly insane interpretation on the most trivial circumstances; said she would ruin her whole family if necessary, but that her husband should be exposed. She was drinking heavily at this time and those who saw her—police, detectives, and members of her own and her husband's family—all thought her action the sole result of drink.

Placed under treatment and being brought to realize that none of her contentions would be believed by anyone if she drank, she stopped drinking, and though she stopped abruptly, showed none of the physical signs of alcoholism. But the mental symptoms kept on in full activity, and for months afterward, although she was totally abstemious, the psychosis continued in full flower.

Another promising field for future investigation as to the genesis of periodic drinking should be among the class of emotional personalities broadly embraced by the terms Hysteria and Psychasthenia.

Throughout the clinical range of alcoholism, both of the single intoxication and of the chronic poisoning, there is disturbance in the emotional sphere. Individual feelings such as anger, grief, joy, fear, attain undue prominence, and react to stimuli too easily. This fact explains why cures, whether they be religious, "scientific," or commercial, which appeal to the emotions, are the ones which have the greatest success with the drunkard.

And as we find these psychic features as results, it would not be surprising if they also figured as causes. We know now that many obsessions, tics, morbid fears, and even certain paranoid states, had their starting points in some painful emotional experience. I believe that periodic drinking, allied in many ways to these psychasthenic or hysterical complexes, will soon be shown, in many instances, to have had a similar starting point.

I regret that no case in my records has been

analyzed from this point of view, although in one case, seen many years ago, there seemed an intimate connection between the paroxysms of drinking and certain feelings of inadequacy, which latter resulted from unfortunate surroundings in childhood. The newer methods of psychoanalysis would perhaps have shown a still closer relationship.

In closing, I would urge a careful psychological analysis of all cases of periodic drinking. It is only by such means that the proper curative measures can be unearthed. Chronic alcoholism has some right and title to be considered a disease. But dipsomania, in most cases at least, is not so much a disease as it is disorder of personality. And the treatment must be shaped to that end. Before this is possible, the defects in the personality must be laid bare. The treatment, therefore, is individualistic, varying in every patient in accordance with the results of the analysis of him as an individual.

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IS LOBAR PNEUMONIA INFLAMMATION OF THE LUNGS?

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In the introduction to Osler's "Modern Medicine" (p. xxi) Dr. Osler uses the following language: "How little actual progress has been made in clinical medicine is illustrated by what a leading practitioner, Willis, in the middle of the seventeenth century thought of such a disease as inflammation of the lungs. The essential cause was believed to be that the blood boiled feverishly, and 'sticking within the more narrow passages of the lungs engendered there an obstruction causing inflammation.'"

With due respect to Dr. Osler I shall try to show that Willis's conception of the disease is much nearer correct than is Dr. Osler's who, in his phrase, "inflammation of the lungs" evidently voices his own view and the prevailing view. I believe with Willis that whatever inflammation is found is the result and not the cause of the consolidation in the lung. To prove this I shall quote mainly Osler's Practice (last edition) and Osler's "Modern Medicine." This is written, however, not in a spirit of controversy but from a conviction that such designations as "Inflammation of the Lungs" or its equivalent "Pneumonitis" are worse than mere misnomers. Purporting to be descriptive of the essential pathology of the disease, they are misleading and therefore pernicious as names. For it can be shown that the lung condition is merely incidental to a blood infection, and further that all the cardinal symptoms of pneumonia may be present without any lung lesion.

Thanks to the laboratory workers of the past two or three years we know that in lobar pneumonia there is a pneumococcemia or better a bacteriemia. (I quote from "Modern Medicine," Vol. II, p. 556.) "It is now customary to regard pneumonia as general pneumococcus infection with the lesion in the lung as but one of the manifestations. Such a view of the disease allows a clearer conception of the clinical symptoms and the complications. That a pneumococcemia, analogous to the similar condition produced in rabbits experimentally, may occur quite constantly is indicated by a very extensive series of investigations of the blood during life. Prochaska, who found the pneumococcus in all of fifty cases examined, believes the invasion to be a constant condition in pneumonia, as does Rosenow, who obtained positive results in 160 of 175 cases in which the blood was taken at all stages of the disease. Rosenow's results show that the pneumococcus may be obtained from the blood before any physical signs are evident, thus indicating that the solidification in the lung may be but the secondary localization of a primary blood infection. * * * General pneumococcus infection without distinct localizations has been reported by Wright, Stokes, Pearce, Flexner, Hektoen, and others as the result of bacteriological examination at autopsy." This illuminating paragraph, taken from Musser and Norris's comprehensive article of over 100 pages gives one the impression of having been inserted after the general article had been written. While many other statements equally significant may be found yet they are incidental for the subject is treated from the orthodox "inflammation of the lungs" point of view. If this new view "allows a clearer conception of the clinical symptoms and complications" (and it certainly does) one wonders why the authors struggled in vain to explain the clinical symptoms from the old point of view. If this "localization" in the lung is merely secondary to a primary blood infection and not always present it is important that it should no longer occupy the lime light in our study of the disease. We know that the gravity of the disease is not commensurate with this miscalled inflammation of the lungs. Osler truly remarks that "the constitutional symptoms may bear no proportion whatever to the severity of the local lesion." Further, there is no correspondence even in point of time. No one doubts that the disease begins with the chill and rapid rise of temperature and yet at this time there are no physical signs of solidification and usually are not for thirty-six hours or longer. The mode of onset is that of a general infection and there is the positive finding of the pneumococcus in the blood before any physical signs are evident. The termination of the disease is also very significant. Osler says "the crisis is the most remarkable single phenomenon of pneumonia. With the fall in the fever the respirations become reduced almost to normal, the pulse slows, and the patient passes from perhaps a state of extreme hazard and distress to one of safety and comfort, and yet so far as the physical examination indicates there is with the crisis no special change in the local condition in the lung." Had we not been so blinded by our preconceptions and by misleading names, these facts alone should have sufficed to show that the local lung condition is relatively unimportant in accounting for the striking features of the symptom-complex we call lobar pneumonia. Even the greatly increased respiration rate, it is evident, is not dependent upon the local condition of the lung for at the crisis it falls almost to normal though the lung remains unchanged. The feeling of air-hunger in the pneumonia patient is not due to the small proportion of lung tissue out of commission but rather to an extraordinary demand for oxygen and deficient carrying power of the blood. Washbourn has shown that mice infected with the pneumococcus are dyspnoeic although pulmonary consolidation is absent. Hektoen ("Modern Medicine," Vol. II, p. 48) says "there is reason to believe that the fall of temperature with the crisis in pneumonia depends upon the somewhat sudden development of pneumococcidal and other reactions *because the pneumococci as a rule disappear from the circulating blood as crisis comes on.*" I place in italics the

significant point, for just as pneumonia begins as a general infection so it ends as soon as the blood is cleared of pneumococci.

Again, the description of the macroscopical and microscopical appearance of the solidified lung in lobar pneumonia shows that the condition is *sui generis*. The three classical stages, engorgement, red, and gray hepatiazation are not found elsewhere. The stage of engorgement lasts but a few hours, we are told, and "the capillaries of the air cells are seen to be congested and in the air cells are a few leucocytes, red blood cells, desquamated epithelial cells, small strands of fibrin and a large amount of serum." I have seen no explanation or even attempt at explanation of the presence of the red corpuscles and serum in the air cells though it surely cannot be assumed that red blood cells are normal to an inflammatory exudate. Red corpuscles being devoid of ameboid movement do not have the power of voluntary motion as do the white cells and when they are found outside the vessels it is because they have been carried out by the serum. Councilman says that red corpuscles may be found outside the blood-vessels "when the capillary circulation is very slow or when there is complete stagnation of the blood-current in these vessels." Conversely then, the presence of red blood cells outside the vessels indicates that the blood current in these capillaries is very slow or completely stagnant. This is not only a warrantable conclusion but it is an irresistible conclusion. To make the blood current very slow or completely stagnant there must be an obstruction in these capillaries. Compare this with the quotation from Willis and see how it confirms it. When the air cells become completely filled with this transudate of serum and blood cells due to the obstructed capillaries and the "small strands of fibrin" increase until they become "fibrinous plugs filling the air cells" the second stage is reached and "the lung is solid, firm, and airless." We can easily understand why the first stage is short for the transudation of the serum and blood cells soon fill the air cells and coagulation must be rapid for the blood is rich in fibrin elements and it is now in contact with air which fact we know causes prompt coagulation in normal blood. Here is the description: "The cut surface is comparatively dry, reddish brown in color and presents a uniform fine granular appearance due to the protrusion of the fibrin plugs from the air cells. * * * Microscopically, the alveoli are seen to be filled with a network of fibrin in the meshes of which are red blood cells, leucocytes, and a few desquamated epithelial cells." The stage of gray hepatization is described thus: "The air cells are seen to be filled with polymorphonuclear leucocytes, the fibrin becomes granular and is obscured by the leucocytic infiltration, and the red corpuscles appear only as shadows." Here, for the first time, we have a description of a condition approximating an inflammatory exudate but this leucocytic infiltration is not only secondary in point of time to the fibrinous plugs in the alveoli but just as certainly is it for the purpose of removal of this coagulated transudate. To speak of this entire process as "inflammation of the lungs" is to misinterpret the plainest facts or to be criminally thoughtless in the use of language. And to call the process "croupous inflammation" is scarcely an improvement. The first two stages are plainly mechanical or physical while the third stage is but the beginning of the restorative efforts of the organism which finally results in the removal of the transudate and the return of the lung tissue to normal. It is true that an inflammatory exudate is usually found on the pleural surface of the solidified lobe where it comes in contact with the thoracic pleura or that of the adjacent lobe, but this is caused by the solidification. The light, resilient, well lubricated normal lung has been transformed into a heavy, resistant, dry structure and the friction following the respiratory movements provokes a certain amount of inflammatory exudate.

The teachers of a former time rightly laid great stress upon the increased fibrin in the blood and the marked tendency of the blood to undergo coagulation. The "buffy coat" or coagulated fibrin was the criterion for the depleting methods of the days of venesection. And just as the pendulum has swung to the other extreme in blood-letting so has it in reference to the importance of fibrin in the blood. It is mentioned, but its importance is minimized. Osler incidentally mentions "the great increase in the fibrin elements" and implies that the average increase is two and one-half times the normal amount. Other writers say it may even reach five times more than normal. I have seen no attempt to account for this increase in fibrin, and yet it is capable of a very simple explanation. It is a familiar fact that the blood in pneumonia shows a marked leucocytosis except in the old or alcoholic. Virchow, who gave us the designation "leucocytosis," long ago (1858) said: "Now it is a very remarkable fact that it is very rarely that a considerable increase of fibrin takes place without a simultaneous increase in the colorless blood-corpuscles." Alexander Schmidt a few years later "found that both fibrin factors are formed from the destruction of leucocytes." Councilman says, "for the formation of fibrin it is necessary to have the white corpuscles escape from the vessels in considerable quantity and then to break down setting free the fibrin ferment." Metchnikoff says, "In blood removed from the body the white cells allow plasmane, which causes coagulation of fibrin and the formation of the clot, to pass into the liquid." In the light of these facts it is easy to account for the increased fibrin in pneumonia. Cabot studied the leucocytes in 186 cases of pneumonia and found that 137 or more than 74 per cent. had a leucocytosis varying from 10,000 to 30,000 and 17 (9 per cent.) from 30,000 to 55,000. These findings harmonize well with the statements as to increase in fibrin and it will probably be found that the increase in fibrin and the increase in leucocytes go along *pari passu*. That this leucocytosis is purposive to rid the blood of the invading pneumococci no one who has kept pace with recent teaching can doubt. Cabot e. g. says "when either the patient or the disease easily gains the upper hand there is no leucocytosis, or only a slight one; but in the much larger class of cases in which the struggle is a fierce one, leucocytosis appears, whichever way the battle results." Hektoen (p. 45) says "It is generally believed that leucocytosis in infection is beneficial not only because of the phagocytic activity of the leucocytes with respect to bacteria as well as detritus of various sorts, but also because the leucocytes may be the source of bactericidal and antitoxic substances. Experimentally it can be shown that the destruction of bacteria which are destroyed by phagocytosis (streptococci and pneumococci and human blood) is greater, the greater the number of leucocytes present in the same serum." This tendency to coagulation is thus seen to be dependent upon the curative process on the part of the organism. The following

taken from "Modern Medicine," Vol. II, p. 593) confirms this: "Experimentally it is very rarely possible to produce a pneumonia by inoculation with the pneumococcus, even when the animals are exposed to cold or when other artificial means are adopted. Wadsworth has, however, found that when animals are first partially immunized against the pneumococcus, and their resistance raised instead of lowered, intratracheal injections of pneumococci give rise to extensive lobular pneumonia or to true lobar pneumonia. He believes by this process of partial immunization the rabbit is brought nearer to the condition of man, who possesses a certain degree of resistance to infection by this organism. Thus, in man, after infection by the pneumococcus, in place of a rapidly fatal septicemia, the lungs sustain the brunt of the assault and in this situation there is set up a localized inflammation. But this process is not entirely local. In the majority, if not in all cases pneumococci gain entrance into the blood and produce a systemic infection." To get true lobar pneumonia the rabbit's resistance must be increased! How easily explained when we realize that the solidification of the lung is sequent to the curative process and how it defies explanation under the old view! The increased resistance means, of course, increased leucocytosis and this with the phagocytic activity is the present day translation of Willis's "the blood boiled feverishly."

The fact that coagulation occurs in the lungs more frequently than elsewhere is still to be accounted for. It is known that "CO_2 has some effect in hindering the formation of fibrin." Blood rich in fibrin elements would be most likely to undergo coagulation, therefore, at the point where it loses its CO_2, which is, of course, in the capillaries of the lung. It is indicative of the soundness of this view that it satisfactorily explains another obscure problem, viz., why are the lower lobes the most frequent site of the consolidation? If the lungs are the seat of election because the blood has here lost its CO_2 and is best oxygenated, it is evident that the place of election in the lungs themselves would be those lobes which are most active, which we know to be the lower lobes. I recently made an autopsy in which the apex of the left lung was consolidated and the base of the lung was found to be bound down by old adhesions, relics doubtless of a former pleurisy or pneumonia. It was evident that the apex was doing vicarious breathing and was the most active part of the lung, hence the consolidation. In showing the consolidation of the lung is incidental to the curative process it is easy to understand the late appearance or entire absence of physical signs of pneumonia, and yet the fearful mortality in the alcoholic and the aged. There is either only a tardy weak reaction or no reaction and they succumb to the overwhelming bacteriemia. (I prefer bacteriemia to pneumococcemia because other bacteria besides the pneumococcus can cause the same leucocytosis and resultant consolidation.) At the other extreme are the sthenic cases in which reaction is so pronounced that the tendency to fibrosis becomes a source of danger by the formation of antemortem clots in the heart or in important blood-vessels. I have known these chicken-fat clots to be removed from the sinuses of the dura mater, for example. They formed firm, tenacious casts and often seem completely to occlude the vessel. Osler says "in no other acute disease do we meet with coagula of such solidity." The older writers laid stress on these antemortem clots in the heart and rightly, in my judgment. We hear much about the failure of the right heart due to the increased resistance from the consolidated lung tissue, but I feel sure that as a cause of heart failure it is of much less importance than the formation of antemortem clots in the heart itself which interfere so seriously with the action of the valves.

While there is much more that could be said I believe that sufficient facts have been presented to convince the open-minded that lobar pneumonia is essentially a pneumococcemia or bacteriemia and that the localization in the lung is not inflammation, but is a process secon lary in sequence and secondary in importance. And further, that so far from Willis's conception of the disease being an example of how little they knew in the middle of the seventeenth century it is rather an example of how a sagacious man anticipated two hundred and fifty years ago the view of to-morrow.

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DEFECTIVE SPEECH IN BACKWARD AND FEEBLE-MINDED CHILDREN.

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Defective speech of the feeble-minded constitutes an important hindrance in obtaining an education. The difficulty in expressing their thoughts leads them to laziness in thought and consequent degradation. Speech and thought go hand in hand. Some one well says, "To think is to speak low and to speak is to think aloud."

The mental condition of a speaking child can best be reached by a knowledge of the extent to which language is understood and used. In the speech of *phrenasthenics*—and in this class are found most of the so-called backward children in the public schools and all the children in the state institutions for the feeble-minded—may be detected all the regressive forms of speech in a manner corresponding to the evolutionary formation of language of the modern infant.

The child cannot speak correctly because his impressive centers and expressive organs of speech are not yet completely developed. Even when these children possess a rudiment of language, they mar long words of three or four syllables because of the simple structure of their nervous system, which does not allow the extensive and complex coordination of combined movements that a long word necessitates. They, like infants, simplify the sounds and abbreviate the words. Often they pronounce the easiest or most accentuated. Sometimes, with much training they become able to add another syllable to the monosyllable. One child who had learned to recognize the doctors and to give to them the word "doctor," although he was not able to distinguish one doctor from another, or the superintendent from the attendants, was after a long time taught to say "dock." He was able with continuous exercise to form a small capital of bisyllabic words, which he pronounced, as a rule, in association with images, objects, or persons. So extreme a case as this may not come one's way often, but the illustration has its lesson.

The same long gradation that we have met with in the evolution of thought, exists in the evolution

of language, in such a way that with respect to normal language mentally defective children present, in addition to the poverty of their vocabulary, corruptions in the formation of the word, which in all cases is proof of a defect of development not only of the central but sometimes also of the peripheral organs—throat, mouth, lips, tongue—in the structure of which lies a defect of that harmonic coordination which a function so delicate and complex as that of speech demands.

Occasionally, and more especially in imbeciles, language as an outward expression is well developed, so that they pronounce all words perfectly well; sometimes, however, they do not know their signification and we have "echo-speech." This holds good for words denoting an abstraction of which they understand nothing, and in the pronunciation of which they find merely a phonetic or sensorimuscular satisfaction. Or they associate the words with a simple concrete image, sometimes even very different from those that as a rule constitute the abstract idea. So language employed by some imbeciles is not only meager, but also wanting in precision.

One child repeats the last word or the last few words of a sentence spoken in his hearing, as unconscious of the meaning as the mountainside is of the articulate sounds it echoes. Another repeats certain sounds or expressions prompted by some emotion, though the sound or expression used has no apposite relation to the emotion felt. One profound idiot when angry, happy, or hungry, would repeat "Johnny smoke the pipe, smoke the pipe." Speech here was imitative and simulated in a still greater degree intelligent speech.

The inexperienced teacher is greatly misled by these cases, not uncommon in the special classes in our public schools. A child comes to my mind who was being passed on from grade to grade. He was a mathematical prodigy, and his history, geography, and reading were all imitative, but this fact was not suspected by the teachers, though they recognized the child as "precocious."

This imitative speech shows that it is a settled fact that many ideas must be formed in order to make possible true speech. Pryer has shown in his "Mind of the Child" that the first firm association of an idea with a syllable, or with a word-like combination of syllables, takes place through imitation exclusively, but a union of this sort being once established, the child then freely invents new combinations, although to a more limited extent than is commonly assumed. No one brings with him into the world a genius of such quality that it would be capable of inventing articulate speech.

Degrees of speech among feeble-minded children.

(1) Those who neither speak nor comprehend language. There is found in these animal expression, that is instinctive, but it is in the form of reflex movements and inarticulate sounds.

(2) Those who do not speak, but have an idea of language, know when they are called, and know the names of a few objects or persons.

(3) Those who do not speak, but understand any simple sentence.

(4) Those who do not speak, but understand any ordinary language in the household. The defect here is somewhere in the nervous tract, between the centers of volitional impulse and the termination in the vocal apparatus.

(5) Those who utter a few words or sentences with little or no idea of language or the words or sentences used. The speech in these cases is imitative or parrot-like. The sounds transmitted do not reach the higher centers but pass to what may be called the subordinate region of the imitative faculty, where inspired by the reigning volition there, they emerge in the form of articulate sounds. The cohesion or association between sound and meaning is not established while the association between sound and articulation is.

(6) Those who speak a few words understanding their meaning and with a purpose in their use; these usually employ the gesture language as an aid to their imperfect speech.

(7) Those who utter brief sentences. These may be divided into two sub-classes: (a) Those who use such sentences in a natural way and in accord with the limited continuity of their thought; (b) Those who use brief sentences in a spasmodic and emotional way. In the development of speech, the usual order seems to be first imitative, then intelligent and emotional speech. There is, however, a peculiarity to be noted. Emotional speech becomes automatic, while intelligent speech has not the same tendency inasmuch as a constant self-determination is a necessity of the latter in view of varying circumstances. And so in aphasia, emotional speech, with its acquired automatism, is witnessed long after rational and voluntary speech has disappeared.

(8) Those who talk connectedly to the extent of their intelligence, in varying degrees, up to a fair command of language. In the last three classes there is more or less distinctness of utterance, depending first upon acuteness of observation and second upon coordination and flexibility of organs. In other words, upon conditions of sensory and motor nerves.

When speech is not established at the usual period, there is a want of flexibility in the organization later that renders its acquisition more difficult. And again, when in connection with defective coordination, speech at the outset has been imperfect and the habit of vicious utterance has become established, then later efforts to articulate properly fail of their purpose. The child can make all of the sounds of the language correctly perhaps, and even repeat sentences correctly, but falls back unconsciously into his habitual faulty utterance. The case of R. R. illustrates this well. When he first came under my observation he was said to have a language of his own, which no one could understand. It was soon discovered that he began all of his words with *n* or *m*. The child, a boy aged ten, had a large vocabulary of his own. After a year's training he had between two and three hundred words which he could speak correctly, but he had to be made to do so. Two years later he could speak all his words correctly if he would, but he has never of his own free will done so, and always when playing with the children uses his original way of beginning all of his words with *n* or *m*.*

With backward children defective hearing and seeing are large factors in defective speech. The case of A. C. well shows this. He thought it a fairy tale that birds sang. Though he talked fairly well, no one had discovered he did not hear high tones. He was taught to play a cornet and the difficulty was overcome, and he later heard the birds sing. Again, many a child is slow in receiving

*There are primitive tubes with languages in which all words begin with vowels. It would seem heredity must come in here.

sound. This makes them very backward in acquiring sounds. Such children do well if they are shown the movements of the vocal cords and are given exercises of singing the scale. A boy of six, though in kindergarten two years, had learned scarcely anything. He seldom spoke, did not attempt to join in singing, and never told of anything he had seen. His mother said "he had no memory." He was at a mental standstill. This child, by the use of a hand mirror, in six months learned to read remarkably well. This case shows how much can be overcome. His mind was awakened and he proved to have an excellent memory.

A teacher for the backward must possess a scientifically correct knowledge of the exact positions and actions of the vocal organs in speech. Without this it is impossible for the teacher to judge from the sounds made by the pupil of the precise condition of the various muscles used. And to be unable to do this prevents him from knowing whether the difficulty is a defect in the receiving of sounds, or a failure properly to direct the vocal organs. If primary teachers were trained so as to recognize causes of speech defects—this cannot be told in one lecture—they could accomplish results that would greatly reduce the number of dull scholars in the higher classes. Sight, too, must be trained, for these children see but they do not look.

Means of Developing Speech.—These obviously should be directed to the very point of imperfection of organism or fault of function, when this can be determined. The natural avenues to the brain and mind must be opened. Perceptions must be forced through obstructed channels. Conscious intelligence must be awakened. Volition must be stimulated and encouraged. The pupil must be made to comprehend language if possible, commands by gesture, the names of various objects; in other words, the necessary associations between sound and meaning must be established. At last, attention is directed to the vocal organs and exercises are directed to individualize and coordinate these. Then follow the imitation of sounds, simple musical exercises, elementary articulations, and the speaking of words, not especially those the most easily enunciated. Much individual work must be done. Again, there should be class work to get the benefit of the unconscious influence and force of associated action. If we have any method in teaching the backward to speak it should be first through rhythm—music, dancing and calisthenics seem to produce ideas; then follow sounds, words, and language—in the majority of cases.

The voice which sings emits vowels.* The teaching of music must be blended with that of speech, and first of voice. In singing, these vowels may be intoned, and after a while supported by consonants. This transformation is brought on insensibly in the course of the musical training and must be improved technically later. Music first pleases the feeble-minded child, attracts attention, and gives passive vibration to the muscles and nerves preparatory to and during exercises. Music is used to give perspicuity and continuity to the sense of hearing and to support the voice in learning to speak. It must be intermingled with most of the exercises and habits of the life of the child. It is a most useful agent, adapting itself to the teacher's deepest purposes.

The material of true speech has to be prepared out of the animal voice. The children low in the scale of intelligence have only a cry, a few not that, but these few arouse themselves at a musical sound. Out of 3,000 children only five did not have some appreciation of musical sounds. These cries and sounds move the diaphragmatic spring board on which they exercise their vocal organs in breathing and screaming—so getting chest gymnastics. These cries are voices. They are the early beginnings upon which we may be able to found the teaching of speech by altering the cry into a medium voice, supporting the voice on successive consonants, and so on, preparing the materials of true speech out of the animal voice. We must be sure that there are no physical or pathological defects. The moral incapacities of the child demand attention previous to entering into the training of speech. Good will on the part of pupil and teacher is also necessary as well as a good understanding between them. As language is the representation, by a combination of sounds and articulations, of all the human impressions and spontaneities, it is plain these children must find it the act most impossible and antipathetic to their nature, because it requires what they lack most, the correlation or synergy of several faculties with several organs.

Exaggerate accent and emphasis, with the exception of one single instance, viz., drop the accent when you want to command anything of which the child must make a choice of his own judgment. The gesture and the look must be as natural as the language.

The mechanical processes of speech are two. The first is mimicry for the formation of articulation; the other is borrowed from music for the training of the voice. At first the child is made to execute silently after his teacher the movements of the different parts employed in speaking. At a time when the lips are well closed, part them by thrusting out an emission of voice pronouncing *ma* or *pa*. If the child's lips are soft, then *ma* will come first; if firm and well shaped, *pa*. This rule governs all the labial, lingual, dental, or guttural syllables. We are governed at first by the structure of the organs, but after choosing the easiest to be pronounced first we soon disregard them. Difficulties are usually overcome by musical exercises. Group teaching is oftimes helpful, persevering by exacting voices out of mutism, long sounds out of short ones, series of emissions after single ones. The whole is done with the help of the piano or other instrument supporting well the voice. Afterwards imitation must be called in: group work here is good for the emission of syllables simple, double, or compound; once, twice, or more times, with or without music, with or without formal command. It is of some importance which syllables are first taught. *Ma* and *pa* come foremost, but if there are anomalies of the lips,—when the upper lip is thick and the lower thin and short,—"*va*" and "*fa*" are easiest. Some anomalies of structural relation concerning the teeth, tongue, and palate will offer other inducements to

*Scripture says: "The nervous impulses to the various portions of these muscles differ for the different vowels, with the result that the glottal lips contract differently for each typical vowel." The two essentials of the theory of Willis and Herman, namely, that the glottis limits puffs of greater or less sharpness and that the vowel tones are generally inharmonic to the glottal tone, can be considered as definitely established. The reason for the puff character of the glottal action has been found by Prof. Ewald (Strasburg) in the fact that the glottal lips are masses of muscles which yield by compression, and do not vibrate like membranes. That vowels are produced by membrane-like vibration of the larynx is a false theory.—(Scripture's "Voice," p. 7.)

avoid and to select different syllables to begin with. Rarely the tongue moves easier than the lips. If so, *"la"* and *"da"* are good for a start. When the organs are normal it is best to teach the syllables in the order in which they are emitted from the lip backward, from the seen to the unseen organs. Another rule is to commence the lesson with syllables beginning with a consonant, and to use those in which the vowel is enclosed between two consonants alternately with those in which two consonants precede the vowel, for fear the tongue should lapse into the habit of one of these pronunciations, and refuse to emit the others. The syllables beginning with a vowel come later yet, as it is a great deal easier to say *"pa"* than *"ap,"* the first utterance being supported by the lips, the second by nothing. In primary trials doubling a syllable renders their pronunciations easier and more attractive. Later, this might develop stuttering.

It is important to remember that speech is such a spontaneous faculty that it is not enough to teach the child to produce it. The chances are what the child learns to-day he will not show at once. He seemingly must digest it, but occasion will bring it out later,—or what the child learned and did not show in private teaching will appear when he shall take his part in the group, and *vice versa;* and what private or group emission of voice cannot bring out may flow from his lips without effort after some lazy looking on, and accidental hearing. We sow and nature fecundates. We must not expect to find the child using immediately the syllables or words which we have taught him with so much fatigue to ourselves; as if he had learned nothing he will continue to emit for his own use the bisyllabic repetitions whose grammar is music, *ahdada* in his joy; *ahnana* in his disappointment, ringing or nasal sounds which adapt themselves exactly to theories of philosophy, like the colors of a painter to a landscape. Our primary teaching must not touch this natural speech, taking care not to substitute Greek etymologies for those of passion, fearing to repress in the child its higher element, spontaneity. Rousseau says, "Everything is good as it comes from the hand of the Creator; everything degenerates in the hand of man." If anything is divine in speech it is not grammar; it is the bounteous fluency which flows like a stream from the soul.

The necessity of sight in the training of speech must be borne in mind. Sounds are taught by audition, but articulation is appreciated by the look. Sight is the sense function by which we receive, through light, the impression of objects standing or coming in its range. This is passive vision. Active vision is the faculty of the same sense, so very special and diversified that two painters never produce the same object in the same light. In feeble-minded children this has to be encountered in teaching speech. Even when they see quite accurately they seem to experience various difficulties in looking, in directing, or concentrating their willed regard in some direction or at some distance. Generally their look, when they have any, does not seem to go or stay where they wish. They see, but look badly or accidentally, and use their sight only for things they crave for. Some when asked to look at something, shut their eyes when trying to obey. In fact the sight is, of all our senses, the most intellectual and the one whose anomalies are the most varied and the most connected with the disorders of mentally defective and backward children.

The education of sight must be begun as soon as possible. The training of the eye presents more real obstacles than that of the ear, but one of the errors in handling these children is in trying to put the child through the eye stage before he has been through the ear stage; oftimes low-grade children will give heed to music, but give no heed to verbal sounds and speech. Words to them have no meaning. This would seem to indicate that inasmuch as language and speech are essentially a sensorihistorical function, and inasmuch as language was developed by attention being directed to the external world, and as language was the first result of a mental complex, made up of the identification of certain sounds and certain objects present in space, if we wish to develop in the child the attitude of attention toward words and their meaning, we must first begin at his stage of development, at his stage of mental sequence—musical sounds. The speech center and the leg, arm, and finger centers are adjacent to that of music. So to assist in developing speech, finger exercises on the piano and finger gymnastics are given to assist in developing the right coordinations and to develop the motor area of the brain.

The thought side must be given much prominence. Music as a factor in the education of all children, both normal and abnormal, should be given greater emphasis. I know a number of cases where music has been the basis of developing the mathematical concept in backward children. This dominant interest of such children is usually ignored, whereas it is of the greatest educational value. Children should be given more dancing. Dancing movements are a great help in developing other motor coordination,—speech in particular. Dr. Gulick's folk-lore dances would be most useful.

The class-room teacher in the schools should have a general knowledge of functional disturbances. Worry, embarrassment, excitement, etc., are immediate causes of speech defects. If the school is a place of nervous tension, if the child is constantly worried with adult forms and abstractions, ill fitted for its little mind, if it is asked to express its confused ideas under the eye of a critical teacher who perhaps considers her day's work to consist of five or six long hours of wearisome labor, we have conditions adapted for the production of functional speech disturbances, especially so since oral speech is not fixed till adolescence. The school should rather use its opportunities to cultivate good language by means of stories, conversation, and other oral exercises given sympathetically under the influence of a good model. The high percentage of stuttering during the first few years of school life is probably due to nervous tension and could be reduced considerably if the child in all cases had high-minded teachers who understood child nature, who knew how to subordinate deadening influences, and could make the life of the school so free and so unrestrained that fear, worry, and its train of evils were unknown in their presence; who could live with the child and organize its wealth of incoming information from its own point of view, and encourage it to react with oral expression as simple, as unaffected, as natural as the life of the child itself.

The training of speech should occupy an important place in the curriculum of schools, and especially in those for the backward and mentally defective. Not only in our schools, but in hospital and clinical work for children as well, speech-therapeutics should have a place. A care should be had

that this work has a scientific basis. As yet this country does not have much to offer for practical use. There are beginnings of such in Germany. Our medical schools should have chairs of preventive medicine which should deal with mental hygiene.

THE PREPARATION OF ROMANOWSKY STAINS.

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By a peculiar conspiracy of circumstances the writer was led into an error in the article, "A Simple Method for Preparing a Useful Stain," contributed to the MEDICAL RECORD for July 17, 1909. Sodium sulphate is slightly soluble in absolute alcohol, and chiefly for this reason the partial neutralization of the sodium carbonate by means of the acid sodium sulphate is objectionable. The article above referred to was based on a series of experiments (see below) which have been carried out a great many times, using methylen blue, absolute and commercial alcohol derived from different sources. The results so far have been uniformly successful. In reporting these experiments it becomes necessary to describe the following products:

Blue by alcohol. This is prepared by dissolving 0.5 grams of acid sodium carbonate in one-hundred c.c. of distilled water and adding 1 gram of Grueb-ler's methylen blue. When solution is complete, transfer to a large (500 c.c.) porcelain evaporating dish and evaporate to dryness directly over the flame, using a wire gauze to distribute the heat. Boiling need not be avoided, but when about three-fourths the water has escaped the dish should occasionally be tilted and rotated to prevent spluttering. The time required for evaporating this solution should lay between one-half and one hour. When perfectly dry transfer the bulk of the stain to a 200 c.c. flask. The dish is then rinsed with four 25 c.c. portions of 95 per cent ethyl alcohol which is poured into the flask containing the dry stain. Agitate occasionally during an hour or so, and filter through a small white filter paper, previously moistened with ethyl alcohol, into an evaporating dish. Evaporate to dryness over the water bath or allow to evaporate spontaneously. The resulting blue stain is perfectly neutral. It is regarded as permanent since it has been kept for months in an open evaporating dish. It is advisable, however, to exclude moisture. Romanowsky staining fluids made from this blue have been used in this laboratory during the present year with uniformly good results.

Blue by ammonia: The exact method of preparation cannot be given in this paper. It is mentioned because experiments now making indicate that the use of ammonium hydroxide will afford a simpler means of obtaining the neutral blue. The blue used in experiment E was obtained by evaporating to dryness an ammonical solution of methylene blue. The formula, as well as the age of the solution being unknown. The experiment shows that excessive oxidation had occurred.

Experiment A. Dissolve 50 milligrams of blue by alcohol in 25 c.c. of C.P. methyl alcohol containing 40 mgms. of eosin. The resulting Romanowsky staining fluid is ready for immediate use. It does not require filtering. This fluid will, in every way, duplicate the results of the best of the so-called precipitate stains. Merck's Reagent Methyl Alcohol has of late been used. Twenty-five c.c. of this alcohol containing a few drops of phenolphthalein will show a faint pink color on adding 0.1 to 0.15 c.c. of decinormal sodium hydroxide.

Experiment B. Using the same amount of the blue and eosin as in A, but substituting commercial for the pure alcohol, it was found that the eosin overstained while the nuclei did not stain at all. On adding 3 mgms. (.75 c.c. of the decinormal solution) of NaOH, the resulting fluid was practically identical in staining properties with that obtained in A. Twenty-five c.c. of the alcohol used in this experiment required 1.5 c.c. of the decinormal NaOH solution to produce a pink color with phenolphthalein.

Experiment C. Made as B, except a different grade of commercial alcohol was used. The results were practically the same.

Experiment D. 10 c.c. of pure acetone + 15 c.c. of 95 per cent ethyl alcohol was used instead of the commercial methyl alcohol in B and C. The acetone was added for its fixing properties. The 25 c.c. of fluid required the addition of .4 c.c. of decinormal NaOH, after which the results were almost, if not quite, as good as when methyl alcohol is used. The keeping qualities of this solution are not known at present.

Experiment E. Made by substituting 50 mgms. of the blue by ammonia in B. On adding 1.5 c.c. of decinormal NaOH, the fluid gave beautiful results. The color of the nuclei, as well as the amount of alkali required indicated that the polychroming of the blue had been carried too far, and that for this reason the fluid would probably not keep so long or so well as those given above. Several experiments will be required to produce a perfectly satisfactory blue by means of ammonium hydroxide. These experiments are making in this laboratory. When it is remembered that Romanowsky staining fluids—no matter how prepared—are exceedingly sensitive to the presence of free acids or alkalis, it could not reasonably be expected that the commercial alcohols used in experiments B and C could be substituted for the pure alcohol used in A. The former show an equivalent acidity—to phenolphthalein—which is from ten to fifteen times as great as the latter. In using commercial alcohol for preparing the staining fluid under consideration proceed as follows: To 500 c.c. of the alcohol add 5 c.c. of a 1.2—1.25 per cent. aqueous NaOH solution. The alcohol so treated will still be decidedly acid to phenolphthalein. To 25 c.c. add 50 mgms. of the blue by alcohol and 40 mgms. of eosin. Have ready two or three fresh, thinly smeared blood films (on slides), each of which is divided into two or three sections by means of a wax pencil. Stain one section in the usual way. If the red cells are tinted with the blue add a drop of 3 per cent HCl alcohol; if the red cells are stained red while the nuclei are poorly stained, add a drop or two of the decinormal NaOH. After one or two trials a beautiful stain will result. Having kept an account of the number of drops of either—or both—the acid or alkali, and knowing that one drop of the acid is approximately equal to two drops of the alkali, the exact, or equivalent amount of either solution added is multiplied by 19; the product being the number of drops necessary to add to the remaining 475 c.c. of alcohol. Having in this way determined the amount of alkali required for 500 c.c. of the alcohol the experiment will not need to

be repeated so long as the same commercial alcohol is employed. The commercial alcohol treated in this way can be substituted for the pure one in experiment A. In preparing these commercial alcohols it should be remembered that the very best results may be obtained, and failure to do so will, in ninety-nine cases out of a hundred, be due to the presence of an excess of either the acid or alkali—the addition of a drop or two of either the one or the other, as may be indicated, will often make a perfectly satisfactory staining fluid from one that would otherwise be discarded as useless. This applies to solutions that have been kept for months as well as those that have been recently made.

Regarding the keeping qualities of the staining fluid, nothing need be said further than that the method outlined above is merely an improvement of the one suggested by the present writer some four years ago, since which time he has used it exclusively both in this country and in the tropics. It has also been used extensively by others, especially in the Naval Medical School, at Washington, D. C.*

To conclude: It might, and probably would, be advantageous to increase the blue in the above experiments to 60 mgms., with the view of obtaining a more durable staining fluid. It should be remembered, however, that the tendency of these solutions to overstain with eosin† after a longer or shorter time, is not due so much to the absence of the blue as to the presence of oxidation products of the alcohol, *i. e.*, aldehydes or acids. This is best overcome by adding a drop or so of decinormal NaOH to each 20 or 25 c.c. of the fluid. If the overstaining of the eosin is due to the presence of acids or aldehydes, the further adition of blue will be harmful and not helpful. For this reason it is never advisable to use more than 60 mgms.

For some unknown reason the alcohol used in experiment A is not especially well adapted for preparing Romanowsky staining solutions. The fluids so made are perfectly good, but they do not, apparently, keep so well as they should. In this respect it has but little or no advantage over a good water white commercial alcohol.

*Stitt's Bacteriology, Blood Work, and Animal Parasitology (Blackiston).

†If pure alcohol is used, which is, of course, always preferable, the staining fluid will, after two or three months, tend to overstain with the blue, due to the further oxidation of this pigment. The addition of one drop of 3 per cent. HCl alcohol to each 20 or 25 c.c. of the fluid will overcome this, and the staining properties will be exactly as good as a freshly made solution. In this way the staining fluid will give beautiful results after having been kept for many months at room temperature.

Backward Scholars.—Giacinto Fornaca discusses the education of backward children in public schools. There are two classes of deficients—those who are backward because they are not regular in attendance, this being the result of physical incapacity in some line, such as deafness or poor vision, and those that are deficient mentally. Some children do not advance because they are poorly nourished, others because they are growing and developing fast and have not strength enough to study well. Those who are deficient mentally may or may not show it in their looks. Some are apathetic, others too vivacious and irritable; both classes are unable to concentrate their attention on any subject. Some of these children show a loss of memory, while others have an excellent memory for music or mathematics. These children are well pleased with themselves, having no idea that they are acting foolishly: they may be emotional, sentimental, or affectionate. Some show a marked overactivity, and cannot refrain from slapping or pinching their fellow scholars. Important factors in the etiology of such conditions are alcohol, syphilis, tuberculosis, and toxic and infective conditions in the ancestors. This deficiency may be congenital or acquired, and epilepsy is frequent among these children, either petit or grand mal. The reflexes may be exaggerated, and there may be a spastic condition of the limbs, with spasmodic movements. As to the pathology of these conditions, sufficient examinations have not been made post-mortem. The treatment of these cases involves treatment of their eye condition, hearing, removal of adenoids, etc., in the first class of cases. The treatment of the mental defectives involves special schools, in which the children can be individualized, and the same teaching gone over day after day and hour after hour, interspersed with rhythmical exercises. They should be much in the open air, under the best possible hygienic conditions, and separated from their parents for the entire year, since when they leave school and return to their homes they rapidly go back to their original state.—*Gazzetta Medica di Roma.*

Thymus and Ovaries.—Francesco Valtorta reminds us that the thymus increases in size as long as the animal is growing, until sexual maturity is reached, and then involution goes on. If an animal be castrated the thymus increases in weight; if reproduction occurs it loses weight; the weight in castrated animals is only increased transitorily, later decreasing to normal size. The author has experimented on rabbits by removal of the ovaries, removal of both ovaries and thymus, removal of thymus and grafting it into same animal, removal of ovaries and grafting into same animal, removal of thymus and injection of extract of thymus, removal of both organs in same animal, action of extract of thymus and ovaries on the circulatory system, and action of same on organic metabolism. He gives his conclusions. In removal of the thymus in young animals the general development is affected and there are important alterations in the ovaries. Removal of the ovaries does not affect the thymus. Grafting the thymus does not affect the ovaries favorably. Injection of extract of thymus retards lesions of the ovaries; injection of ovarian extract produces no sensible effect. Removal of the thymus has much more effect in young animals than ovariotomy. The action of extract of thymus on the circulatory system results from the nucleoisotonics contained in the prepared juice. In the human body the thymus reacts by hypertrophy, the structure of the ovaries being profoundly altered, as happens in animals. Hypertrophy of the thymus coincides with hypertrophy of the lymphatic glands, and removal of the thymus in animals produces similar effects.—*Annali di Ostetricia e Ginecologia.*

The Legal Protection of the Child in the Struggle Against Alcoholism.—Hercod of Lausanne, in concluding his address on this subject before the International Temperance Congress in London, said: (1) The children of alcoholic parents, being minors, should be taken from them and confided to the care either of charitable institutions or placed in private families (abstainers, if possible). Unworthy parents should be made to contribute to their support, if possible. (2) The law should forbid even parents to give their children alcoholic drinks. In fixing the age the state of public opinion must be taken into account. Measures should be taken to make parents understand the reasons for such prohibition. (3) Minors up to the age of eighteen should be forbidden to enter a public house in order to drink unless accompanied by their parents. An exception may be possible in case of boarders, at meal times. (4) Children under fourteen years of age should not be allowed to enter a public house after seven in the evening, even if accompanied by their parents. (5) It should be prohibited to employ young women or girls under twenty, and youths under eighteen, as waiters, whether they belong to the publican's family or not.—*Medical Press and Circular.*

Hernia of the Fallopian Tube.—Giulio Cauli says that reported cases of hernia of the Fallopian tube are rare, and all seem to have happened under so different circumstances that no conclusions can be drawn from them as to the true cause of the condition. He reports a case observed by himself. The patient had undergone two pregnancies. She complained of pressure in the right inguinocrural region, lumbar pain, and a swelling in the right inguinal region. The menstrual pain was extreme, and there were marked nervous symptoms. At the operation the sac of the hernia was found full of limpid fluid and containing the Fallopian tube of the right side. The tubal serous membrane was continuous with the wall of the sac of the hernia, and the tube could be followed down to the cavity of the uterus. Operations relieved the patient of all her pains. The tube was liberated and returned to its normal place in the abdomen. Hernia was caused by the relaxation of the walls of the abdomen due to pregnancy and the increased intraabdominal pressure. The broad ligament was drawn down and formed a part of the hernial sac.—*Gazzetta Medica di Roma.*

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MEDICAL ASPECTS OF ATHLETICISM.

AT the recent meeting of the British Medical Association a discussion was held on the medical aspects of athleticism in which many British authorities on the matter took part. The first speaker stated that with respect to mortality in connection with games among schoolboys and in colleges, he had collected information, that the death roll occurring from or during athletics during twenty years in a number of large schools with an attendance of over 6,500, and in a university with 2,000 undergraduates, was seven. As to injury to health as the result of athleticism opinions were somewhat divided. Clement Dukes, physician to one of the largest schools of England, holds that physical and mental education should coincide. According to him, mental education is pressed to its extreme limit of endurance in all cases and transgresses the limit in those deficient in stamina; this tendency must be counterbalanced by a deliberate method of physical education, whose aim should be the just equipoise of both disciplines. In discussing the baneful effects of athleticism Dukes defines it briefly and generally as the intemperance of genuine physical exercise and the various modes in which intemperance in exercise exhibits itself consist in excessive exercise, improper exercise or exercise unadapted to the age or strength of the individual, exercise taken at the wrong time of the day, such as immediately after a meal, and exercise unsuited to the season of the year. The points urged to avoid intemperance in exercise are: (1) Thorough physical examination; (2) individual apportionment of exercise consequent on the examination; (3) medical control over all severe exercise, so that even those who are physically fit shall submit themselves to appropriate training for the exertion. It is overexercise then that injures, and not exercise *per se*, which is beneficial and necessary.

As to the manner in which intemperance in exercise acts prejudicially upon the individual, the heart is the organ which most frequently suffers. But at the same time it is not quite clear that intemperance in physical exercises alone is ever wholly responsible for injuries to the heart. For instance, Houver, in Osler's "System of Medicine," states that "up to the present time there exists no absolute pathological and clinical proof of acute passive dilatation and death from excessive muscular exercise; although there are excellent physiological and clinical reasons for believing they occur, there always lurks the suspicion of other contributing factors in such cases, namely, a remnant of a former infection, congenital defects, or manner of life." Clifford Allbutt is of the opinion that the incidence of infectious disease is an element of the utmost importance. Among these infections he would place influenza in the front rank, but would also include severe colds, as a bad cold has quite a definite influence on the heart. Another speaker during this discussion, Sir James Barr, was altogether against any abolition of or even decrease of games at school or college, for he held that the more hazardous the game the better it was for the development of the character of the individual. He took the view that it might be well if youths entering for arduous contests had some medical supervision and advice by men who knew something of the nature and amount of work required in the contest. The question turned largely on the capacity for work of the heart and lungs, and as has been referred to before, the opinions of medical men vary enormously as to the amount of strain required to damage the heart.

The outcome of the discussion was that the evil effects of athleticism in Great Britain have been exaggerated and that outdoor sports and contests among youths and young men should be encouraged rather than hindred, always provided that the candidate has normal organs and is in good condition. There is probably no one who would seriously advance the proposition that games are not necessary to the health of schoolboys and young men. They make for character more than does mental toil. There would seem, however, to be no need that such games should involve excessive physical exertion. The tendency in this country was until recently, if it is not even yet, that games should be characterized by intemperate zeal. These remarks particularly apply to football. The season is short and the participants in college football are comparatively few, yet the list of fatalities and deaths has been greater in one season than the whole of the casualties and fatalities which have occurred in thirteen large English schools and in one university during a period of twenty years. This reads like intemperance in games indeed. Physical exercise taken properly is good for all, but abused is harmful to the individual and indirectly to the race. Under the present rules, however, the liability to casualties in a game of football is much less than it was, and it may be doubted whether it is necessary to reform the game much more. A hard "scrap" is to be expected, and it is only the opening for brutality on the part of some imperfectly civilized young biped that must be guarded against in this fine old game.

MALARIA AND ITS PREVENTION.

MALARIA is responsible directly and indirectly for more deaths and physical and mental breakdowns than is almost any other disease. The United States itself pays a very heavy death toll to malaria, and the number of deaths which occur in tropical

lands as a consequence of the malady is incalculable. To rid the world of malaria would be to rid it of one of its worst pestilences. It is stated by many authorities that the task of abolishing malaria is by no means beyond human means. But opinions are diverse as to the measures to be employed to bring about this result. The Government of India has decided to take vigorous steps for the prevention of malaria by ordering a conference to be held shortly, and Ronald Ross of Liverpool, the most enthusiastic supporter of the destruction of mosquitos as the only efficacious mode of driving away malaria, is greatly concerned lest the upholders of quinine prophylaxis should capture the conference and so force this method upon India. He expresses himself on the matter in the London *Times*, September 29, as follows, and his words in regard to malaria carry so great weight that they will be quoted in full.

"We are all agreed," he writes, "that for rural areas quinine prophylaxis, assisted if possible by screening is, broadly speaking, the most appropriate measure; but for towns and crowded areas opinion is divided, some advocating the same measure there also, but others preferring mosquito reduction. The latter measure has great and evident advantages. It tends to rid a town not only of malaria, but of other mosquito-borne diseases; and not only of these diseases, but of a persistent and ever-present pest which adds greatly to the discomfort of tropical life. It can be carried out by local authorities without troubling the public, a cardinal advantage in sanitary matters; and it helps to keep the whole town clean as well as healthy. On the other hand, quinine prophylaxis has comparatively many disadvantages. Merely to give or sell quinine at dispensaries and postoffices is not sufficient, because the poor cannot afford the time to be constantly attending such places for small doses of the drug. In my experience for the medicine to be really effective, either for general treatment or prevention, it must actually be distributed gratis or nearly so from house to house, and more than this, the occupants must be repeatedly urged to take it. We shall understand the difficulties here when we remember that it must be persevered with for long periods to be really useful, that it causes unpleasant effects, and that most of the patients in India are children. In fact, this process of distribution and persuasion requires a number of special dispensaries superintended by medical officers and necessitates a considerable amount of interference with the public if the matter is to be taken seriously. Moreover, quinine prophylaxis influences malaria only and does not relieve the public from the annoyance caused by mosquitos, but adds the unpleasant effects of the drug to their discomforts. Some writers claim that quinine prophylaxis is cheaper than mosquito reduction. This is probably true for rural areas, but untrue for crowded ones, where money spent for mosquito reduction is likely to give much greater benefit to the public than the same sum spent on quinine prophylaxis. Advocates of the latter measure always cite Italy as the great example of its success, but in Italy malaria is principally rural, and the conditions in India differ much from those in Italy. On the other hand, mosquito reduction has been the chief measure used in the Panama Canal Zone, Ismailia, and elsewhere, and is not nearly so expensive or difficult as its opponents pretend. I do not decry quinine prophylaxis, but the work should be obviously commenced in towns where a given expenditure is calculated to benefit the largest number of people."

F. A. Chester and C. C. Semple, respectively physician for the Santa Rita Mining and Exporting Company, Bluefields, Nicaraugua, and vice-president and general manager of the same, have contributed to *The Engineer* of October 2, an excellent article on malaria. In the course of their remarks they fall foul of a belief that is widely held that blacks are less subject to malarial infection than whites, and that natives are more or less immune to attacks. This is not in accordance with their observations. They find that natives living in the district and having lived therein all their lives, are just as subject to attacks as others, and that negroes not only are just as liable to attacks but usually furnish the most aggravating cases. White men, according to their experience, suffer the least, in regard to both frequency and intensity of the attacks. It is also generally believed that repeated infections gradually permit the tolerance of the poison or partial immunity, but according to the experience of those writers where quinine is not used prophylactically there is no such immunity. As to quinine prophylaxis there is some divergence of views with respect to the dose necessary to have the desired result. Chester and Semple state that the U. S. Army surgeons use 3 grains of quinine daily as a preventive of malaria in their work among laborers on the Isthmus. Many, however, think that a dose of 6 to 10 grains taken regularly every night is necessary to prevent a large number of infections, and have no faith in smaller doses. It would thus appear that quinine prophylaxis is somewhat uncertain, while there can be little doubt that the destruction of mosquitos is an effective measure. The difficulties in the way of mosquito destruction are sometimes very great, yet not so great, Ross says, as is generally supposed, nor is the expense prohibitive. Dr. A. H. Doty, the quarantine commissioner of New York, has recently shown what can be done in this direction in a comparatively open country and in the face of great natural obstacles, and Ross' contention receives further support by the success of the antimosquito campaign on the Isthmus of Panama. It would seem, therefore, that the war against malaria should be waged mainly on these lines. If there were no other argument in favor of it, it surely may be urged that the daily ingestion of from 3 to 10 grains of quinine, a drug which is poisonous to phagocytes as well as to malarial germs, should, if possible, be avoided.

Pulvis Acetanilidi Compositus.

Among the many important changes which have taken place in medicine during the past quarter of a century there has been little in the realm of pharmacy and medicinal therapeutics of greater influ-

ence on practice than the discovery of the coal tar antipyretics and analgesics. It was not long after their introduction, however, that a series of mishaps showed that these drugs were far from being unmixed blessings, and collapse, heart failure, and cyanosis occurred with sufficient frequency to warn the profession against their indiscriminate employment. To overcome the cardiac depressant action certain of the antipyretics were combined with various drugs, such as caffeine. One such combination of acetanilide, caffeine, and sodium bicarbonate is official in the United States Pharmacopeia under the name of pulvis acetanilidi compositus. The wisdom of an official endorsement of acetanilide has been questioned by many, and recently Worth Hale has strengthened this doubt by the results of an extensive series of animal experiments, the report of which appeared in Bulletin No. 53 of the Hygienic Laboratory of the United States Public Health and Marine-Hospital Service. The experiments were carried out on frogs, mice, and dogs. The drugs were administered in various amounts and by different methods and were given singly and in combination. The results were not uniform, though perhaps as nearly so as could reasonably be expected in experiments of such a character. The animals to which a mixture of caffeine and acetanilide were administered showed more profound and more rapid symptoms of intoxication than those which received a similar dose of acetanilide alone, and in some of the experiments even a half dose of acetanilide with an amount of caffeine in itself not toxic produced more profound symptoms than the whole dose of acetanilide given by itself. The caffeine seemed, therefore, to have an actual synergic action with the acetanilide. Sodium bicarbonate, however, had a distinct protective action against the acetanilide, though this was so slight that the alkali did less good than the caffeine did harm, as was shown by the greater toxicity of the mixture of the three drugs than of the acetanilide alone. The belief in the protective action of caffeine against acetanilide does not seem to have been based on any extensive scientific investigations, and it would appear, unless the results of Hale's experiments are disproved clinically, that the editors of the latest revision of the Pharmacopeia erred in admitting pulvis acetanilidi compositus.

Exophthalmos in Nephritis.

The facies of chronic nephritis is a subject which has been discussed and described in various articles and textbooks at greater or lesser length. Usually, however, such descriptions have been in some intangible way not quite satisfactory. The pasty, anemic complexion is fairly suggestive, and the puffiness of the eyelids, when it appears, is, of course, typical, but in many cases of interstitial nephritis it does not occur, and still not infrequently the diagnosis of nephritis is suggested by a glance at the face. It has long been a puzzling question to put the finger upon the particular characteristic in the face which makes the mind jump to the thought of nephritis. An article by Barker and Hanes, appearing in *The American Journal of the Medical Sciences* for October, 1909, may throw some light on this, and possibly tell us what we look for in diagnosing nephritis by the facies. They point out that one of the most common symptoms of chronic nephritis is exophthalmos. In fact, a careful examination of all the cases of nephritis admitted to Barker's service at the Johns Hopkins Hospital during the past few months demonstrated that exophthalmos was present to a greater or lesser degree in forty-eight per cent. of them. In some cases it was slight, in others very marked, the degree of bulging seeming to be intimately associated with the amount of uremic poisoning. All of the signs of exophthalmos, von Graefe's, Moebius', and Stellwag's, were present in a large proportion of the cases. Every patient showing albuminuric retinitis, and every one with fatal nephritis during the period of observation, had exophthalmos. These findings are of exceptional clinical interest as the occurrence of exophthalmos as a symptom of nephritis is not mentioned in the textbooks. If these findings of Barker and Hanes in their small series of cases are confirmed in greater numbers, there is a prospect of the establishment of a fact, not only of diagnostic, but also of prognostic, value. The proof of the existence of this symptom would furthermore demonstrate a degree of blindness existing in thousands of physicians who have studied earnestly the faces of hundreds of thousands of patients suffering from nephritis, but, failing to "look with the seeing eye," have not observed this striking symptom.

Dysentery Carriers.

During the past few years bacteriologists, sanitarians, pedagogues, justices, and newspaper reporters have all taken an active interest in a new danger with which the world is threatened, the dread of the germ carrier. This insidious and invisible lion in lamb's clothing first made its appearance in the form of the Klebs-Loeffler bacillus in normal throats. Following this "Typhoid Mary" left a wake of fever behind her as she moved from kitchen to kitchen, and competent observers now say that from four to twenty-five per cent of all typhoid convalescents go happily and unconcernedly through life scattering broadcast the most virulent of germs. Recently, too, similar healthy carriers of Asiatic cholera have been reported. To this deadly triumvirate must now be added still a fourth class of disease carrier, for in the *Deutsche medizinische Wochenschrift* for September 30, 1909, Heuser tells us that carriers of the dysentery bacillus occur. For a number of years, in an insane asylum in Germany, there have been annual outbreaks of dysentery among the patients, many of whom had been within the walls for many years. The epidemic this past summer was studied by Heuser, after it had subsided. The outbreak had been in a women's ward, and at the time the investigator arrived the patients had all recovered. A systematic search of the institution, however, revealed in the stools of three of the male patients, out of a total of six hundred, a few dysentery bacilli. Later a second epidemic broke out, apparently having its origin with a woman whose stools a few weeks earlier were reported as negative for the bacilli. The lesson which Heuser draws from his findings is that these three men were dysentery carriers and as such should be isolated and further that as a routine procedure in every case of diarrhea the stools should be examined for the dysentery bacillus, and if it is found the patient should at once be quarantined. It is to be hoped that a careful isolation of the three men in question will prevent future epidemics of dysentery in the women's wards of this particular German asylum.

News of the Week.

A Graduate Course in Experimental Medicine and Surgery at Columbia.—A graduate course consisting of thirty laboratory demonstrations will be given this year by the Departments of Physiology, Pharmacology, Surgery, and Bacteriology of the College of Physicians and Surgeons in this city. The instruction will be given by Dr. Haven Emerson, Prof. William R. Williams, Dr. J. W. Draper Maury, and Prof. Augustus Wadsworth. The sessions will be held from 3 to 5 P. M. on Tuesdays, Thursday, and Saturdays in November and December, 1909, and January, 1910. The course is intended to offer to physicians an opportunity to see demonstrated the more important and practical of the experiments of modern medical research and thus to come into critical touch with the newer laboratory methods as applied at the bedside in both medicine and surgery.

National Vital Statistics.—The first bulletin upon the annual death rate from the death registration areas of the country, as reported to the Secretary of the Department of Commerce and Labor, shows some comparative results in the death rate from various diseases in 1907 and 1908. Among the more important were the following with the rates per 100,000 of population:

	1908.	1907.
Tuberculosis (all forms)	173.9	183.6
Pneumonia (all forms)	136.0	161.2
Heart disease	133.3	141.7
Diarrhea and enteritis	116.0	116.7
Bright's disease	87.1	94.6
Cancer	74.3	73.1
Typhoid fever	25.3	30.3
Diphtheria and croup	22.3	24.3

The total number of deaths from all forms of tuberculosis returned for 1908 was 78,289, of which 67,376 were from tuberculosis of the lungs, 698 from tuberculosis of the larynx, 4,218 from tuberculous meningitis, 2,723 from abdominal tuberculosis, and the remainder from minor tuberculous diseases. The total number of deaths from tuberculosis returned for 1908 exceeded those of any previous year of registration, but the death rate per 100,000 for 1908 is considerably less than that for 1907. The death rate from tuberculosis showed a decline in all registration States except Colorado, Rhode Island, and Vermont.

Uncinariasis in Texas and Georgia.—The State Health Officer of Texas has issued a notice to the county and municipal authorities over the State calling attention to the prevalence of the hookworm and urging energetic action to stamp it out. A systematic examination of the students of the University of Georgia has demonstrated that over 30 per cent of them are suffering from uncinariasis. Many are from the wealthy families of the State. It is said that the class standing of the infected students is below the average of the college.

National Investigation of Pellagra.—The Acting Secretary of the Treasury announced recently that he had approved the appointment of a commission of officers of the Public Health and Marine Hospital Service to investigate pellagra. The inquiry will be carried on in Washington at the Hygienic Laboratory, and will be begun at the earliest time feasible. The department has acted because of the increasing number of cases in the United States, and because of the large number of letters asking for information which are coming in to Washington from Boards of Health in various States.

Anthrax in Louisiana.—The Louisiana State Board of Health reports an epidemic of anthrax in the neighborhood of Baton Rouge.

Examination for Medical Supervisor of the Indian Service.—The United States Civil Service Commission announces an examination on November 24, 1909, to secure eligibles from which to make certification to fill a vacancy in the position of medical supervisor in the Indian field service at $250 a month and expenses, and vacancies requiring similar qualifications as they may occur in that service, unless it shall be decided in the interests of the service to fill the vacancy by promotion, reinstatement, or transfer. Applicants must show in their applications that they have had at least three years' experience in medicine since graduation from a reputable medical college, and have had special training and experience in connection with tuberculosis and trachoma. Applicants must accompany their applications with certificates from reputable physicians showing that they are free from tuberculosis in any and every form. Age limit, 20 years or over on the date of the examination. This examination is open to all citizens of the United States who comply with the requirements. Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington prior to the hour of closing business on November 13, 1909.

Committee on Obstetric Teaching.—The President of the American Gynecological Society has appointed a committee to report at the next annual meeting in Washington, on the present status of obstetrical teaching in Europe and America, and to recommend improvements in the scope and character of the teaching of obstetrics in America. The committee consists of the professors of obstetrics in Columbia University, University of Pennsylvania, Harvard, Jefferson Medical College, Johns Hopkins University, Cornell University, and the University of Chicago. Communications from anyone interested in the subject will be gladly received by the chairman of the committee, Dr. B. C. Hirst, 1821 Spruce street, Philadelphia, Pa.

For a Safe Fourth of July.—Cooperation of Governors of all States and Territories in a nation-wide campaign for the safe and sane celebration of Independence Day in every hamlet, town, and city throughout the country is the object of a movement now inaugurated. The plan contemplates the formation of a National Committee, the appointment as Honorary Chairman of President Taft in view of his indorsement of Washington's "accidentless Fourth," the appointment of the Governors of all States and Territories in the Union as members, and an active campaign by that committee all over the Nation for divorcing Independence Day from its annual toll of accidents.

Charitable Bequests.—By the will of the late Mr. Mitchel Valentine, after a few minor bequests have been given, the residue of the estate, valued at $2,000,000, is to be divided equally between the Presbyterian Hospital and Hahnemann Hospital of New York.

Tuberculosis Sanatorium in New Jersey.—A farm of 131 acres at Marshall's Corner, New Jer-

sey, has been purchased lately by Bishop McFaul of the Roman Catholic Church. On this site will be opened a sanatorium for the treatment of the tuberculous poor. Though the administration will be Catholic and the nurses nuns, the sanatorium will be open to patients of all creeds and all colors alike.

Pennsylvania State Tuberculosis Sanatorium.—A tract of 450 acres of land at Cresson, Pennsylvania, has been given by Mr. Andrew Carnegie for the Pennsylvania State Tuberculosis Sanatorium.

Additions to Insane Asylum.—Plans have been filed for an addition to the Oregon State Insane Asylum at Salem, Oregon. The new building will be for administrative purposes, housing of employees, and for an operating room. It will cost $100,000. Plans are also being made for the addition of two wings to the main hospital building at a cost of $125,000.

The Medical Society of the State of New York will hold its next annual meeting at Albany, January 30, February 1 and 2, 1910. The program committee will be glad to receive proffer of papers for this meeting. Letters should be addressed to Dr. L. H. Neuman, 194 State street, Albany, N. Y.

The Vermont State Medical Society, at its ninety-sixth annual meeting, held October 14, 1909, at White River Junction, elected the following officers for the coming year: *President,* Dr. W. L. Havens of Chester Depot; *Vice-President,* Dr. H. H. Ross of St. Johnsbury; *Secretary,* Dr. C. H. Beecher of Burlington; *Treasurer,* Dr. R. H. Stone of Burlington; *Auditor,* Dr. A. N. Norton. Next meeting will be held at St. Albans about the middle of October, 1910.

The Cheshire County (N. H.) Medical Society, at a meeting held at Keene, N. H., recently elected the following officers: *President,* Dr. A. W. Hopkins of West Swanzey; *Vice-President,* Dr. C. S. Walker of Keene; *Secretary and Treasurer,* Dr. E. A. Tracy of Keene; *Censors,* Dr. Ira J. Prouty of Keene, Dr. W. H. Aldrich of Marlboro, Dr. I. A. Loveland of Keene.

The Knox County (Me.) Medical Society was organized recently and the following officers were elected: *President,* Dr. M. P. Judkins of Rockland; *Vice-President,* Dr. W. F. Hart of Camden, and *Secretary,* Dr. A. W. Foss of Rockland.

The Thurbur Medical Association held its fifty-sixth annual meeting at Mulford, Mass., October 7, 1909, and elected the following officers: *President,* Dr. Solon Abbott of Franklin; *Vice-President,* Dr. George T. Little of North Uxbridge; *Secretary,* Dr. A. J. Gallison of Franklin; *Treasurer,* Dr. C. B. Hussey of Franklin; *Librarian,* Dr. J. M. French.

The Detroit Academy of Medicine held its fourteenth annual meeting October 12, 1909, and the following officers elected for the ensuing year: *President,* Dr. L. E. Maire; *Vice-President,* Homer E. Safford; *Secretary and Treasurer,* Guy L. Connor.

Brookline (Mass.) Medical Club.—At a regular meeting of this club, held October 13, the following officers were elected for the coming year: *President,* Dr. Henry V. McLaughlin; *Vice-President,* Dr. George W. Kaan; *Secretary and Treasurer,* Dr. Hale Powers.

Obituary Notes.—Dr. Maurice J. Stack of Washington died on October 17, aged 30 years. Dr. Stack was a graduate of the Georgetown University Medical School in 1876. For thirty years he had been assistant superintendent of the U. S. Government Hospital for the Insane at Washington, having refused the superintendency as he preferred the medical to the administrative work.

Dr. William H. Burroughs of Shannondale, Indiana, died at his home October 8, 1909, aged 60 years. He was a graduate of the Medical College of Indiana in 1887.

Dr. George Eastman Stubbs of Philadelphia died of apoplexy at Merion, Pa., on October 2, at the age of 70 years. He was a native of Maine, and he was graduated from Bowdoin College in 1861, and from the Harvard Medical School in 1863. He subsequently became an assistant surgeon in the United States Army and was honorably mustered out in 1866. He was brevetted captain of United States Volunteers in the same year for faithful and meritorious service. He was one of the founders of the Medico-Chirurgical College of Philadelphia, A. Tracy of Keene; *Censors,* Dr. Ira J. Prouty of years. He was at one time professor of anatomy and clinical surgery and of surgical pathology in the same institution. He was surgeon to Charity Hospital for a period of twenty years, and for a number of years was an officer of the Philadelphia Board of Health.

Dr. Solomon Apfel of Brooklyn, N. Y., died October 16, 1909, aged 65 years. His birthplace was Lemberg, Austria, from whose university he was a graduate. After serving in the Turkish army he became Mayor in one of the towns of his native country, then a member of the Austrian Chamber of Deputies for twenty years. For many years Dr. Apfel was a prominent figure in the medical profession of the East Side of New York, both as a physician and a writer on medical and sanitary matters.

Dr. William Joseph Dodd of Jersey City died October—in the house in which he had lived for over fifty years. He was 80 years of age. Dr. Dodd was graduated from the College of Physicians and Surgeons of New York City, and he served two years at Bellevue Hospital. He resigned from the staff and became one of the medical officers of the United States Army hospital steamer *Ben Deford* at the time of the Civil War. He practised medicine after returning to Jersey City, but retired many years ago.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

OPENING OF THE SESSION—ARTIFICIAL FEEDING OF WOMEN PRISONERS—MEDICAL EXHIBITION—GIFT OF A HOSPITAL—OBITUARY.

London, October 8, 1909.

The new session was opened at the London schools in accordance with their announcements, which I indicated last week. Your space will only permit brief notes of the proceedings, confined mostly to the addresses to the new students. At the Middlesex Hospital Dr. Goodall told them that doctors, like poets, were born and not made, though they had to undergo a definite course of study at the cost of an indefinite sum of money. The minimum time allowed was now five years, but some had taken longer, and it was said that one gentleman had devoted twenty-two years to it without ever tiring of the amusement, ruining his health by overstudy, or satisfying the examiners—a story which elicited laughter and was followed by a more serious address on the value of experimental physics and the importance of recognizing the psychic factor as well as the physiological and pathological condition of every patient. The prizes were then distributed

by Mrs. Shackelton, and her husband made a speech in which he said that in his trip to the South Pole there were three doctors and surgeons on board and the expedition came through without any deaths. This caused a little laugh, on which the lieutenant added that the fact was due to the presence of the doctors. One man lost an eye out there and one of the leading oculists told him the operation had been necessary and was as well done as it would have been in a London hospital. This was satisfactory, seeing it was done on board ship and at a very low temperature. Another man lost a toe and now carries it about with him as a trophy in a bottle. Mr. Shackelton also mentioned the discovery of rotifers in a temperature of 50° to 60° below zero, which had been brought home and subjected to a heat of 230° Fahr. and were still alive, producing families, and having a good time. Another fact of interest to the profession was that they never got a cold in the Polar regions until they opened a bale of clothing which had been bottled up in England. Then they got colds, but those who went out into the cold quickly lost them, while those who had to remain in huts suffered for three or four days.

At Charing Cross the dean (Mr. Wallis) infused interest into his annual report by a vigorous attack on the regulations for graduation which go far to threaten the prosperity and even the existence of the London schools. The London University has always made rigid rules to increase the difficulties or severity of examinations. The consequence is that many of the most diligent students cannot obtain its degrees, and while great changes have been made with a view of extending its influence and opening education, the regulations respecting medical students continue to be a scandal.

Sir Clifford Allbutt afterwards gave an encouraging address to the students and strongly urged the importance of the study of anatomy.

Dr. Miers did not at St. Mary's Hospital pursue the subject which, as I reported last week, he put before another audience. He told the medical students that he could not approve the fashion of decrying the efforts of youth, for he considered that was the age of originality—the really productive period of a man's life. Anyone, he said, who took the trouble to search into the history of his own mental development, would find the germ of any original thought which had found expression in his mature life dated from boyhood or early manhood. So they would find that the later writings of great authors had been the development of ideas first formed in that period, just as the impression of books read in childhood were never effaced. The ideas of childhood came from without; the mental efforts of a later period came from within and were of the creative order; those which came still later were generally adopted from others. The students he was addressing were in the original, inventive, creative stage and should develop their own thoughts rather than adopt those of others. Much of our lives was spent in preparation for something else, often something never done. If they never undertook anything until completely prepared, they would accomplish little. He urged them to pursue their studies under the inspiration of a theory and the illumination of an idea. In all their work let them have a theory, let it be their own, and let them believe in it, test it by their own knowledge and experience, not other people's, even if later they had to reject it. Darwin formed the germ of his theory at the age of 23, Newton and Pasteur of theirs at about 24. Some would tell them not to theorize till they had more knowledge, but the pleasure of amassing facts was not the pleasure of real scientific work. After school days everything should be learned in the spirit of original research. So he counselled them in all their work to have a theory and stick to it as long as they could, to try to understand experiments before they were explained to them. Of course, he was not speaking of clinical practice, of which he knew nothing, but only of scientific studies.

Sir J. Tweedie having pointed out that, although the primary purpose of medicine was to relieve suffering and cure disease, it aspired to the still more important office of prevention and the removal of the causes of disease in the community as well as in the individual. From this he passed on to the importance of research—biological and pathological—and deprecated the failure to distinguish between the dissemination and the advance of knowledge. The crudest manifestation of the confusion of these was perhaps the belief, real or feigned, by some persons that inquisitorial experiments were performed in hospitals. Less crude was the notion that endowing sanatoria or special hospitals would solve the problem of the nature and origin of diseases and so hasten the discovery of cures. Logically the idea was false; economically it was wasteful. It was a misapprehension of the function of hospitals and the methods of scientific research. He would not discourage generous support to hospitals, which was needed continually. But he looked upon the endowment of research as the surest way of discovering the nature of diseases and the means of preventing them. Clinical observation threw but little light upon the intimate pathological processes. Supremely useful as hospitals were, it was true that most of the discoveries of scientific medicine were made outside them, and often apart altogether from clinical observation. As examples he named those relating to malaria, Malta fever, yellow fever, and in the surgical branch the aseptic system. They might be asked if experiments on living animals were justifiable. To answer they must not only be acquainted with the arguments on one side, but make themselves masters of both.

Dr. Rolleston, at St. George's, of which he is senior physician, took the opportunity of commemorating some of the distinguished men who in the school had advanced medical knowledge. Among these was Dr. John Snow, the anesthetist to the hospital, who made in 1854 the epoch-making discovery that cholera was conveyed by water. In that hospital hypodermic medication was first performed by Charles Hunter, at that time house surgeon. In 1894 or 1895 the first course of lectures on tropical diseases was given by Sir P. Manson. The pioneer, if not the founder, of the scientific study of tropical disease in India was Vandyke Carter, an old St. George's man.

The Socialists in the House of Commons have kept up all the week their daily questions as to the suffragettes who are being fed with the tube. Every day the Home Secretary has been able to report that their health is excellent. Yet the Socialist leader has suggested in questions that the method is an act of brutality beyond human endurance, that it is frequently followed by chronic pigmentary colitis, that asylum patients so treated as a rule die of the treatment, and other equally absurd statements. Another question was whether a memorial had been received signed by Sir V. Horsley and 116 medical men about the alleged dangers and inhumanity of the practice. Sir Victor is hardly the man to proclaim his utter ignorance of a medical question to the world, but if he has used such expressions as the Socialist leader would have us believe, what can one think? Is he so obsessed by the suffragettes as to have signed a paper without reading it? One hardly likes to think he has bid good-bye to either common sense or veracity.

Mr. Gladstone, Home Secretary, referred the memorial to the president of the Royal College of Physicians and in reply to his questioner triumphantly read the president's letter. Sir D. Powell did not agree with the memorialists, whose statements he described as inaccurate and greatly exaggerated. He said artificial feeding is largely employed among those who, from mental aberration, refuse to take nourishment otherwise, and also those who are physically unable to take it. He admitted that the method is not as free from discomfort as a reasonable diet taken naturally would be, but then added that patients have been so fed successfully for years. Of course, he assumed that it was carried out under medical control, which Mr. Gladstone assured the House was the case. In reply to further catechising, Mr. Gladstone has told the House of a case in which men prisoners have been similarly treated; that one of the women was at first violent and a gag was used to prevent her injuring herself. As to treating them as political offenders, he reminded his questioners that breaking windows, throwing missiles into meetings and crowded streets and otherwise endangering lives were offenses against the law entailing certain consequences. He added that the public had a right to protection, even policemen, prison officials, and cabinet ministers.

Last night a mass meeting of suffragettes was held in the Albert Hall to protest the "disgraceful coercion of women" and bid farewell to Mrs. Pankhurst, who is coming across to your side of the water to carry on her agitation. She, at least, made no attempt to minimize the offenses against law, but spoke of them as "rebellion" and declared repression will arouse women into more determined rebellion.

The fifth London Medical Exhibition was opened on

Monday and closes this evening. All kinds of instruments, foods, and other aids to the treatment of injuries and diseases were on show, and the exhibition seems to have been as successful as its predecessors.

Mr. and Mrs. Thomas Aitken have presented their former residence near Bury, with eight acres surrounding it, to the town for use as a hospital for consumptives. The monetary value of the gift is about £30,000.

Sir Thomas Smith, Bart, consulting surgeon to St. Bartholomew's Hospital, died on October 1 at the age of 76. He was a Bart's student and after minor offices was elected on the staff and rose steadily to the great position he long held as a favorite leading consultant. His Fellowship of the Royal College of Surgeons dates back to 1858, and he became vice-president. He served for a time as examiner in surgery to the sister college and as honorary secretary of the Medico-Chirurgical Society. He was many years surgeon extraordinary to Queen Victoria and has been sergeant surgeon to King Edward since his accession. He was made a Baronet in 1897 and a K.C.V.O. in 1901. He contributed freely to the Transactions of the Royal Medical and Chirurgical Society, to Holmes' System of Surgery, and the weekly medical journals. He acted as consulting surgeon to the Children's Hospital, the Alexandra Hospital, and other institutions.

Brig.-Surgeon William P. Ward, late of the Royal Artillery, died on September 29. He took the M.R.C.S. in 1846 and the L.S.A. the next year and at once entered the Army Medical Service. He served throughout the Crimean campaign, 1854-1855, and was in the battles of Alma, Balaclava, Inkerman, and the siege and fall of Sebastopol.

The death is also reported of Col. G. McB. Davis, late of the Indian Medical Service, at the age of 63. He entered the service in 1869, reached the rank of colonel in 1897, retired in 1902. He was in the Miranzi expedition, 1891, and the Hazira of the same year, the Waziristan, 1894-1895, and the Tirah, 1897-1898. He was in the action of Dargai and the capture of the Samphagha and Arhanga Passes and the Bara Valley, 1897, and was made a C.B. for his services. He also served in China in 1901-1902, and here, as in the former campaigns, was mentioned in dispatches.

Dr. William Rivers Pollock, obstetric physician to the Westminster Hospital and Queen Charlotte's Lying-in Hospital, died on the 5th inst., aged 50. He was a Cambridge graduate, 1888, and had been a St. George's student also. He was elected F.R.C.P. in 1901 and has served as examiner in midwifery and diseases of women and children at the college; was a Fellow of the Obstetric and other societies.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

ACADEMY OF MEDICINE—PURIFICATION OF THE AIR—MENINGOCOCCEMIA—SOCIETY OF SURGERY—TREATMENT OF HYDATID CYSTS OF THE SPLEEN.

PARIS, October 10, 1909.

Prof. Charles Richet believes that an excellent method of removing from the air of a closed space the particles and microbic dust which it contains is to cause a viscous liquid or simple water to fall upon a ventilator in movement. This method differs completely from those usually employed in the purification of the air, for we usually content ourselves with introducing into a room air more or less purified. In this new method, on the contrary, it is the air of the room itself which is purified by the uninterrupted circulation of that air through the purification apparatus. The method is very simple; there is a ventilator moved by electricity which turns in a cylinder widely open above and below, to permit the free circulation of air through it. Above the cylinder is a reservoir of water, allowing the liquid to fall in drops upon the wings of the ventilator. By the rapid gyration of the wings the water is thrown in the form of spray against the walls of the cylinder; they fall again in rain and are received by a reservoir, in the center of which the entire apparatus is placed. The spray is condensed into drops which are filled with dust and microbes. When the concentrated residue is examined after evaporation, three liters of distilled water having circulated upon the ventilator for three hours, we find that it is considerable in amount, and contains a relatively large amount of solid materials. From the point of view of public and private hygiene, there is a great advantage in purifying the air, for, even if the microbes of the air are rarely pathogenic, they are so at times (bacilli of tuberculosis and grippe). If this apparatus does not destroy all the microbes, it certainly destroys a very large number of them.

Netter recently drew the attention of the academy to the fact that there may exist in the course of epidemics of cerebrospinal meningitis cases of generalized infection caused by the meningococcus without any symptoms of meningitis, and the existence of meningococcemia without meningitis should not be surprising, since we know that the meningococcus has been found many times in the blood, and even in the articulations and serous membranes. In connection with this subject Netter reports the case of a little girl six years of age, whose sister was attacked by cerebrospinal meningitis. The little patient had a severe febrile affection with articular pain, adynamia, purpura, buccal, and intestinal hemorrhages. The presence of the meningococcus was sought in the cerebrospinal fluid, but without result. At the same time there was agglutination of the meningococcus by the blood serum. On account of this observation two injections of antimeningococcic serum were made, and brought about a rapid cure. Netter then gave the results that he has obtained by serotherapy in 68 personal observations of cerebrospinal meningitis. Out of 68 cases there were 16 deaths, of which 8 either came in moribund, or death resulted from some other disease. Netter believes that antimeningococcic serotherapy is absolutely necessary, that it should be carried out with persistence, and that in some cases it is best to use as much as 300 cubic centimeters of the serum to obtain a cure.

At a meeting of the Surgical Society Morestin gave an interesting report of treatment of hydatid cysts of the spleen with reference to a case of Michon's. The patient was a man of 27 years of age, who became suddenly and severely ill, with fever, cough, and pain in the side, which caused a diagnosis of left sided pneumonia to be made. Some days after, following a severe attack of cough, the patient expectorated blood and débris of a hydatid membrane. The diagnosis of hydatid cyst of the lung, which had been emptied by way of the bronchial tubes, now become evident. Following this evacuation the general and local symptoms disappeared, but radiography showed below the diaphragm an abnormal shadow corresponding to the spleen, which seemed to show that there was a hydatid cyst of the spleen which had emptied into the bronchial tubes. Laparotomy performed by Michon showed, on the contrary, that the spleen was entirely free from all adhesion to the diaphragm or the neighboring organs. It contained a small, superficial hydatid cyst. This caused Michon to perform splenectomy. The patient was cured without any complications. Morestin believes that in this case there were two entirely distinct hydatid cysts, one in the spleen and the other in the lung, and that the last named was evacuated by the cough. He disapproves of the splenectomy performed by Michon. He should have preferred the enucleation of the cyst or the partial resection of the spleen, and in this case the spleen, an important organ, should not have been sacrificed. Quenu also believed that it was not necessary to have recourse to splenectomy in the treatment of hydatid cyst of the spleen except as a last resource, when other methods cannot be tried. If radiography allows of a positive diagnosis of an abnormal subdiaphragmatic mass at the same time it may lead us into serious errors. It was in such a manner that by means of radiography he had made a diagnosis of hydatid cyst of the spleen, but found himself in the presence of a subphrenic abscess.

Arrou insisted that the diagnosis between hydatid cyst of the spleen and hydronephrosis is difficult. In a case in which all the clinical symptoms made him think of hydronephrosis, Arrou called in George Luys, who, after a complete examination of the renal function and measuring the capacity of the pelvis by ureteral catheterism, stated that the kidney was not at fault. Operation showed that this diagnosis was well founded, the kidney was perfectly healthy; there was a cyst of the spleen. From the point of view of operation Arrou believes that the complete ablation of the spleen is not justifiable, but that it is best to practice partial resection. His patient was perfectly and completely cured.

Tuffier thinks also that conservation of the spleen in the course of the treatment of hydatid cysts of this organ is necessary in every possible case. Richard considers that when the spleen appears normal it is best to preserve this organ. He counsels the opening

of the cyst and reduction without drainage, or marsupialization, or, if necessary, the resection of the cyst. Splenectomy is not indicated except in case of multiple hydatid cysts or a single cyst which has destroyed the greater part of the splenic parenchyma.

OUR VIENNA LETTER.

(From Our Regular Correspondent.)

SOCIETY OF GERMAN NEUROLOGISTS—NEW SIGN OF A NERVOUS HEART—TUMOR OF THE PINEAL BODY—TREATMENT OF PARALYTIC CLUB FOOT.

VIENNA, October 1, 1909.

ON September 17 and 18 there occurred in Vienna the third annual meeting of the Society of German Neurologists, under the chairmanship of Professors Erb and Obersteiner. There took part in the meeting some five hundred members, mostly from the German Empire. The general expression of opinion of the meeting was in favor of separating the neurological science from the psychiatric in the universities, and forming individual neurological clinics.

Docent Siegmund Erben of Vienna aroused much interest with a new diagnostic procedure. In cases of nervous heart if the body were placed in a certain position a sudden showing of the pulse occurred which lasted for some ten heart beats and then entirely disappeared. In myocardiac changes and in the beginning of aortic disease, on the other hand, this sudden transient bradycardia did not occur. Erben had used this method of examination for ten years, and it deserved the good will of the profession as a method of differential diagnosis. If before the examination one increased the cardiac activity by active bodily movements, the test appeared in even a more characteristic manner.

Professor von Frankl-Hochwart reported a tumor of the pineal body. This small appendix of the brain, in which Descartes at one time placed the seat of the soul, was considered for centuries to be quite purposeless. Only in the last few years has the significance of this organ been brought to light by a few investigators, among whom should be named Slawyk, Oesterreich, and Marburg. Frankl-Hochwart was the first to be able to make a diagnosis of a tumor of the pineal body during life. This was in the case of a four and a half years old boy who showed the developments characteristic of puberty of a boy of fifteen. The diagnosis was confirmed at autopsy. From this it appeared that the significance of this invisible organ in its relation to development was proved.

In closing the discussion on infantile paralysis, Lorenz spoke of the deformities of the feet resulting from this disease. The deformities, among which, owing to its frequency, club foot was of especial importance, were not produced by the severity of the paralysis itself, but by the asymmetry of it, in that one muscle group was more affected than another. The result was an injury to the so-called muscle antagonism. The less involved, stronger muscles pulled the foot towards their side, and the fixation in the pathological position by the body weight caused the development of the deformity in a maximal degree. The therapy of the paralytic deformities had made rapid strides in recent years, owing to the use of tendon transplantation, by which the loss of muscle antagonism was overcome. Lorenz well recognized the value of this operation, but was of the opinion that it was often performed unnecessarily. It often occurred, for example, that one muscle group was more strongly involved than its opponent, but still had some power left—was in fact not completely paralyzed, as the first examination of the extreme deformity would make it appear to be. We must not forget that by the development of the deformity both the degree of the paralysis and the injury to the antagonistic action was increased. The weaker muscles lying on the convexity of the deformity suffered, with the increase of the deformity, a passive stretching and permanent lengthening, lost thereby their power of action, and assumed, through prolonged lack of use, inactivity paralysis. The first step in the therapy of these conditions was to attempt to restore the power of these muscles before one took steps with operative procedures. A valuable means of reawakening the power in these apparently completely paralyzed muscles consisted in relieving their tension. This might be accomplished by reversing the deformity, by overcorrecting it as far as possible, by the Lorenz manual or instrumental means. This inverted deformity produced in this way should, after fixation in plaster, be maintained for several months in complete functional inactivity. After the expiration of this time one was often most pleasantly astonished to see to what an unexpected degree this apparently completely paralyzed muscle had recovered, so much so that very frequently operative procedures were unnecessary. Only when this relief of muscular tension had failed did Lorenz believe that tendon transplantation was indicated. For results from operation, then, he was very sanguine. The value of the operation could but increase if it was kept until the last resort.

OUR CANADIAN LETTER.

(From Our Regular Correspondent.)

RECIPROCITY IN REGISTRATION—PURE MILK—TORONTO GENERAL HOSPITAL—TYPHOID FEVER AT COBALT—SEWAGE DISPOSAL—SAND FILTRATION OF WATER SUPPLIES—GIFT OF A PASTEURIZING PLANT.

TORONTO, October 22, 1909.

A SUBJECT discussed at the recent meeting of the Canadian Medical Association, held in Winnipeg, was that of Dominion registration of physicians. It is obviously a question of the first importance, and members of the Canadian medical profession are beginning to appreciate this fact more fully. It appeared to be the general opinion of those at the meeting that a uniform standard of medical education should be adopted throughout Canada, so that a man who has taken the degree in one province might be able to practise in another province without being compelled to undergo the ordeal of examination. As a speaker aptly put the case, Canada should not be cramped by provincial boundaries. Of course, without a uniform system of medical education it would be impossible to introduce such a reform, but it is felt by the medical profession here as it is felt by a large proportion of practitioners in the United States, that a change in this direction would be beneficial to all concerned. It is believed that in a comparatively short period of time that five provinces of Canada will decide to adopt a system of uniform medical education and consequently of medical reciprocity.

A matter which is exercising the minds of medical practitioners in Canada in the same way as it is engaging the earnest attention of physicians and sanitarians in all parts of the world, is that of a pure milk supply, or rather of as pure a milk supply as it is possible to obtain. The problem of such a supply is not of the urgent moment here as it is in the crowded cities of Europe and Great Britain, but, nevertheless, in the Canadian cities it must not be neglected. In any event, the energetic medical men of Toronto are determined to take time by the forelock in this respect. In October last the Academy of Medicine, Toronto, appointed a milk commission and endeavored to get into touch with the dairymen of the city in order to formulate a working plan whereby the condition of the milk supplied to the city might be improved, and that the said dairymen might be induced to supply certified milk. The following were among the requirements adopted by the commission to guarantee milk: The herd to be tuberculin tested on admission, and twice yearly afterward, by a veterinary surgeon appointed by commission; he also to make monthly reports. Precise regulations as to cleaning of milk cans, milking sheds, milking utensils, and especially with regard to the personal cleanliness of the milkers themselves, and other technicalities. After having decided the requirements necessary to safeguard milk, the commission sent out a circular letter to about two hundred dairymen. A few considered the project, but the majority thought the precautions were unnecessary or, at any rate, too minute, and that the game was not worth the candle. Finally, three dairy firms took up the matter and are now producing certified milk to the satisfaction of the commission. The great obstacle to the production of certified milk on a large scale is the enhanced price of the product. Well-to-do people can afford, if they are so disposed, to pay a higher price for milk to protect the health of themselves, and especially of their families, but in many instances the poor cannot spare the money. Again, the community must be better educated with respect to the great part that unpolluted milk plays so far as public health is concerned. At the present time only a few understand or even partially comprehend the matter, and until this ignorance is conquered the sale of certified milk will be comparatively small.

The hospital question looms large in Toronto. The hospitals here, on the whole, are somewhat inadequate, and perhaps in some respects out of date. This is recognized by the medical profession, and soon two large hospitals will be in course of construction. The site for the new General Hospital is being rapidly cleared. It is on College street, and almost opposite the buildings of Toronto University. The site covers more than two acres,

and the building to be erected will be in keeping with the size and importance of the city, both as a commercial and educational center. In addition to the hospital proper, which will contain 400 beds or thereabouts, there will be laboratories for research, class rooms, and, in fact, all that goes to make up the equipment of a thoroughly up-to-date medical school. It is stated that the building with site will cost more than $2,000,000, and will be completed in about two years' time. Another large hospital is to be built. The Western Hospital has been for some time too small for the calls made upon it, and a new building is to be erected. This is to be built by piecemeal, so to speak, in blocks, closely adjacent to the site now occupied by the present building. Its capacity will be large, but it will be an inexpensive building, intended solely for use.

At the meeting of the Canadian Medical Association a paper was read by Dr. Bruce Smith on the hospitals of the country and their relationship to the people. In the discussion that followed the reading of this paper Dr. J. R. Jones of Winnipeg gave it as his opinion that the one thing to be avoided in Canadian hospitals was the pauperization of patients. Nothing should be tolerated which had in any way this effect. Indiscriminate charity was a most harmful influence in the community. The examples of England and Europe had only to be taken to show the truth of these remarks.

A serious epidemic of typhoid fever is in progress at Cobalt at the present time. Cobalt is the center of the silver mining district, and is situated in Northern Ontario, about 300 miles from Toronto. Typhoid fever has existed in Cobalt and neighborhood for some considerable time, but in August last it assumed the proportions of an epidemic. By the laws of Ontario when a township has a population of 5,000, it is no longer under the control of the Provincial Board of Health, but its local health authorities are responsible for its health and sanitary regulations. However, in the case of Cobalt and its neighboring mining camps the situation became so serious that the aid of the Provincial Board of Health was invoked, and towards the end of August Dr. Chas. Hodgetts, its secretary, and Dr. Bell, one of its inspectors, were sent from Toronto to Cobalt to render whatever assistance lay in their power. On arrival they found a most unsanitary state of affairs in the town and mining camps alike; no drainage or disposal of sewage, water derived from shallow wells, the water-closet system, when not lacking wholly, primitive in the extreme. Directions were given to close all the wells, and under their personal supervision the town was cleaned as efficiently as it could be in the existing circumstances. Recommendations were made to the mine owners to supply good drinking water in the mines and to provide in the mines the earth bucket system for the convenience and safety of the workers. The mine owners have erected for the use of their employees tent hospitals in the vicinity of the mines, and have also found a plentiful supply of efficient nurses. On August 9 last there were 56 patients suffering from typhoid fever in these hospitals, while in the town of Cobalt itself there were on the same date 41 sufferers from the disease. The disquieting feature of the situation is that there has been no decrease in the number of cases since the beginning of August. The death rate, however, has not been high, the disease being of a mild type. In Toronto there have been several cases of typhoid fever during the past few weeks. For a long time, indeed for the space of many years, it has been evident that the disposal of sewage in the city has not been calculated to promote the good health of the inhabitants. The greater part of the sewage is dumped into the harbor near the city, and where there is but little current of water. This has been going on for years, and, of course, with the rapid growth of population of Toronto the danger arising from this source has increased in proportion. The custom is not only dangerous, but extremely unpleasant to those living near the harbor and to the shipping. It is now proposed, and in fact some of the work with this end in view is going on, to carry the sewage by means of a large trunk sewer some miles from the harbor to the east of the city.

The water supply of Toronto, too, is undergoing overhauling. The supply is now obtained from or near the harbor, in which the sewage is placed, and although it is not suggested that the water supply is contaminated thereby, it will be altogether more satisfactory from a sanitary standpoint that the sewage should be disposed at so great a distance that there can be no fear of contaminating the water. The water supply is to be filtered, and it is stated that Mr. Alan Hazen of New York is to superintend the instalment of the slow sand filtration system. On the part of some of the citizens of Toronto there has been evidenced some dissatisfaction at this decision, they wishing to try the ozonization of the water by electricity. Lindsay, a small town in Ontario, has just had installed this system, which is said to have been employed with success in Wiesbaden and Paderhorn in Germany, in Nice, and at St. Maur, Paris, and in some other European towns, and to some extent in Philadelphia. The system is recommended by distinguished German scientists—van Ermengem and Erlwein; by De Frise, Roux, and others in France, and by Rideal in England. It appears, though, that a preliminary clarification by some kind of filtration is necessary before ozonization is performed. At the Fourteenth Congress of Hygiene and Demography, held in Berlin in 1907, a discussion on ozone purification of water was initiated by the French delegates and commented on by the *Lancet* thus: "It is sharply distinguished as being a sterilizing, and not a clarifying process, and its use presupposes that the water is practically free from suspended organic matter." There appears to be a great deal of confusion as to the cost, some stating that it is a very expensive process, while others declare that it is a remarkably cheap one. According to reports from authentic sources it is wonderfully effective as a sterilizing agent, and in all probability will be largely employed in the future for the purification of the water supplies of cities, but generally as an adjunct to filtration by other means.

Insanity is on the increase in Toronto and district. The Tuberculosis Institute at Montreal was opened by the King of England from West Dean Park, Chichester, by pressing a button connected by electricity with the Montreal Institute.

A milk pasteurizing plant has been given to the Hospital for Sick Children by Mr. J. Ross Robertson, who has on former occasions made very large gifts to the institution, and who built at his own expense the convalescent home in connection with the hospital on an island in the lake. Mr. Robertson took a party some few months ago to New York to inspect the milk supply of the city, and they were all favorably impressed with the working of Mr. Nathan Straus's charity. It is stated that since the installation in the Toronto hospital the health of the children has improved.

Progress of Medical Science.

Boston Medical and Surgical Journal, October 14, 1909.

Postoperative Acute Dilatation of the Stomach.—H. B. Smith gives a general description of this condition together with notes of seven cases and the results of certain animal experiments. He says that the condition is not rare but of comparatively frequent occurrence after operations under general anesthesia. It varies greatly in severity. Many cases recover spontaneously without the establishment of a positive diagnosis. Its occurrence cannot be foretold. It is probably the cause of some deaths. It is probably due to a primary gastroenteric paralysis, central or peripheral in origin or both. Trauma and anesthesia are probably the exciting agents of the paralysis. Mesenteric compression, if present, is a secondary factor. The most constant and characteristic symptom is the welling up of small quantities of bile-stained fluid at a time when post-anesthetic vomiting should have ceased. The most reliable diagnostic aid is the passage of the stomach tube. Prognosis is good if the condition is recognized early. Treatment should relieve spasm and evacuate both stomach and bowels. Operative measures are not indicated. Before we can rationally prevent it we must know more about its cause. Prophylaxis should be directed toward the lessening of operative trauma and anesthesia.

Cystoscopy in New Growths of the Urinary System.—Of 37 cases of bladder growths examined by L. Davis under the cystoscope 17 were pedunculated papillomata. Many of these were multiple and some were encrusted with urinary salts. Thirteen of the cases were primary vesical cancer, 2 of cancer of the bladder secondary to intestinal malignancy, 4 of cancer secondary to cancer of the prostate, and 1 of papillary cystoadenoma of the prostate. In examining a vesical tumor with the cystoscope, it is important to determine besides its form and probable character, details as to situation, size, number, and whether or not pedunculated papillomata are most apt to be found on the outer side of the ureteral orifices. One wants to know in removing such a growth how wide a sweep can be made about the pedicle without endangering the pedicle. It is hard to determine this fact at the time of operation owing to the bleeding. It is important to search thoroughly over the entire vesical wall, for when the bladder is opened

small tumors flatten out against the bladder wall and are hard to see. The author also considers new growths of the prostate and kidney and ureter. New growths in the kidney show hematuria at some stage in more than one-half the cases. Analysis of the urine from the two kidneys obtained by segregation of ureteral catheterization throw light on the diagnosis. Tumor cells, in the deposits, are rarely found. Tumors of the bladder may coexist with those of the kidney. A bladder tumor may simulate a renal tumor, especially if it is located close to the ureteral opening.

New York Medical Journal, October 16, 1909.

Epilepsy in Relation to Menstrual Periods.—A. Gordon presents a study of twenty-three cases, endeavoring to determine whether any irregularity of menstruation, or a diseased state of the ovaries, have any relation to the epileptic seizures. Only five women presented dysmenorrheic symptoms, but without apparent disease of the ovaries. A course of treatment by the gynecologist improved the condition, but did not totally remove it. As the epilepsy continued in spite of the improvement, the presumption was in favor of the fact that the irregularity and abnormality of the menstruation have not much to do with the seizures. This is only a presumption, but no certainty, as the five patients have not totally recovered from the dysmenorrhea. On the other hand, if we take into consideration the fact that the remaining eighteen patients did not present dysmenorrheic symptoms, it is evident that disturbed menstruation has no bearing upon the causation of epilepsy. He further states that their epilepsy consists only of one or two monthly attacks, but the latter are as typical as in any other form of epilepsy. There is loss of consciousness, frothing at the mouth, biting of the tongue, tonic followed by clonic convulsions, involuntary micturition, subsequent stupor. At no time during their illness had the patients seizures outside of the menstrual periods. As in any other variety of epilepsy, some of his patients began to present mental sluggishness and hebetude, and at the time they first came under my observation they presented the mental aptitude and general appearance frequently observed in many inveterate epileptics. The points emphasized by the author are: (1) The undeniable relation of epileptic seizures to menstruation. (2) Absolute freedom from attacks in the intervals between menstrual periods. (3) Apparently perfect integrity of the ovaries and still occurrence of epileptic fits immediately before or during menstruation. (4) The inability of controlling the fits with the usual bromide treatment. (5) The good and even excellent effect of thyroid extract. (6) The mode of administration of the latter, viz., thyroid extract between the menstrual periods and bromides without thyroid only a few days before menstruation.

Treatment of Acute Pneumonia in Infancy and Childhood.—W. L. Carr says that lobar pneumonia is a self-limited disease of short duration and it seldom demands more than nursing and care. Medicines are needed only when symptoms indicative of weakness or when complications arise, or when also restlessness and pain demand relief. Bronchopneumonia may be treated on the same plan, but it is a disease which usually even when acute, is associated with depressed vitality or infection and calls for the administration of alcohol and other stimulating agents. The main portion of the paper consists of the enumeration of the various measures and remedies for differing clinical conditions, and the details must be read by those interested. Concerning stimulants, the author says that he questions the direct action of strychnine, but believes in its good effects in cases of bronchopneumonia in which there is weakness of cardiac action or general failure of strength. Caffeine and camphor may serve as vasomotor stimulants, and digitalis may aid when the pulse is rapid, but for continued effect he believes that strychnine in doses of 1/600 to 1/150 of a grain, according to the patient's age, is the best circulatory tonic. In cases of severe depression the author combines it with caffeine hypodermically and when there is pulmonary congestion, edema, and a flagging of the right heart he uses nitroglycerin. Infants bear all of these drugs, but for them digitalis is unsatisfactory except in very small doses for a short time. It slows the heart action and increases the arterial pressure, and it is serviceable with older children with rapid and weak heart action. Its irritating effect on the stomach and intestine may limit its usefulness and require a change to strophanthus. He administers either drug in doses of one-half to two minims of the tincture every two hours for five or six doses and then as indicated.

The Prevalence of Venereal Disease Among Recently Arrived Immigrants.—A. L. Wolbarst considers this question with reference to intermarital infection. He refers to the man who is continent at home and who comes to this country alone to acquire sufficient funds to send for his wife and children. It is during this period that he is liable to acquire veneral disease, which, upon the arrival of his wife, he promptly communicates to her. The frequency of this occurrence is shown by figures given from one of the down-town, east side, New York City institutions; thus: (1) About one-third of 1 per cent. of all the male patients at the Beth Israel Hospital Dispensary, nearly all recently arrived immigrants, suffer from venereal disease, acquired after their arrival in this country. (2) Of 210 patients in whom the histories were carefully taken, 114 were single (54 per cent.) and ninety-six (46 per cent.) were married; of the married men, thirty-five (16 per cent.) were living with their wives in this city; sixty-one (30 per cent.) had wives in Europe ("celibate husbands"). (3) Most of the patients were infected after their first year in the United States; forty-four (21 per cent.) were infected during the second, third, and fourth years. (4) It thus appears that if these men were enabled to bring their wives to this country before the second year, the greatest danger from venereal infection might be avoided. Possibly the conditions are serious enough to warrant such assistance being rendered by organized forces having the welfare of immigrants at heart. (5) The number of wives thus infected unknowingly by their husbands must be very great, but there are no exact statistics that throw light on the subject. It would be interesting to have these figures. (6) The object of this paper is to call attention to the existing state of affairs—not to offer a remedy. There must be some means of remedying these conditions. They should be regarded as an economic measure, not only for the welfare of the immigrant but of his wife and the community in general.

Journal of the American Medical Association, October 16, 1909.

Antityphoid Inoculation.—W. J. Stone describes the blood changes during and following an attack of typhoid and says that the various antibacterial substances elaborated in the blood and tissues serve, according to most authorities, to protect the individual in most cases from subsequent attacks. The difficulty of diagnosis, however, between typhoid and paratyphoid affections, as well as mild types of meningitis and malarial and pneumonic infections, render the question of absolute immunity still somewhat uncertain. This immunity is due to the higher opsonic resistance after the disease and there are, besides opsonins, certain substances which are obtained by heating certain strains of typhoid bacilli which are more stable and even more active than opsonins. The methods of preparation of antityphoid vaccine are described, and those prepared from nonvirulent seem, according to later findings, fully as protective as those from virulent strains. The immunizing potency of these vaccines is impaired by age and affected also by extreme degrees of cold and heat. Room temperatures seem best for their preservation and it is safest not to use those more than three or four months old. Although a considerable immunity results from one inoculation of from 500,000 to 1,000,000 bacteria, it can be considerably augmented by a subsequent injection of 1,000,000 or 1,500,000 ten or fourteen days later. The injections are conveniently given at the insertion of the deltoid or in the abdominal wall, and should not penetrate the muscle. The reaction is slight and disappears within twenty-four hours. It is likely to be greatest after the second injection, but is seldom sufficient to keep a man from his work. The best time is in the late afternoon, so that rest can be secured early. The blood changes after inoculation consisting of increase of the agglutinins, bactericidins, bacteriolysins, opsonins, and stimulins are described. The duration of immunity produced has been estimated as from two to six years, but probably in many cases it endures for life, though this is not positively certain. The question whether the inoculation protects also against paratyphoid infection has not yet been fully settled. The good results of such inoculation in the British army are noticed. In one regiment no case of typhoid has occurred since the inoculation of the men in those who have received two doses, and the general incidence among all the inoculated men has been reduced to a small percentage of what it is among those not inoculated. Similar work has been done in the United States army since last December and is being continued, but the results are not yet published. Investigations have es-

tablished that about 4 per cent. of convalescent typhoid patients still have typhoid bacilli in their systems and are liable to disseminate the disease. The inoculation of antityphoid vaccine affords a more certain means of raising the bacterial resistance in such cases than any other known method of treatment. The inoculation involves no risk and is specially applicable to those that are exposed, such as nurses, physicians, etc. It is advisable, with our present knowledge, not to practise the method during the incubation stage of the disease to avoid the possibility of cumulative action, but in areas where the disorder is endemic or epidemic inoculations of antityphoid vaccine are indicated in individuals not in the prodromal or incubation stage.

The Combined Method of Infant Feeding.—H. I. Bowditch urges a thorough trial of the German, or caloric, and the American, or percentage, methods in combination and offers a plan by which this can be done. This plan depends on a table of caloric values for the different percentages of fats, sugar, and proteid used in infant feeding. These values are calculated for each gradual increase of strength in percentage and of quantity of food. These same values are placed side by side in columns and rows so that the columns represent values of different percentage ingredients of the same quantity, while the rows represent the same per cent. of ingredient of different quantities, for the former read up and down and the latter read laterally. The use of the table which accompanies his article is explained in detail. The fats differing in caloric values from the sugars or proteins are worked out by themselves and the sugars and proteins of similar energy power are estimated together.

The Sacroiliac Joint.—F. H. Albee carefully dissected fifty specimens and found in each instance a well-marked joint with synovial membrane and cavity, and strong, well-formed capsule, as constant in its size and relation as any other joint in the body. Before opening, many of the joints were injected with an aqueous solution of methylene blue, which colored the synovial membrane so that it could be seen to distend and retract all along the anterior-inferior aspect of the joint when motion was elicited. This latter could be brought about and measured in every specimen except one in which there had been an osteoarthritis and the anterior portion of the joint had been obliterated from this cause. Under favorable circumstances this joint will stand much abuse, as in case of a symphysiotomy, but it is liable to the affections of other joints and in case of infection the prognosis is often serious; first, because it is liable to be a metastasis from some other part, and, second, because of the danger of spontaneous drainage forward into the pelvis, owing to the thinness of the capsule anteriorly. It may also become relaxed and cause uncomfortable symptoms by too long recumbency, as well as trauma. His conclusions are given as follows: "1. The sacroiliac articulation has all the elements of a joint and therefore has a similar pathology. 2. It has motion and plays an important rôle in labor. 3. Its variation, according to individual, age, or sex, is very slight. 4. Its anatomy is such that drainage into the pelvis is apt to occur, and, therefore, in the event of infection, early posterior drainage is often indicated. 5. Its affections are, undoubtedly, the cause of many obscure and unexplained backaches and persistent sciaticas. 6. The important ligaments of this joint are so placed that the sacrum and the ilium swing open, in the event of a symphysiotomy, as described above, and little permanent damage results, even if the pubic separation has been great enough to rupture the unimportant anterior-inferior part of the capsule. 7. The relaxation of this articulation should be guarded against by support of the lumbar spine with pillows, etc., in cases of protracted postoperative convalescence. Undoubtedly, many can recall instances of nature's warning, in the form of a convalescent's backache, which the nurse so readily relieved by merely placing a pillow under the lumbar spine."

Persistent Thoracic Sinus.—C. N. Dowd has performed the operation of lung decortication connected with thoracoplasty in fifteen cases in children and describes the condition and changes calling for the treatment, his method of operation and the means of avoiding its necessity. In his patients ether was used, the patient lying on the sound side. The operation proceeded as follows: "'Orientation' incision was made about the sinus opening with resection of 3 or 4 inches of the rib above and the one below it. The incision was then carried upward in anterior axillary line to the third rib. The ribs were divided and suitable portions removed, usually one-half inch from the second or third, 4 to 6 inches from the tenth, and corresponding pieces from the intermediate ones. Sometimes less was taken away. With suitable retraction an excellent view of the sinus is thus obtained. A longitudinal incision is then made through the upper part of the sinus wall until the lung is reached. At this stage of the procedure the patient is allowed so nearly to emerge from the anesthesia that he will cough, when the lung usually bulges into the incision. The membrane is then separated from its surface over as large an area as is practicable and removed. In most of these cases a strip 2 or 3 inches long and from 1 to 2½ inches wide has been removed. This about represents the pulmonary portion of the sinus lining. The chest wall was nearly brought together by strong sutures and a drain or suction tube inserted in the unclosed part." The amount of chest wall removed varied according to the case and according to the likelihood of gaining lung expansion. In every case persistent and continued blowing on James's (or Wolff's) bottle has been used, and he thinks the expansive power accompanying this method is very great. The results are very encouraging, twelve of the fifteen being perfectly well, with varying degrees of chest expansion and capacity, and without lateral curvature of the spine. One patient is still in the hospital, one died of tuberculosis, and one was removed while doing reasonably well two days after the operation, and died a few days later in unsanitary tenement surroundings. Prompt relief of pyothorax before lung compression takes place, is the best method of avoiding these sinuses. The author's deductions from this group of cases so far as he thinks they can be justified are: "1. Persistent thoracic sinus can be cured by decortication of the lung and resection of the chest wall in 80 to 90 per cent. of the cases. 2. After operation the patient will not have lateral curvature of the spine. 3. The lung capacity on the affected side will remain much diminished. 4. Nearly all the patients are in good health and are not materially inconvenienced by this restricted lung capacity. 5. The mortality from the operation is probably more than 5 per cent. and less than 10 per cent."

Odors and Digestion.—G. M. Niles says the digestion may be influenced by the olfactories in several ways—directly, reflexly through idiosyncrasies, or by some complex psychic process hard to analyze. That appetizing odors make the mouth water is a common experience, and Pawlow has shown that the gastric juices are also susceptible and appetizing odors can create that gnawing sensation in the stomach that only an abundant flow of the digestive juices can produce. On the other hand, there is no factor that can exercise a more malign influence on the appetite and digestion than repulsive smells, as everyone has experienced. Even after digestion has normally begun, a disagreeable odor may destroy its progress, inhibiting the secretion of gastric juice, and causing stagnation, fermentation, and irritant decomposition products. Niles notes the effects of certain odors on particular individuals and gives instances where a surfeit of specially odorous food has impaired digestion long afterward when that food was present. These instances are real idiosyncrasies and not manifestations of prejudice or pretense. Odors may even cause death, a fact which was known even in ancient times when it was used as a punishment to chain a man to a dead body till death relieved him. Agreeable odors, on the other hand, may exercise a highly beneficial effect on digestion, a fact which is utilized among orientals, and he thinks that this field can well be studied and cultivated by gastroenterologists among ourselves.

The Lancet, October 9, 1909.

Hirschberg's Febrile Infection.—A case of this nature is reported by C. Stoncipher. Hirschberg mentions the following as features of the disease: (1) failure of the blood to agglutinate with the usual organisms, such as *B typhosus, B paratyphous,* and *B coli;* (2) absences of relapses, hemorrhages, phlebitis, rose spots, splenic enlargement, mortality, and of lengthy period of incubation and prodromes; (3) presence of constipation except when the patient is fed on a raw milk diet, and (4) normal blood picture as regards hemoglobin, erythrocytes, and leucocytes. Stoncipher's patient, a single woman of 22 years, followed the course outlined, the febrile course, never high, running 17 days and then falling to normal.

The Clinical Significance of Albuminuria.—N. Tirard says that the chief difficulty connected with cases of albuminuria is not concerned with the detection of minute traces, but with the significance of the albuminuria. The quantity of albumin is often an insignificant factor, but other factors, such as the quantity of urine excreted in 24 hours, the color, specific gravity, presence of other constituents must be taken into the account. General symptoms may be present or absent. Mere febrile albuminuria never appears to be associated with any grave interference with the renal function. Similarly albuminuria rarely causes any anxiety in patients who are suffering from disease involving retardation of the blood flow in the renal capillaries. The problem is a more difficult one in cases of albuminuria in connection with obvious heart lesions. Here the quality of the pulse and the presence even of the slightest amount of edema must be taken into account. Some of the most serious forms of albuminuria may be those in which the detection of the condition may be at times extremely difficult. Attention must also be paid to the time of voiding the specimen in relation to the ingestion of liquids, the permanent nature of a high or low specific gravity and the possibility of some disturbing factor, such as a diarrhea, recent violent exercise with profuse perspiration, and even excessive nervousness at the mere facts of examination. The presence of casts may be of assistance provided that too much importance is not attached to a few hyaline casts. Such casts are likely to be present whenever albumin is found in acid urine. Their absence can hardly be looked upon as a proof of the nonexistence of possibly serious structural renal changes. In those who have been long addicted to athletics, albuminuria is often found, with or without cardiac abnormalities. Here the question must be decided between cause and effect on one hand and the reference of both to a common cause on the other. Indications of arterial rigidity are not much value in the separation of functional from organic forms of albuminuria. The author summarizes his conclusions by saying that a large amount of albumin without blood or pus may generally be taken to indicate chronic tubal nephritis, and this can be confirmed by a high specific gravity, by microscopical examination, and by the appearance of the patient. A very small trace in an elderly or middle-aged man will probably indicate chronic interstitial nephritis; confirmatory evidence can be found in the aspect, the history, the pulse tension and tracing, the outward displacement of the cardiac impulse, the accentuation of the systolic apical sound, and the accentuation and reduplication of the second sound at the base of the heart. These indications may be further supported in some cases by the pale color and low specific gravity of the urine; less frequently information may be gathered from the presence of casts and from their predominant characteristics. The absence of casts is not, however, to be regarded as an indication that the case is not one of chronic interstitial nephritis. In a young man a mere trace of albumin may be the only evidence of a functional albuminuria, and the diagnosis must then rest upon negative evidence to a large extent, one of the most important factors being the relatively high specific gravity, unless this has been influenced by nervousness or by the recent consumption of a large quantity of liquid. With the same limitations the deep color of the urine will lend confirmatory evidence.

Investigations into the Etiology of Erysipelas and Allied Infections.—P. N. Panton and J. E. Adams describe their experiments, presenting much of their net results in tabulated form. They define erysipelas as an acute inflammation of the epidermis due to the presence of one of the organisms of the streptococcus class, of which the *S. pyogenes* is the most frequent example. Cellulitis appears to be a strictly comparable inflammation of the cellular tissues, and when the inflammatory process involves both the epidermis and the cellular tissues, the condition of cellulocutaneous erysipelas results. Acute lymphangitis would seem to be a less virulent infection due, as a rule, to organisms of the staphylococcus class with a greater tendency to spread, as its name implies, by the lymphatic system. Erysipelas is not in the true sense of the term a specific disease, since it may be produced by a variety of organisms and these organisms are capable of producing other diseases in other parts of the body.

Syphilitic Reinfection Nine Years After, with Some Remarks on Syphilitic Immunity.—In 1897 a gentleman consulted H. Dardenne for a chancre, which was cured in the usual way in three weeks. Secondary symptoms came on, but the disease was cured in a few months. Nine years later the patient appeared with another chancre and the usual symptoms appeared in due time. Under the same treatment the disease was cured. According to the great majority of authorities reinfection with syphilitic virus is possible. Several definite cases are referred to by Dardenne. We must be careful, he says, not to confound a true syphilitic reinfection with what Fournier calls "late secondaries," such as erosions of the penis, the vulva, and the lips. A recurring roseola may also be a source of error. One attack of syphilis does not confer immunity for the rest of the patient's life. It is believed that the chief feature of immunity is its coexistence with the presence of an active virus in the organism which may confer a refractory state to the skin and mucous membranes to the attack of the external treponemes. This skin and mucous membrane immunity, however, may not be general and absolute. The majority of syphilitics react in a specific way to the virus and this in proportion to the amount of virus which they have ingeniously injected in subcutaneous pouches. Fournier advises that the treatment be divided as follows: 1st. Immediately after infection, a course of mercurials lasting two years, and this whether the patient is troubled with reminders or not; 2d, a second course lasting the whole of the fifth year, and 3d, another course or mercury lasting part of the seventh and eighth year. We know that general paralysis, the most dreaded of the late syphilitic manifestations because it is incurable, is most common between the seventh and twelfth years after infection. Would it not be possible to forestall this by the plan of treatment indicated? Immunity in syphilis is only a relative signification. It does not in the least imply an absolute cure.

British Medical Journal, October 9, 1909.

The Cause of Dysmenorrhea.—F. C. McCombie relates the case of a woman with dysmenorrhea before her marriage. The cervix was dilated and kept open by bougies, affording her great relief. She gave birth to two healthy children. More recently, however, she complained of great pain during the third day of a regular menstrual period. She had passed some clots, and an examination was made. In the cervical canal there was found tightly gripped a mass of clot and membrane which was removed with great difficulty. There was distinct spasm of the internal os which was with great difficulty overcome. The discharge continued for several days, with pain coming on regularly at a fixed hour every day, and often requiring morphine for its control. She was examined several times during the attacks of pain, and while the cervical canal remained patent one could distinctly feel a constricting band at the upper end of it, almost impossible to dilate with the finger so long as the pain was present. Both before and after the spasms it was not noticeable. The patient herself remarked that a few hours before the pain came on the discharge increased in amount, but was diminished while the pain persisted, and again increased as the pain passed off.

Alcohol in Relation to Multiple Neuritis.—J. S. Bury refers to the finding of arsenic in beer, which was the reputed cause of multiple neuritis. This brings up the question as to whether the alcohol in beer may ever cause the same lesion. The author is inclined to think, on the basis of collective investigation, that this is the case. Beer taken by those who have had the disease has been carefully analyzed and found free from arsenic. It is open to any one to say that it is not the ethylic alcohol, but some accidental impurity which is responsible for the neuritis; but until this toxic agent, which is certainly not arsenic, is discovered it is impossible to resist the conviction that alcohol, whether in the form of beer, wine, or spirits, is a common cause of multiple neuritis. This statement does not imply, however, that the disease occurs frequently in alcoholic subjects, nor that the disease is the direct result of alcohol. Other factors may play a contributory part. The action of alcohol may be an indirect one in the production not only of neuritis, but of hepatic cirrhosis, and of changes in the heart muscles. It is a reasonable assumption that the lowering of tissue resistance by alcohol permits the successful attack of toxins derived from microorganisms or from the changes associated with chronic inflammation upon the nerves, liver, heart, or other structures. Whether the neuritis is a direct or indirect result of the poison, there is ample evidence to justify the view that well-marked cases of multiple neuritis (although not common) are produced more frequently by alcohol than by other poisons.

Paroxysmal Tachycardia Disappearing After an Attack of Herpes Zoster.—A. C. Turner's patient was a girl of 15 years who was having attacks of tachycardia during which the pulse reached 160. The first attack came on in the night, soon after she had taken a cup of strong tea. Thereafter the attacks recurred about every two months. They were terminated by vomiting of a small

quantity of sour fluid. There was no evidence of cardiac enlargement and no murmurs. No drugs seemed to relieve her, nor did pressure on the vagus. On October 10, 1906, she had severe pain in the left wrist, which continued the next day, when it affected the inner side of the left arm, the front of the left shoulder, and the back. The next day a rash appeared about the left shoulder and arm, the left ear became painful, and the right wrist also. In fact, she had a typical herpes zoster affecting the area of the second left dorsal segment, viz., the under and inner part of the left arm, the left breast in the region of the axillary fold, and the upper part of the left scapula. The rash ran the usual course, and since that time the cardiac attacks have not returned.

Berliner klinische Wochenschrift, September 27, 1909.

Cleft Palate Operation.—Helbing reports on the result of 53 operations for cleft palate. He used in every case the classical method of von Langenbeck. He differed from Langenbeck, however, in advocating early operation: as soon after three months of age as possible. In his 53 cases he had no deaths. Of 5 infants in the first six months of life in 4 the first operation was successful, in 1 it failed. Of 7 between six and twelve months, 5 succeeded, 2 failed. Between one and three years were 12 cases. Of these, 7 were cured in the first operation; in 4 a small fistula remained, which was closed later with ease; 1 case was a failure. Between four and six years, of 18 cases 12 healed at once, 3 after a second operation, 2 left temporary fistulæ, and 1 failed. Between seven and twenty-eight years there were 11, with 8 first operation recoveries, 1 second operation, and 2 fistulæ. Of the total 53 cases 40 healed after first or second operations, 8 were cured after a fistula, and in 5 the operation was not a success. The advantages of the earlier operation are that the operation is no more difficult in the very young if one uses smaller instruments; the prospect of the stitches holding are as great, if not greater. The danger to the child is equally slight, and, considering the high mortality among children with this deformity during the first year, the early operation is a much safer procedure than the late; and, finally, the functional results of the early operation are much greater, the voice often becoming quite normal.

Münchener medizinische Wochenschrift, September 28, 1909.

The Rôle of Albumen in Infant Feeding.—Grossen gives a historical review of the work and opinions on the differences between the casein of woman's and cow's milk. Heubner showed that woman's milk was much poorer than cow's milk in nitrogen, and that at that a considerable proportion was due not to proteins, but other nitrogenous material. To maintain life, 4 per cent. of the total calorie intake must be protein; to insure growth, 7-8 per cent.; in ill children somewhat more is needed. Biedert called attention to the difference in the curds, and considered the curds in the stools to be casein. The reasons for believing this and the facts which overthrew it are given. The work of Finkelstein and Meyer showed that cow's casein in itself was not injurious to infants. The theory was raised that the indigestibility of cow's milk was due to the small amount of lactalbumen contained therein. This was disproved by Meyer and the author. Neither chemical nor metabolic researches show any reason for the injurious qualities of cow's milk. Serological investigations have been made. Wassermann showed that injection of a foreign milk into an animal produced a precipitin against that milk to appear in the blood serum. Schlossmann demonstrated that an injection of cow's blood serum into an infant on a cow's milk diet caused no symptoms, whereas injected into breast-fed children it produced a violent febrile reaction. Moro observed that artificially nourished infants had a digestive leucocytosis, but breast-fed ones did not. The author does not believe that the indigestibility of the cow's milk is dependent upon a difference of the casein *per se*.

Polyneuritis Syphilitica.—Steinert summarizes an article running through two numbers, as follows: There is such a condition as polyneuritis syphilitica. It begins in the secondary stage of the disease, most frequently in the early secondary stage. The majority of the cases have simultaneously skin or mucous membrane symptoms. The occurrence of a syphilitic polyneuritis has not been known in the tertiary stage or in the parasyphilitic diseases. The fear of mistaking the condition for a mercurial polyneuritis is unfounded. Though polyneuritis often comes on during or following a mercury treatment it is not a part of mercurialism. The clinical picture in a majority of cases is of a symmetrical polyneuritis. It is possible that the upper extremities are involved somewhat more frequently than is usual in polyneuritis. The comparative frequency of the pseudotabetic type is noticeable. The prognosis is not absolutely hopeful. There are cases of a malignant type, with a fatal course. As a rule, however, recovery occurs. The pathological picture coincides exactly with other forms is usual in polyneuritis. The comparative frequency of treated energetically with mercury. It has not been shown that such a treatment can do harm.

Deutsche medizinische Wochenschrift, September 23, 1909.

The Previous Efforts to Cultivate Spirochæte Pallida.—Schereschewsky discusses generally the efforts to date to grow the *Spirochæte pallida* and to make use of it in inoculation experiments, and he concludes that it is possible to cultivate from syphilitic material spirochete which it is not possible to differentiate in any way microscopically from the true *Spirochæte pallida*. Neither by agglutination, precipitation, or complement binding reactions has it been possible to prove any specific connection between the cultivated spirochete and the serum of syphilitic patients. Efforts to produce a cutaneous reaction with the cultures were fruitless. The cultivated spirochete were not pathogenic for animals.

The Treatment of Tabetic Ataxia.—Herzog reports a series of cases of tabes dorsalis treated by local faradization of the bladder. His first case was a man who had been under treatment for some time by various means. Owing to incontinence of urine, faradization of the bladder was used. A flat electrode was placed over the abdomen, a urethral electrode inserted into the bladder, and a painful current passed for three minutes. Twenty treatments were used. The result was not only improvement in the urination, but in the walking also. The improvement was so marked that the patient, an army officer, was able to return to his duties. In this and three other patients results were obtained twice satisfactory, once outspoken, and once very marked. The author appreciates the rôle of psychic influences in tabes. It is possible that the improvement in the cystitis is the cause of the improvement, but in two cases there was no cystitis. He believes that the irritation of the sensory nerves and the increase of their sensibility is the immediate cause of the results.

The Biology of Colostrum.—J. Bauer has carried on a series of experiments as to the character of the albumen found in colostrum. The investigations were made according to the modern hemolytic methods of differentiating between albumens from different sources. He compared the biological reactions of cow's milk, cow's colostrum, and cow's blood serum, and also of human milk, colostrum, and serum. From his experiments he found that whereas the proteins of milk reacted differently from those of either of the other two, those of colostrum and blood serum were indistinguishable from each other. From this the author concludes that while the proteins of milk are formed in the breasts, those of colostrum are direct transudates from the blood serum of the mother.

A Clinical Form of Inertia After Delivery.—Voron and Gonnet give examples of a form of inertia uteri that is serious in its effect on the medical practitioner, but less so for the patient. After having ascertained that uterine contraction is perfect he suddenly finds that the patient is flowing slowly but steadily, and the uterus entirely relaxed, while the patient is in collapse. This condition lasts from one to three hours, and ends in perfect contraction, and the following day the patient is in good condition. Ergot has no effect on the uterine muscle, and hot douches are as useless. The only thing that gradually induces contraction is bimanual massage, with one hand inside the uterus and the other on the abdomen grasping the fundus.—*Réunion Obstetricale de Lyon.*

The Principal Methods of Tuberculization of Young Infants.—E. Terrien discards the theories of hereditary transmission of tuberculosis, or of its predisposition, and considers the sources of its transmission invariably contagious. Remove the healthy child from contact with his tuberculous parents and you can raise him as healthy as other children. Even latent tuberculosis is affected favorably or cured by removal to the country and good hygiene. The entrance of the disease by way of the intestine is much less frequent than has been believed, especially since milk has been so universally sterilized. The common ways of entrance are the pulmonary and the nasopharyngeal. We should bend our energies to the lessening of direct contagion and the control of the tuberculous subject himself.—*Annales de Médecine et de Chirurgie Infantiles.*

Book Reviews.

A System of Medicine by Many Writers. Edited by Sir Clifford Allbutt, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A.; Regius Professor of Physic in the University of Cambridge; Fellow of Gonville and Caius College; and Humphry Davy Rolleston, M.A., M.D., F.R.C.P.; Senior Physician, St. George's Hospital; Physician to the Victoria Hospital for Children; some time Fellow of St. John's College, Cambridge. Vol. V. Diseases of the Respiratory System. Disorders of the Blood. London: Macmillan & Co., 1909.

This, the fifth volume of the series—really the seventh, two of the preceding volumes consisting each of two parts—deals with diseases of the lungs, pleura, mediastinum, thymus, and blood. It contains nearly a thousand pages, none too many, considering the importance of the subjects treated of, but owing to the thinness of the paper the book is not bulky and not so heavy as many smaller volumes. Some changes and transpositions in the order of articles have been made in this edition, the article on Physical Signs of the Lungs and Heart being brought here from the fourth volume, that on Aerotherapeutics from the first, and the one on Intrathoracic New Growths from the sixth volume. It would have been more in line with the modern conception of the disease had the article on Pneumonia been transferred from this volume to its proper place among the infectious diseases along with typhoid fever, diphtheria, and other general infections with local lesions. The article on Lobar Pneumonia, however, even if out of place in this volume, is an exceptionally good one, if such a distinction can be made in a treatise in which the general average of all the contributions is so high. The original article, written by Dr. Pye-Smith, has been revised for this edition by Drs. Beddard and Eyre. The section on treatment is conservative, though on the whole hopeful. The authors are a little fearful of the open-air treatment, "excepting in the case of very vigorous patients," seemingly not appreciating the fact that "very vigorous patients" are less in need of invigorating treatment than are the asthenic. The quasi-specific creosote treatment is not mentioned, but opsonic therapy is favored.

Another excellent article is that on Pulmonary Tuberculosis, by Dr. Percy Kidd, Dr. William Bullock, and Dr. Noel Bardswell, the latter treating especially of the advantages of sanatoria. This article also is out of place in a volume of diseases of the lungs, for surely tuberculosis is a general disease with local manifestation. As well might leprosy be treated of disconnectedly among the diseases of the skin and those of the nerves.

In the brief article on Polycythemia, by F. Parkes Weber, no distinction is made between the so-called Vaquez's disease, or polycythemia myelopathica, and Osler's disease, or polycythemia megalosplenica—a distinction which possibly does not exist, yet one which is usually recognized by writers on this disease or symptom-complex.

The few defects in this volume, chiefly of classification, are of slight moment, and are not of sufficient importance to affect the value of the work as a whole. The matter is all here and excellently treated, and if it is out of place sometimes the reader will be able to find it by means of the general index when the work is completed. And here, if we may anticipate, it may be hoped that the general index will be more inclusive than that in the first edition, which was too brief and not as helpful to the reader as a general index should be.

Sprains and Allied Injuries of Joints. By R. H. Anglin Whitelocke, M.D., M.C. (Edin.), F.R.C.S. (Eng.); Honorary Surgeon to the Radcliffe Infirmary and County Hospital at Oxford; Lichfield Lecturer in Surgery in the University. London: Henry Frowde, Oxford University Press; Hodder & Stoughton, 1909.

Judging from appearance, this book is written by a man with a large clinical experience and with good powers of observation, but without an extensive knowledge of the work of others along the same line. It contains many good, practical points, but is marred by *post hoc* arguments, by some errors, by complex classifications, and by numerous rules deduced from the author's own experience, but not founded on sufficient facts. When the author says, "It cannot be denied," one is tempted to ask, "Why not?" He has seen three cases of fracture of the carpal bones; therefore he pronounces the fracture rare, and says that it cannot be diagnosed without *x*-rays; whereas other writers maintain that it is quite frequent, and can be diagnosed with as much certainty as many other fractures. He appears to know little of Duplay's bursitis. He condemns immobilization in sprains, on account of subsequent crippling, and yet gets good results from this treatment when the sprain is accompanied by a fracture. His readers can hardly share his terror of wasting of muscles. The best chapter in the book is that on internal derangement of the knee joint, which comprises about one-fifth of the whole. It is well and clearly written and free from the vagueness which usually surrounds this subject.

Practical Gynecology. A Manual for Nurses and Students. By Netta Stewart, Sister in the Gynecological Wards of the Royal Infirmary, Edinburgh, and James Young, M.B., F.R.C.S.E.; Clinical Tutor in Surgery and late Resident Gynecologist, Royal Infirmary; Physician to Lauriston Pre-Maternity Home, Edinburgh. Numerous Illustrations and Plates. New York: William Wood & Co., 1909.

The present work is a second and enlarged edition of "Gynecological Nursing," by Netta Stewart. It will be observed that its scope is enlarged to make it suitable for medical students. Nonoperative methods, such as douches, the vaginal tampon, etc., have been described in some detail. The book is well arranged and clearly written, and should prove serviceable to nurses; for medical students it may serve as an introduction to some larger text-book on gynecology.

The Influence of Heredity on Disease. With Special Reference to Tuberculosis, Cancer, and Diseases of the Nervous System. A Discussion Opened by Sir William S. Church, Bt., K.C.B., M.D.; President of the Royal Society of Medicine; Sir William R. Gowers, M.D., F.R.S.; Arthur Latham, M.D., and E. F. Bashford, M.D. (From the Proceedings of the Royal Society of Medicine, 1909, Vol. II.) London, New York, Bombay, and Calcutta: Longmans, Green & Co., 1909.

The discussion contained in this volume was the first held by the Royal Society of Medicine in a meeting of the society as a whole to consider questions of general medical interest. That the subject treated here is of general interest will readily be allowed, and that the discussion thereon is worthy of the subject and also of the distinguished contributors whose names are prefixed to the contents of the volume will be just as readily acknowledged by all who read this volume. Among the list of contributors to this discussion will be found the names of physicians and surgeons, pathologists and bacteriologists, biologists and pure scientists. The subject seems to have been viewed from every side, and the discussion, while dignified, was never dry and at times was both exciting and entertaining. We have read the volume with considerable interest and profit, and trust that it is but the first of a series.

Vorlesungen über Diätbehandlung innerer Krankheiten vor reiferen Studierenden und Aerzten. Von Prof. D. H. Strauss, Berlin. Mit einem Anhang "Winke für die Diätetische Küche" von Elise Hannemann, Vorsteherin des Haushaltungs-Lehrerinnen-Seminars und der Kochschule des Lette-Vereins in Berlin. Zweite, vermehrte und verbesserte Auflage. Berlin: Verlag von S. Karger, 1909.

The appearance of a second edition of Strauss's book on dietetics in internal diseases within one year after the first edition speaks by itself for the success of the book. Indeed, the lectures of the well-known internist seemed to have met a real want in this line of medical literature, for few other treatises of similar character have gained popularity so quickly. This edition consists of fifteen chapters, giving appropriate diets for gastritis of various origins, disorders of the chemical secretions of the stomach, peptic ulcer, neuroses of the stomach, mechanical, infectious, and reflex disorders of the intestinal tract, fevers, diseases of the genitourinary apparatus, and finally diseases of metabolism, such as gout, diabetes, etc. One chapter is devoted to obesity cures and another to the diet usually combined with so-called "rest treatment." We note that Strauss is inclined to favor Leube's milk diet in gastric ulcer in preference to the high protein diet of Lenhartz; in typhoid fever, too, he sides more with physicians who continue a strict fluid or semifluid diet well into the convalescent period rather than with those who give solids during the fever or as soon as the temperature has come down to normal.

A very practical appendix containing numerous "recipes" for dietetic dishes has been prepared by a principal of a cooking school in Berlin, and it forms a bulky addition to the lectures proper. Tables giving the caloric values and the composition of various standard articles of food are included. These features make the book acceptable not only to physicians, but also to nurses, dieticians, and intelligent lay people who may have patients under their care.

Society Reports.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-fifth Annual Meeting, Held at St. Louis, October 12, 13, and 14, 1909.

THE PRESIDENT, DR. JOHN A. WITHERSPOON OF NASHVILLE, TENNESSEE, IN THE CHAIR.

ADDRESSES of welcome were delivered by Dr. Tinsley Brown, president of the Missouri State Medical Society, and by Dr. Clarence M. Nicholson, president of the St. Louis Medical Society. The response on behalf of the association to these addresses was made by Dr. T. Hunt Stucky of Louisville, Kentucky.

The Treatment of Peritoneal Infections in the Light of the Protective Nature of Peritonitis.—Dr. CHANNING W. BARRETT of Chicago pointed out that the spreading and absorption of infection was a process dangerous to life, and that inflammation was a reaction beneficial to the patient in the presence of infection. He drew the following conclusions with reference to the treatment of peritoneal infections: (1) peritoneal infection could be prevented by the greatest care in operative work and by the approved use of such means as were best calculated to prevent peritoneal infection from other sources. An infected appendix was one which by reason of kinking, the presence of a foreign body, etc., was likely to become infected, and should be removed. Pathological conditions of the intestines, gall-bladder, uterus, tubes, and ovaries should receive attention. (2) In the presence of existing peritoneal infection an effort should be made to discover its origin and further infection prevented, if possible. (3) Easily and safely removable sources of infection, such as a badly infected appendix or in some instances an infected kidney, ovary, or uterus, should be removed But when this was done during the acute process it should be done, not because the structure was inflamed, but because the sources of infection were being thereby entirely or largely removed. (4) All physical activity of the patient, massage, peristalsis, etc., which would tend to distribute the infection should be avoided. (5) The development of bacteria in, and the distribution of the same through, the intestinal tract should be lessened by the removal of gaseous fluid contents of stomach by lavage, rectal flushings, and, if necessary, by enterostomy during the operation. (6) Whenever and wherever the area of infection could be reached, or whenever the infectious material existed in the general peritoneal cavity that could be drained, drainage should be established. The tendency of infection was to break down its limiting wall and to increase its area, and the damage done not only depended upon the virulence of the infection, but upon the area involved. The application of these principles to the treatment of appendical infection were (1) the removal of troublesome appendices before the acute onset of infection. (2) The removal of the infected appendix before any considerable peritoneal infection took place. (3) Drainage of localized appendical abscess, with the removal of the appendix, if it was easily found. (4) Drainage of the peritoneal infection with the removal of the diseased appendix, if easily found, if a localized wall had not formed, the absence of wall or weakness of wall making drainage very urgent. (5) Treatment of inflammatory wall as a benign and protective process in conditions interfering with the bowels in a mechanical way when it might have to be disturbed by the existence of the distributing infection. (6) Rest, general and local, emptying the intestinal tract, dilution of the toxins, and supportive treatment with salt solution should be made use of as in keeping with or without operative treatment.

Treatment of Tuberculous Peritonitis.—Dr. W. A. BRYAN of Nashville called attention to the time prior to the development of peritonitis, and to that subsequent to operation. In obscure conditions of the pelvis and right iliac fossa of mild grade, sufficient, however, to annoy the patient and to bring him to consultation, and where no physical signs or symptoms were present sufficiently to clear up the etiology, a diagnosis should not be ventured, and the treatment not begun until tuberculin was used to eliminate the possibility of tuberculosis. If it proved positive, even then it did not mean that the tuberculous process was acting at one of the two sites named, although a physical examination would enable one to determine with satisfaction on this point by the exclusion of others. By this means the process might be dealt with much earlier on the average and the results be much more satisfactory. His results had been most gratifying in the accidentally discovered cases and in those where an early operation was done on suspicion of tuberculosis. Surgery was usually accepted by the laity and too often by physicians as an ultimate resort, which, if it did not terminate in death by operation, would surely give complete relief. This was largely true in general work. But not so in tuberculous peritonitis. We might excise the primary focus, but we dared not attempt eradication of the infection from the whole cavity. When this primary focus was withdrawn the individual was not cured, but only placed where a cure might occur. All cases operated on for tuberculosis should be treated subsequently by physicians.

Dr. A. J. OCHSNER of Chicago said that after observing thirty-two cases of tuberculosis for a considerable time in order to ascertain the ultimate results, his conclusions were that taking every case of tuberculous peritonitis and treating it as we treated tuberculosis generally after surgical operation for the removal of the primary focus, about 50 per cent. or more would get well and remain well.

Dr. J. HENRY CARSTENS of Detroit said it was not the tuberculosis itself that killed the patient, whether it was tuberculosis of the lungs or any other part of the body, but it was a mixed infection and whenever we had a tuberculous condition in the abdomen, involving the tube or appendix, the patient was in danger of having added to that some other infection. If the appendix was the cause of the trouble it should be removed. If the trouble was in the tubes and there was mixed infection, they ought to be removed. Patients who were operated on for tuberculosis should be treated after operation, like all other tuberculous patients.

Dr. H. TUHOLSKE of St. Louis stated that in addition to any surgical work it might be necessary to do in these cases of tuberculous peritonitis, general and supportive treatment should not be neglected.

Dr. A. H. CORDIER of Kansas City, Mo., said there must be something connected with surgery itself that had a marked curative effect in these cases of tuberculous peritonitis.

Dr. RICHARD A. BARR of Nashville said the primary tuberculous focus should be within the abdomen and removed surgically if we would expect to get satisfactory results.

Tuberculous Toxemia in Surgery.—Dr. ALEXANDER C. WIENER of Chicago presented the following therapeutic conclusions: (1) Obstruction of the respiratory organs which curtailed the intake of air were to be removed by the nose and throat surgeon. Too much stress could not be laid on the removal of enlarged tonsils and adenoids by the skilled operator. Other anomalies, such as phimosis, should be remedied. (2) Mechanical treatment should be undertaken to correct all deformities of the skeleton, particularly the spine and chest. Children and adults who began to develop round shoulders with the subsequent hollows below and above the cavicles, needed urgent treatment. It was harmful to advise the wearing of apparatus

for support during the growing period. Braces should be discarded as therapeutic agents in the treatment of deformities of the spine due to rickets. Instead treatment should consist of (*a*) complete mobilization of all the intervertebral and vertebrocostal joints. (*b*) Correction of deformities of the vertebræ and ribs. (*c*) Active and passive exercise of the respiratory muscles, including the diaphragm.

Dr. F. M. Pottenger of Monrovia, Cal., said the more we studied the infection in tuberculosis the more we came to the conclusion that infection took place in a great number of people early in life and that most of us went through life with at least quiescent foci of tuberculosis within our bodies. These quiescent foci were not always negative and they did produce symptoms which had not been generally recognized. Toxemia in young neurasthenic school girls was undoubtedly due to latent foci of tuberculosis and he had seen a number of such cases get well after treatment for tuberculosis.

Elements of Success in Surgical Work.—Dr. A. H. Cordier of Kansas City, Mo., in a paper on this subject drew the following deductions: (1) The field of surgery was a vast one and was best covered by the specialist in some of its departments, the eye and the ear especially. (2) Surgery and medicine should go hand in hand in the treatment of borderline cases, but should be divorced in the strictly surgical or medical cases. (3) The selection of a surgeon for a given case should be from no other standpoint than that of his recognized ability. (4) A surgical operation should be performed as quickly as possible, consistent with good and completed technique. (5) All unnecessary and rough handling of important tissues and organs should be avoided. (6) Careful short anesthesias would help to keep the death rate low. (7) Careful hemostasis with proper ligature material was an important element in successful surgery. (8) Thorough aseptic tecnique should be carried out and might be obtained either with or without rubber gloves and mask. (9) Lawn tennis suits and gloves were only too often the avenues leading to wound infection. (10) Short postgraduate courses instilled false surgical confidence and led to many surgical disasters. (11) Honesty and sincerity should ever be the keynote in deciding as to the advisability of performing any surgical operation. (12) Mental tranquillity of the patient was of much importance preceding the performance of some surgical operations.

Dr. J. Henry Carstens of Detroit said no one had a right to practise surgery, and especially abdominal surgery, unless he had been an assistant for at least one year with some first-class surgeon in a hospital where he had seen hundreds and hundreds of operations and had witnessed the troubles, trials, and complications that were met with. Educated people knew and found out who were the good surgeons. The general practitioner ought to know who was a good surgeon and ought not to trust everybody to perform operations which were attended with great danger to life.

Dr. M. C. McGannon of Nashville stated he was not willing to admit that the surgical work of the pioneer was as good as that which was being done to-day. The enthusiasm of youth led many a recent graduate to rush into the field of large surgery where he had better keep out until better trained. But how were we to stop that? It was the duty of this and other societies to adopt such measures as would prevent enthusiastic young men from rushing into a field of work that they could not fill. Many of us had had an opportunity of seeing disasters following the surgical work of inexperienced men.

Dr. Channing W. Barrett of Chicago said surgery had come to occupy a large place in the world and it was our business, as members of the medical profession, to see that our surgical work was made just as successful as possible. The time had gone by when a man could plunge into surgical work and kill patients in order to learn how to do surgery. The opportunities for learning surgery now were too great and too cheap to permit of inexperienced men operating, and surgeons were only too willing to train those who wished to become surgeons.

Conditions Simulating Surgical Diseases.—Dr. M. C. McGannon of Nashville related some recent experiences and said that it was not often that a surgeon was called upon to reverse a diagnosis of chronic peritonitis in favor of spinal neurosis of traumatic origin and yet such was his experience with a case brought to his attention a few months ago. He cited cases of appendicitis that had been on many occasions confounded with pleurisy and pneumonia. Many authors had called attention to the fact that pain associated with pneumonia and pleurisy, especially in children might, if referred to the abdomen and, if right-sided, occasion a diagnosis of appendicitis. It had been his fortune to have had two such cases referred to him for operation, and in which appendicitis was so closely simulated as to deceive some good practitioners.

Dr. Edwin Walker of Evansville stated he was reminded of a case where a man had locomotor ataxia and the proposition was made to operate on him for gallstones. The patient afterwards fell into the hands of a surgeon who operated for gallstones, but no gallstones were found. This man subsequently died of acute pneumonia and from extension of the ataxia.

Dr. J. Henry Carstens of Detroit said that two years ago a woman was brought to him with large fibroid tumors. She had been vomiting for three weeks, off and on, and could not sleep. He ran his finger over the clavicles and over the tibiæ, found they were painful, gave her one-quarter of a grain of bichloride of mercury hypodermically every day, and in four or five days she was able to sleep well, the vomiting ceased, and the fibroids had nothing to do with those symptoms. He saw a man who was supposed to have had gallstones. He looked at his tongue, saw a blue line along the edge of it, and said to him, "You are a painter, are you not?" and he replied, "Yes, sir." He told him he was not suffering from gallstones, but from lead poisoning.

Dr. J. Rilus Eastman of Indianapolis said the general practitioner and internal medicine man ought to be educated along these lines. He went with two competent physicians in the summer in the country to examine a little girl whose case was diagnosed as appendicitis. A mass had been described as present in the right groin. The little girl was eleven years of age, and these physicians considered it a clear case of appendicitis. While he sat at the bedside she took her handkerchief, expectorated profusely, and it proved to be tuberculosis.

Dr. Richard A. Barr of Nashville was called to the country a year ago to operate for appendicitis, the operation having been delayed for a number of days. The patient had been sick for ten days. On examination, he decided that this patient did not have appendicitis, but typhoid fever, and was able to persuade the attending physician that he was correct, and no operation was done. He took some of the patient's blood with him, had it examined, had a Widal reaction made, which proved to be negative.

Dr. William B. Burns of Memphis stated he had seen two or three cases presenting symptoms of appendicitis which were as positive as we usually see them, but examination of the blood showed the presence of malarial parasites, and hypodermic injections of quinine in four hours removed all the symptoms.

Surgery of the Gall-Bladder.—Dr. W. D. Haines of Cincinnati, after including a comprehensive survey of the anatomy and pathology of the stomach, duodenum, and pancreas in connection with surgery of the gall-bladder, said, in reference to cholecystectomy: The first essential

was to secure the cystic duct and artery in the grasp of a long hemostat placed near the junction of the cystic with the hepatic duct. Another hemostat was placed a short distance before the first, and the cystic duct and vessel were divided. The first hemostat would control hemorrhage, and the second would serve as a retractor in the succeeding steps of the operation. Incision of the peritoneum for stripping up the gall-bladder should be made in the fold where the peritoneum was reflected from the gall-bladder to the liver, in order to preserve sufficient tissue to cover the raw surface of the liver. If unusual difficulties presented themselves in ligating the cystic artery, the hemostat might be left in place for forty-eight hours. The denuded surface of the liver was now covered by sutures of divided peritoneum, and a rubber tissue covered drain placed in the bottom of the wound. A large vein, sometimes mistaken for the portal, was occasionally found crossing the ducts, which, if present, was almost invariably injured in the course of the removal of the gall-bladder. It should be clamped, doubly ligated, cut, and the end retracted, as hemorrhage in the bottom of the wound was difficult to control, caused delay, and added to the shock of the operation. In closing the abdomen the peritoneum and posterior sheath of the rectus were included in the first tier by a buttonhole or interrupted suture. Two or three figures of eight silkworm gut sutures should be placed so as to include the muscle, the fascia, and skin, but were not tied until the anterior fascia was closed by continuous catgut.

The Latent Gallstone.—Dr. Chas. N. Smith of Toledo said that, in the light of our present knowledge of the initial symptoms of gallstone disease and of the slight or characteristic symptoms of latent gallstones, we must believe that in every case they have produced, do now produce, and will continue to produce a certain train of symptoms so distinctive in their nature that a positive diagnosis depended only upon a correct interpretation of them. The three symptoms which were mentioned almost invariably when cholelithiasis was in consideration were colic, jaundice, and putty-colored stools. Every one of these symptoms was a late or terminal event, occurring after a more or less prolonged period of occupancy of the gall-bladder by the stone, during which period distinctive and diagnostic symptoms were present, and should be correctly interpreted. One of the most important advances in the surgical treatment of diseases in the upper abdomen accrued from the recognition of the fact that 80 per cent. of the cases of chronic pancreatitis were the result of gallstones and the sequentially occurring infections of the biliary tract. Medical and hydropathic treatment, both confessedly powerless in so far as absorption or removal of the concretion was concerned, aimed only at the control of the symptoms through abatement of the infection. Surgery, advancing on the limited possibilities of medicine, by one safe and eminently successful procedure removed simultaneously the causal gallstones and the resultant infection.

Latent Duodenal and Gastric Ulcer.—Dr. Willard J. Stone of Toledo said duodenal and gastric ulcers were more common than was supposed. Most of them were masked under the symptoms and diagnosis of functional hyperchlorhydria. The acute forms, with severe recurring hemorrhages, in certain cases demanded surgical interference, although such patients were in an extremely critical condition and the surgical risk extremely hazardous. Many recovered under medical care. Perforation demanded, first of all, early diagnosis. Fully 60 per cent. were wrongly diagnosed as appendicitis, ruptured gall-bladder, intestinal obstruction, or acute peritonitis, not stating the cause. The earlier the interference the better was the result. Goldstucker, who had recently reviewed 236 cases of perforation, found that of those operated upon within the first twelve hours the mortality was 29 per cent.; after twelve hours the mortality was 54 per cent. Robson found among 155 cases of perforating ulcer in the literature to 1907 that the mortality among those operated upon during the first twenty-four hours was 37.7 per cent.; after twenty-four hours the mortality was 85.5 per cent. In about one-fourth of the cases in the literature of perforating duodenal ulcer no previous dyspeptic symptom suggestive of the condition had existed. Fully 75 per cent. of uncomplicated ulcer of duodenum or stomach were cured by medical means, the remaining 25 per cent. became chronic, and might be classified under (1) chronic ulcer with active symptoms, such as pyloric spasm, scar contraction, perigastric adhesions, or malignant transformation; (2) chronic ulcer with latent symptoms, which might be defined as that type which gave rise to periodic attacks of distress at the height or end of gastric digestion and simulated in a large percentage of cases neurotic or functional hyperchlorhydria. Hemorrhage or vomiting was not necessarily a symptom of chronic ulcer. The attacks were periodic, lasting a month or two, with recurrence after two or three months. The distress was relieved by taking food, milk, or alkali. Supersecretion, which was a far more important diagnostic sign than hyperchlorhydria (which existed in about one-half the cases), was practically always present. The finding of 50 to 100 c.c. hyperacid secretion in the fasting stomach was extremely suggestive of ulcer. Patients often complained of raising a mouthful of acid secretion from the stomach when the organ was supposedly empty. Elaborate laboratory investigations were not necessary. The longer the pain was relieved by food, the more probable was the lesion duodenal rather than gastric. The typical pain of chronic duodenal ulcer occurred from 3 to 5 hours after a meal. Pyloric stenosis in infants, when due to pyloric spasms from hyperacid contents (not the true congenital stenosis due to hyperplasia) might be the result of reflex irritation from a pyloric or duodenal ulcer. In an infant of six weeks dying in thirty-six hours with symptoms of laryngismus stridulus and pyloric obstruction, an ulcer one centimeter in diameter was found in the duodenum just below the pyloric ring. The differential diagnosis in general excluded cholelithiasis, and, in particular, functional nonorganic hyperchlorhydria. Chronic ulcer of duodenum and stomach was not, as a rule, cured by medical means. Such patients might, however, barring the contingency of severe hemorrhages or perforation, be fairly comfortable with a carefully regulated diet and appropriate medical treatment. If these measures failed after a reasonable time, surgical aid offered the best hope for cure when performed by those experienced in the surgery of the upper abdomen.

Dr. A. J. Ochsner of Chicago said our attention had been directed constantly to the fact that we must look for gallstones, without complications, without the impaction of the stones in the ducts, whenever a patient complained of gastric symptoms, and that we could count on an early diagnosis in the majority of cases from now on. The mortality which followed operations for the removal of gallstones was small now as compared with what it was six or eight years ago. At that time patients were operated on who were suffering from cholangitis. Another reason why the mortality was small now was that fewer harmful things were done during the operation. The gallstones were simply removed and drainage established.

Dr. R. A. Bate of Louisville said if we went back to the origin of gallstones, there was absolutely no reason why medicine should not remove every gallstone which was composed of 90 per cent. cholesterin. If the gallstones were differentiated, those that contained bilirubin calcium in greater proportion than 10 per cent. might re-

quire surgical interference. Gallstones were formed in the gall-bladder and in the ducts in very much the same way as mucin, and when stagnation of bile occurred the mucin caused putrefaction of the bile, and this, in turn, permitted the microorganisms, which were not very hard to overcome, to pass up, and wherever cholesterin was deposited by the lecithin being broken up, the lecithin held the cholesterin in solution. There were three factors to consider in connection with gallstones: Microbes of various kinds, alkalies, and the acids.

Dr. H. Tuholske of St. Louis said that a fairly large personal experience had taught him the important lesson that a gall-bladder with stones in it could be relieved when the stones were mechanically taken out. He had spent considerable time at the great Mecca of the gallstone sufferers, Carlsbad. He had heard people say that there were enough gallstones passed in Carlsbad to pave the streets with them. He came in contact with the best men of the profession there, had talked with them about gallstone cases, and he was sorry for any man or woman who had a gallstone that went traveling and left its comfortable little bed in the gall-bladder, for then trouble was likely to begin. There was danger of lodgment in the narrow duct. There was danger of ulceration and perforation. Then came all the obstructive symptoms, the adhesions which muddled the picture and produced a serious condition. Where the gall-bladder was in a fair condition the dangers incident to the removal of the stone or stones was not great. The presence of gallstones not infrequently caused a change in the epithelium of the gall-bladder, and we might find the typhoid bacillus as a nucleus in the gall-bladder. All things considered, when a diagnosis of gallstones was made, it was better for the individual to have the stones taken out.

Dr. Daniel N. Eisendrath of Chicago said that while olive oil had its function, there were cases where, either through some condition of the patient or complication, or some voluntary objection to the operation, the patient would not consent to operation. Such patients were benefited temporarily by olive oil and the Carlsbad waters; but let there be obstruction produced by the gallstones, or let there be retention of secretion, one found a hyperemia and all the pathological processes incident to obstruction. What happened? There were cases of gallstones in which the common duct stone became impacted, stayed so for a few days or a few weeks, and went back again. Fenger called attention to this under the head of intermittent jaundice in connection with common duct stones. Carcinoma not infrequently developed from the constant mechanical irritation of a gallstone or gallstones. The only reliable and satisfactory treatment for gallstones was to remove them.

Dr. J. Henry Carstens of Detroit said it was an outrage for a general practitioner, or for a specialist in gastrointestinal diseases, to treat patients month after month and year after year in different ways, without making a correct diagnosis. It would redound to the credit of such men to say, when they were in doubt, "I do not know whether you have duodenal ulcer or ulcer of the stomach, and I think you ought to go to an abdominal surgeon, who can make a small opening and find out whether you have gallstones or not. If you have, they can be taken out. On the other hand, if it is an ulcer, it can be excised, the opening closed, and a cure effected."

Dr. Thomas B. Noble of Indianapolis said several years ago he had the privilege of doing a pelvic operation which necessitated a suprapubic incision. During this operation he discovered two stones the size of marbles in the free gall-bladder. Directly thereafter that woman was given phosphate of sodium for one year. For another year she took olive oil three times a day, after which she was seized with intense pain, due to a stone blocking the cystic duct, and an infected gall-bladder. He had to do an emergency operation, and he found these stones of the same size and the same character that they were two years previously. Previous to that time he was not very much in favor of medical treatment in cases of preformed stones, and he was less so now.

Dr. Richard A. Barr of Nashville said olive oil must be brought in contact with the gallstones to do any good, and one might as well rub olive oil on the outside of the abdomen as to give it internally, so far as any effect it would have on preformed gallstones was concerned.

Dr. M. C. McGannon of Nashville said a member of the medical profession came under his observation two years ago as a patient who had had persistent jaundice for three months. It was not accompanied by pain. He was quite yellow at the time he came under observation. He had lost flesh, and it was thought that he might be suffering from cancer. A diagnosis of cancer had been made by a very good internal practitioner. When the man came under observation Dr. McGannon was quite willing to agree with the internist in the supposition that it was a case of cancer, but the patient, being a doctor, he put this argument before him: "If this is a cancer, you will certainly die from its effects. If it is not cancer, and you submit to an operation, we may be able to give you relief If we do not give you relief, we at least will do you no harm. We will not shorten your life with an exploratory incision to determine the character of the trouble." The operation was consented to and performed. The gall-bladder was found to be completely shrunken, the duodenum involved in a mass of adhesions bound down into a knuckle formation about the gall-bladder and liver. The breaking up of the adhesions was effected with a great deal of difficulty. The stomach was opened in the dissection, but closed at the time. The breaking up of the adhesions relieved the condition. The gall-bladder was removed, and to-day that gentleman, after four years, is able to ride horseback, and is practising medicine in the State of Tennessee.

(*To be continued.*)

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held October 7, 1909.

The President, Dr. John A. Wyeth, in the Chair.

The Etiology and Symptomatology of Peptic Ulcer.—Dr. Charles G. Stockton of Buffalo read this paper. He said that the most important recent contribution was that of Weinland, who maintained that there was formed in the gastric mucosa an antibody, an antipepsin, which opposed the digestive action of the gastric juice: he held that, for some unknown reasons, there occurred in certain areas of the mucosa a deficiency of these antibodies and that the stomach, thus unprotected, was readily injured by the corroding effects of the gastric secretion. Gastric ulcer occurred in women somewhat more frequently than in men, and was seen more often in women between the fifteenth and thirty-fifth year, in men between the twenty-fifth and fiftieth year, but it might occur at any age. Occupation seemed to have but little bearing on the matter. Anemia favored the appearance of peptic ulcer. Hyperhydrochlorhydria was present in the majority of these patients. Local injury of the stomach had been held as an important etiological factor, but the claims seemed to have but little basis for foundation. Superficial burns undoubtedly excited duodenal ulcer, and the reason was unknown. There was something peculiar to the stomach by means of which it was protected from the gastric juice. There was some factor, too, that destroyed the inherent protective influence in the area of ulcer, and to explain this he turned to the doctrine of Weinland, that there was a protecting antibody developed in the stomach for the preservation of the

lining. But after accepting this there remained the need of an explanation for the focal disappearance of the antibodies in isolated regions wherein round ulcers developed. This was the unknown element in the etiology of gastric ulcer. It seemed to him that the best explanation for this local disappearance of resistance in the stomach might be found by including in the group of factors of the pathogenesis the element of trophic neurosis. Through the influence of the nervous system the circulation might be temporarily or continuously disturbed, thus leaving the part vulnerable to the action of the gastric juice; or including Weinland's theory, through the nervous system the development of antibodies in a certain region might be inhibited as the result of which the tissues would be attacked and round ulcer would follow. Dr. Stockton said that he was aware that this suggestion had met with opposition in certain directions, but it had never been satisfactorily excluded from the possibilities and, in his judgment, of the probabilities of the case. He believed that the essential factors in the cause of gastric ulcer included certain systemic predisposing conditions, among which were chlorosis and hyperchlorhydria. He also believed that resistance as to digestion was lost in certain small areas through the intervention of a trophic neurosis interfering with the circulation or the normal nutrition of the part. Peptic ulcer was at times surprisingly devoid of symptoms. As a rule there was pain, often paroxysmal and intense. This pain was made worse by eating. In duodenal ulcer severe pain was apt to occur two or three hours after taking food. The location of the pain in gastric ulcer varied with the position of the stomach. It was usually found below the ensiform and rather to the left of the median line. Vomiting was usually acid in character, followed the taking of food, and generally relieved the pain. The appetite might be good. There was constipation. In the stools blood might be found. Hemetesis was not a proof of ulcer, even when abundant. The stomach contents usually showed a very high secretion of hydrochloric acid. The high acidity was very often a result of over retention of gastric contents and not necessarily from excessive secretion of hydrochloric acid. The delay in the onward passage of the acid chyme depended upon pyloric spasm. One might differentiate between ulcer and gastric crisis in that the latter appeared suddenly with great intensity and with intervals of perfect health. The pain of cholecystitis might be excluded by its location, its radiation, the difference in point of tenderness, the accompanying hepatic disturbances, and often the presence of urobilin. Gastralgia or hysterical pains were generally relieved by pressure. The pain of hyperchlorhydria occurred toward the end of gastric digestion, or when the stomach was empty; it was relieved by taking food, was accompanied by only moderate tenderness and was diffused in location. Pyloric ulcer, often chronic, was as much duodenal as gastric. It was often impractical to differentiate between pyloric and duodenal ulcer, but sometimes this might be done through finding blood in the feces while none appeared in the stomach contents.

Surgery of the Gastric, Gastroduodenal, and Duodenal Ulcers.—Dr. JOHN B. MURPHY of Chicago said that from a surgical standpoint he deemed it advisable to include under the same heading all of the pathological conditions above mentioned, because the pathology of the one often overlapped or merged into the pathology of the other, and frequently both gastric and duodenal ulcers were present; because the symptomatology of the one so closely resembled that of the others that it was often impossible to make a differential diagnosis; because all required surgical procedures for their cure, in about equal frequency; because the initial operative incision should be made in the same direction and position, and because the immediate and final clinical results, under given conditions, were equally favorable and dangerous. The relative frequency of each was variously estimated by individual surgeons depending upon their experience. It doubtless would not be long until the number of duodenal ulcers observed surgically would exceed the gastric ulcers. The relation of sex in gastric ulcer was: Males, 40 to 45 per cent.; females, 60 to 65 per cent. In duodenal ulcer: Males, 60 to 70 per cent.; females, 40 to 30 per cent. Gastric and duodenal ulcers were most frequent between the ages of thirteen and forty-three. The indications for surgical intervention were best divided to fit three classes of operations, emergency, elective relief and curative, and prophylactic operations. The general indications for operations were (1) acute, recurrent, and chronic hemorrhages; (2) continued and frequent emesis; (3) perforations; (4) continued symptoms or frequent recurrences of them, indicating open gastric or duodenal ulcer that did not respond to well directed medical treatment. This did not apply to the ulcers occurring in girls between the ages of twelve and twenty years; (5) pyloric stenosis, due to cicatricial contraction, perigastric adhesions, or pyloric or duodenal flexures; (6) pyloric retention, due to (*a*) reflex spasm and (*b*) pyloric suspension by short pylorohepatic ligament; (7) gastrectasis. Cases of gastric neuroses without physical, chemical, or bacterial evidences of disease should never be operated upon. He was of the belief that acute hemorrhage was much more frequently a cause of death than was generally accepted. Excision of the ulcer usually gave the best results. When this was not practical or possible, ligations of the trunk vessels should be made in the neighborhood of the ulcer. If this did not appear satisfactory gastrotomy and suture of the surface with inabsorbable material should be resorted to. In chronic recurrent hemorrhages the ulcers were usually free from adhesions and were favorable for excision; the operation of election. In the operation for continued emesis an enteroenterostomy should be performed at the same time as the gastroenterostomy. Perforations of the stomach occurred most frequently on its anterior wall and in the pyloric zone. The duodenal perforations were practically all on the anterior wall of the first portion. In cases of perforative gastric and duodenal ulcer operation should be done within a few hours after the perforation had taken place. The severe pain, the reflex nausea and vomiting, the fixation of the abdominal muscles, the restrained diaphragmatic action, the flat piano percussion note, the absence of peristaltic sounds in the infected region, the frequent absence of or diminished hepatic dullness, the great sensitiveness to perpendicular percussion impact, the anxious expression, the slight elevation of temperature, the leucocytosis, etc., positively indicated a surgical lesion in the upper abdomen demanding prompt surgical interference. Operations performed thirty to forty hours after perforation had a mortality of upward of 90 per cent., while those performed within sixteen hours after perforation had a mortality well under 10 per cent. Summarized, the elements essential to success were early operation; closure of the perforation; rapid operation; avoidance of peritoneal handling, sponging, or irrigation; continuous drainage; Fowler position; immediate restoration of blood pressure by intravenous salines; retention of normal blood pressure; blood-washing and elimination through continued proctolysis. The operations for the relief or cure of continued ulcerations, pyloric stenosis, pyloric retention, gastrectasis, gastric fixation, etc., were all essentially operations of election. The symptoms of these diseases were sufficiently characteristic in a considerable proportion of the cases to justify a positive diagnosis. Granting that the cases were pronounced surgical, what operations should be performed for the immediate relief of, and for the prophylaxis against, secondary lesions and recurrences? These operations were

divided into (1) gastroduodenostomy, (*a*) Finney operation, (*b*) oblong button with anterior row of sutures for the relief of tension, and (*c*) Heinike-Mikulicz; (2) gastroieiunostomy, anterior and posterior. The mortality in experienced hands varied considerably, dependent somewhat on the technique more than on the conditions, and the judgment as to the degree and type of the operative procedure. The larger the ulcer and the closer its relation to the pylorus, and the more disturbed the physiological function of the pylorus the greater and more continuous was the relief. The small ulcers situated a distance from the pylorus, and a few of the larger ones, were not symptomatically materially changed by the operation. In the future the results would be vastly improved as the cases would be brought to the surgeon before the pathological changes had advanced beyond the likelihood or possibility of surgical repair.

Gastric Ulcer in the Young.—Dr. A. Jacobi said that the anatomy of gastric ulcer and the principles of its treatment were in the main essentially the same in all periods of life. Among the causes he considered prenatal disposition. Defects in the wall of the stomach were occasionally, though rarely, met with. Another cause was thrombosis of the umbilical vein and of its small ramifications, and local embolism in the wall of the stomach, some of which depended upon congenital diseases of the heart. Thrombosis and emboli were frequent causes of fatal melena. The worst cases of melena were those of sepsis. When melena did not directly destroy life Dr. Jacobi had seen it give rise to extensive erosions and ulcerations weeks after, with subsequent death. Kinnicutt had spoken of the causation of gastric and duodenal ulcer by burns and by septicemia, particularly when complicated with nephritis, the frequency of which was most commonly found at the two extremes of life, old age and after birth. It was very probable that such of the causes of stenosis of the pylorus in the newborn and very young dependent upon spasm caused by hyperacidity might give rise to ulceration. Local injuries caused ulcers, such as were produced by swallowing foreign bodies. Infectious fevers had been charged with causing gastric ulcers. Tuberculous ulcerations had been found near the pylorus, but Dr. Jacobi had not seen one in a child. Of the symptoms, pain was the most common, and was caused by oversecretion by undue peristalsis, or by pressure. Pressure on the full or empty stomach revealed it in the median line, or slightly to the left, below the ensiform process mostly. Eating caused it immediately; it continued during the meal and until the stomach got rid of its contents. Pain arising half an hour or an hour after a meal meant duodenal ulcer or peritonitic adhesions of the duodenum. Pain starting three or four hours after a meal should be referred to the colon. Pain while the stomach was empty, which was quieted by eating, meant a neurosis. Vomiting was not so frequent in the young as it was in the adult. It was mainly caused by hyperacidity. The suggestion that it was the ulcer which caused, and was not caused by, an excess of hydrochloric acid Dr. Jacobi did not believe to be correct. In a few cases there was no hyperacidity, but anacidity. Hemorrhages behaved as they did in adults, but they were rare. The nature of the disease being the same at all ages, the principles of treatment were the same. A diseased organ must not work; it must rest. An acute case required rest in bed; small doses of morphine should be given. Hemorrhages required starvation, ice on the stomach, a dose of morphine and adrenalin which, however, was useless when swallowed. In a few very bad hemorrhages, like those occurring in pulmonary cases, he had seen a favorable effect from ligating the venous circulation of the lower extremities. In chronic cases the cause should be looked after. No solid food should be given; in very bad cases milk only should be given. Fresh buttermilk was advisable. The meals should be many and not large. Medicines were required to keep the stomach alkaline. Magnesium oxide, with or without bismuth, was best adapted for neutralization. The proper preparation of bismuth was the subcarbonate. Excessive peristalsis and pain demanded the use of an opiate. Instrumental treatment he could not advise. Silver nitrate was a good remedy in protracted and relapsing cases. The after treatment might require iron.

The Diagnosis of Gastric Ulcer.—Dr. Max Einhorn demonstrated an apparatus for detecting gastric ulcers.

Dr. Joseph A. Blake believed that the chronic ulcers, that is, the so-called callous or indurated ulcers, belonged to the province of surgery rather than internal medicine. The reaction of repair to the intensely irritating gastric secretions was excessive, resulting in the formation of an extraordinary amount of connective tissue. The contraction of this tissue literally fed the walls of the stomach into the ulcer, where they were gradually destroyed. The puckering and contractions of the stomach observed in old cases of ulceration were evidence of this fact. The contraction of the scar tissue cut off the vascular supply in exactly the same way as happened in an indurated ulcer of the leg, consequently the ulcer perpetuated itself, and it was idle to suppose that treatment short of removing the indurated scar tissue would suffice. This excessive formation of scar tissue was familiar to all surgeons of experience in the surgery of gastric ulcer, and anyone who had observed the enormous amount of scar tissue formed in the neighborhood of a slowly penetrating ulcer would appreciate its importance in perpetuating tissue denutrition and consequent ulceration.

Dr. Wm. Van Valzah Hayes firmly believed that in the average case patients suffering from gastric or duodenal ulcers should be given the benefit of careful medical treatment if the disease had not been of too long duration. Failure to respond to such treatment after a reasonable length of time necessitated the opinion of a competent consulting surgeon. He regarded the diagnosis in atypical cases of gastric ulcer as somewhat difficult and at times wellnigh impossible. One physician, after studying for a time with Mr. Moynihan, made the statement that the diagnosis of duodenal ulcer seemed to him one of the easiest and that of gastric ulcer one of the most difficult to determine. Chronic appendicitis with pyloric spasm, painful digestion, and the various other symptoms due to marked acidity might closely simulate gastric ulcer. Pyloric spasm might be due to concretions within the appendix, or frequently to tuberculosis of the appendix.

THE NEW YORK PSYCHIATRICAL SOCIETY.

Regular Meeting, May 5, 1909.

The President, Dr. August Hoch, in the Chair.

Some Clinical Varieties of Periodic Drinking.—Dr. Pearce Bailey read this paper (see p. 724).

Dr. Meyer said this presentation of dipsomania was the fairest and sanest that existed to his knowledge. It was a very unfortunate thing that physicians were so prone to try for one explanation and to hit upon the explanation by the most unknown quantity that we might have, so far as the interpretation was concerned. Certainly this analysis should relieve us of the effort to explain everything by epilepsy *à la* Lombroso. The speaker could give some very interesting instances of the psychasthenic type of sprees, the feeling of inefficiency, of being at a disadvantage, fears, impulses, then drinking, then a spree, winding up in sexual debauch, etc., also seen in the manic-depressive and other types. The great difficulty was in the handling of the situation. This was a matter which Dr. Bailey had not brought into his paper, and which the speaker thought, therefore, he had better not bring up for discussion.

Dr. Hamilton said he had been much interested in Dr. Bailey's paper because his views were in accord with those of Kraepelin and the speaker in regard to the epileptic nature of this kind of episodic drinking, for there was certainly a similarity between certain forms of periodical drinking and masked or psychic epilepsy. In this connection, when looking over some of his cases, he had found something that impressed him as highly significant from a diagnostic point of view—a decided increase in the activity of the pupillary reflex, a tendency to dilatation; this he had seen in many epileptics, and he thought Reynolds and others regarded it as quite common. In three alcoholics whose debauches took the form of periodical seizures and were associated with much excitement, it amounted to a true hippus. One of these men would disappear for several days, and when found there was always retrograde amnesia. In regard to the sexual excesses and perversion referred to by Dr. Bailey, he was very familiar with these and with their medicolegal relations, and regretted that they were so often misunderstood. One case was here referred to last year by Dr. Hirsch, and seen by us both, as well as by others here present. It was that of a man who was a mild paranoiac, but when drunk he would undergo a sexual change. Upon one occasion he committed lust murder, cutting a hole in the abdomen of his victim through which he had connection. In other examples the action of alcohol was to exaggerate existing delusions. In a recent case seen by the speaker an individual who, though he entertained mild delusions against a former employer, based to some extent upon fact, and could ordinarily control himself, when excited by liquor shot the other without a word. Upon other occasions there had been hallucinosis, but many thought the crime was one that was due to ordinary drunkenness. This man was ultimately sent to an asylum, where he was now. In addition to the paranoid condition, there were pronounced physical signs of chronic alcoholism.

Dr. Dana said that he heartily agreed with all he had heard of Dr. Bailey's paper. He would think, from the sentiments expressed, that his paper would be of help in counteracting somewhat the formal cry which was always put forth about inebriety—that it was "a disease," as though it was something like rheumatism or a broken leg or something quite beyond the person's help. For, although inebriety might be called a disease, in a certain sense, it was often a condition in which the individual was somewhat at fault and had a certain responsibility. While he quite agreed with the statements that Mr. Bailey made about the psychogenic factors, he thought we must also remember that sometimes this psychogenic factor of the psychosis was the habitual use of alcohol; that is to say, it happened that young men gradually got into the habit of drinking excessively; it was first only a careless habit, but after a time it became a distinct case of inebriety in which there came upon them distressing compulsions and impulsions. He recollected a case in which a young man had indulged in alcohol for some time; he finally stopped, for he was a very intelligent man, a lawyer, as he saw the injury he was doing himself. After that he used to have come upon him periodically in certain environments, *e. g.* when he went into the subway, states of the most horrible depression which would last for one or two hours; these depressions were promptly relieved by drink, and it was with great difficulty that he refrained from going into excesses as the result of these craving depressions. If he had not fought his inclinations, he would have become a periodical drinker; but by the exertion of his will he managed to save himself. In that case the psychogenetic factor of the psychosis was really the alcohol that he used first simply as a social habit.

Dr. Kirby said that in hospital practice an important group of cases showed the relation of some forms of periodical drinking to the manic-depressive constitution. Many of these cases had been called dipsomania, but, as Dr. Bailey had said, they were to be differentiated from true dipsomania with epileptoid features. One observation made by Dr. Bailey was a surprise to the speaker, viz., that a rigid pupil was of common occurrence in alcoholic psychoses. A nonreactive pupil associated with absent knee jerk, as found in one of the cases reported, would certainly raise the question of the presence of a metasyphilitic disorder and would necessitate a lumbar puncture. Dr. Kirby had rarely observed in alcoholic cases a rigid pupil that could not be explained on ground of some local eye condition. Even in Korsakoff's psychosis, where the damage to the nervous system was most severe, we did not find any impairment of the pupillary reflex. Inactivity of the pupil had, of course, been reported in epileptic and hysterical attacks as a transitory symptom.

Dr. Bailey, in closing, said that the question first came up to him regarding immobile pupils and absent knee jerks about two years ago in the person of a patient who had been markedly alcoholic all his life and was taken with rather atypical symptoms of neuritis, atypical in that the muscles involved were of the thigh and not the lower leg. This man had stiff pupils. His condition was such that it was impossible to get a satisfactory history, and the question balanced itself between alcohol and syphilis. It was for a long time in doubt. He looked up the question to see if there were any precedents, and found that Kraepelin had mentioned stiff pupil in alcoholism in his book. Bonhoeffer also mentioned it. Dr. Bailey did not advance it as a frequent symptom in such cases, but where there was a question between alcoholism and paresis, the fact that the pupil was stiff and knee jerks absent was not always final evidence of paresis. The case certainly was not paresis. His pupils now responded to light. In one case, referred to in his paper, the pupils and knee jerks both returned within a few weeks after cutting off alcohol. He was very much interested in Dr. Brooks having found a case of true melancholia with spasmodic periods of drinking. He had doubted this form of dipsomania, and he would like to ask some of the gentlemen with a much larger experience than he had had what their experience was; was it common for the melancholic states of manic depressive insanity to have periodic drinking spells? He stated in his paper that it was not, and he did not wish to state so if it was otherwise. He had never had a case of melancholia with any tendency to excessive drinking at all, except some cases of melancholia in old people when then settled down into mild dementia.

Dr. Dana said he would like to ask Dr. Bailey in this case where he found rigid pupil whether there were not symptoms of syphilis.

Dr. Bailey said there were simply evidences of peripheral neuritis.

Dr. Dana asked if Dr. Bailey had made an examination of the pupils in epileptiform attacks.

Dr. Bailey said he had seen only one case, and in that, as he remembered, the pupils responded promptly.

Contribution to the Etiology of Manic-Depressive Insanity.—This paper was read by Dr. August Hoch.

College of Physicians of Philadelphia.

At a stated meeting, held October 6, Dr. William M. Welch read "A Memoir of the Late Dr. Horace Y. Evans." Dr. George W. Norris read a paper entitled "Extrasystolic Arrhythmia Simulating Heart-block." He reported the case of an elderly man who presented arrhythmia of the heart, the pulse at times being just one-half of what it was at other times, and presenting on auscultation at such times a third beat in addition to the first and second sounds. Graphic records, however, showed that the case was in reality one of arrhythmia with extrasystole, and post-mortem ex-

amination disclosed a condition of extensive degeneration of the heart muscle, without especial involvement of the auriculoventricular connecting bundle. The abnormal pulse frequency could be induced by the administration of digitalis, by pressure on the abdomen, by physical exercise, and by other influences acting so as to cause increased arterial tension. Dr. PAUL LAZARUS of Berlin made, by invitation, some remarks on "Arteriospastic Conditions." He pointed out that in consequence of the normal overaction of the constrictor muscles of the arteries the state of vascular tone resulted, and that arterial contraction or dilation took place from the action of various irritating influences, some acting from within, others from without, or from a distance, or through reflex stimulation. He dealt with functional in contradistinction to organic disorders. The disorders comprised under these heads were numerous and included such affections as migraine, acroparesthesia, erythromelalgia, paresthetic neuralgia, Raynaud's disease, paroxysmal hemoglobinuria and hematuria, dermographisia, vasomotor ataxia, Stokes-Adams syndrome, angina pectoris and pseudoangina, intermittent claudication, sclerodactily, scleroderma, and others. The crisis of locomotor ataxia has been attributed to vasomotor spasm. He cited an instance in which long continued arterial spasm terminated in arteriosclerosis, and also a case in which, in the sequence of emotional shock, symptoms of local pallor, cyanosis, atrophy, and gangrene developed in the upper half of the body, while hyperemia and hypertrophy developed in the lower. He expressed the view that functional derangement, frequently repeatd or long continued, might readily result in anatomic change, and he pointed out that all functions is attended with vasomotor and nutritive phenomena.

Resistance of the Diphtheria Bacillus to Drying.—Francesco Valagassa has experimented on the effect of dessication on the diphtheria bacillus. He took virulent cultures and dried them in a low heat, after which he kept the dried dust in test tubes in the laboratory at an ordinary temperature for two years, cultivating the germs every two weeks. He found that they remained virulent throughout the two years. This experiment has an important hearing upon the carrying about and contagion of diphtheria in the house in which a patient is sick, and by persons who have visited and cared for the patient to persons outside the family. It shows that these germs are very tenacious of life and that they may be carried in clothing and other materials which have not been fumigated, and may remain virulent for a long time in these articles. It is also important with reference to the prevention of the disease. The use of antitoxin, while it may benefit the patient and cause a rapid cure of all symptoms, should not cause us to be careless of the disinfection and sterilization of all materials that have been in contact with him throughout any period of his sickness.—*Rivista di Clinica Pediatrica.*

Comparative Value of Operations for Retroversions and Retroflexions of the Uterus.—Maurice Bourcart, after a careful review of the various procedures that have been proposed for the radical treatment of retroversions and retroflexions, gives us the following conclusions: the operation that maintains the organ in as near a position to the normal as possible and preserves the functions is that which is best adapted to the treatment of this displacement. The question of pessaries is left aside as only palliative means of treatment. We must take account of the general condition of the patient, the abdominal equilibrium, and the various causes of displacement. From a failure to observe these things operators have failed to relieve the symptoms of the patient. The modern Alexander operation is best suited to young women who are likely to have children and to unmarried women. Ventrofixation is best suited to women who have reached the menopause or who have been sterilized by necessary operations for disease of the uterus and adnexa. It should be complementary to laparotomy for these troubles. Vaginofixation should be done in exceptional cases.—*Annales de Gynécologie et d' Obstetrique.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of October 23, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	542	145
Diphtheria	259	19
Measles	119	9
Scarlet Fever	118	3
Smallpox	—	—
Varicella	44	—
Typhoid Fever	107	25
Whooping Cough	62	4
Cerebrospinal Meningitis	3	4
Malarial Fever	—	—
Totals	1,254	209

Pathogeny of Certain Epidemics of Gastroenteritis.—Decherf calls attention to errors in feeding of the cattle used for the production of milk for feeding of infants as a cause of gastroenteritis. Aside from its chemical qualities, this milk contains biological qualities that may be injurious to young infants. The origin of epidemics of gastroenteritis is in some cases due to the feeding of the cattle on fermented or fermentible materials called pulp, derived from factories where beet sugar is made or from distilleries. Such milk contains toxins which cause an intestinal intoxication in the infants. These epidemics are best treated by the use of water diet only, and if intoxication is not too severe recovery is rapid. Babeurre is harmful in these cases, while in most cases of acute enteritis it is an intestinal antiseptic.—*Annales de Médecine et de Chirurgie Infantiles.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended October 22, 1909:

		Cases.	Deaths.
SMALLPOX—UNITED STATES.			
District of Columbia, Washington	Oct. 2–9	3	..
Indiana, Fort Wayne	Sept. 18–Oct. 2	15	..
New York, Buffalo	Oct. 2–9	1	..
North Carolina, Charlotte	Oct. 1–8	3	..
Ohio, Cincinnati	Oct. 2–9	1	..
Dayton	Oct. 2–9	1	..
Oklahoma, General	Aug. 1–31	18	..
Wisconsin, La Crosse	Oct. 2–9	1	..
SMALLPOX—FOREIGN.			
Canada, Hamilton	Sept. 1–30	2	..
Gibraltar	Sept. 19–26	2	..
India, Calcutta	Aug. 21–Sept. 4	..	2
Madras	Sept. 4–10	..	1
Rangoon	Aug. 28–Sept. 4	..	1
Italy, Genoa	Sept. 1–30	7	..
Naples	Sept. 26–Oct. 2	17	4
Java, Batavia	Aug. 21–28	4	1
Malta	Sept. 4–11	2	..
Mexico, Veracruz	Sept. 26–Oct. 3	1	1 imported
Portugal, Lisbon	Sept. 11–25	13	..
Russia, Moscow	Sept. 11–25	7	2
Odessa	Sept. 18–25	2	1
Riga	Sept. 18–25	2	..
Warsaw	Aug. 14–28	..	2
Spain, Valencia	Sept. 18–25	1	..
Vigo	Sept. 18–25	..	1
Turkey, Smyrna	Aug. 5–Sept. 17	..	79
YELLOW FEVER.			
Brazil, Para	Sept. 11–25	4	2
Ecuador, Guayaquil	Sept. 11–18	..	3
CHOLERA—INSULAR.			
Philippine Islands, Manila	Aug. 28–Sept. 4	8	6
Provinces	Aug. 28–Sept. 4	201	114
CHOLERA—FOREIGN.			
China, Hankow	Aug. 21–28	1	..
India, Bombay	Sept. 7–14	..	22
Calcutta	Aug. 21–Sept. 4	..	10
Rangoon	Aug. 28–Sept. 4	..	3
Japan, Kobe	Sept. 6	3	1
Korea, Seoul	Sept. 23	..	Present
Netherlands, Hanswert	Sept. 27–29	2	..
Lobik	Sept. 27–29	1	..
Russia, General	Sept. 18–Oct. 1	1,365	587
St. Petersburg	Sept. 18–Oct. 1	510	201
PLAGUE—INSULAR.			
Hawaii, Hilo	Sept. 19	1	Vicinity
PLAGUE—FOREIGN.			
Chile, Iquique	Sept. 8	2	In lazar'to
Ecuador, Guayaquil	Sept. 11–18	..	11
India, General	Aug. 21–28	2,297	1,811
	Aug. 28–Sept. 4	2,837	1,852
Bombay	Sept. 7–14	..	9
Calcutta	Aug. 21–28	..	16
Rangoon	Aug. 28–Sept. 4	..	7
Indo-China, Saigon	Aug. 21–Sept. 4	15	14
Japan, Kobe	Sept. 4–11	7	6
Peru, General	Aug. 20–27	16	12

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Original Articles.

PARASITISM AND NATURAL SELECTION.*

By R. G. ECCLES, M.D.,

BROOKLYN, NEW YORK.

"It is of interest," says Prof. Theobald Smith, "to note that civilized man who has subjugated or annihilated all species of large animals, finds the difficulty of controlling and suppressing them in inverse proportion to the size of the offending species. Many predatory and destructive insects which disturb agriculture are still at large, and many of the microscopic and ultramicrosopic organisms which cause disease baffle the scrutiny of science. With this study of microorganisms is bound up the phenomenon of parasitism, one of fundamental importance to life. Parasitism implies a continual struggle between the highest and lowest forms, and the investigation of the conditions which surround this struggle will be for some time to come the most fruitful field for research."[1] It is important that we understand the cause of this struggle in order to fully appreciate the origin, unavoidableness, and continued persistence of what we call disease. Such knowledge may evict us from the mental comfort of "a fool's paradise" but it will bring with it sane judgment on what is probably the most momentous and important problem that we must forever continue to face. "We now know," says Prof. H. E. Crampton, "that a bacillus less than 1/5000 of an inch in length multiplies under normal conditions at a rate that would cause the offspring of a single individual to fill the ocean to a depth of a mile in five days."[2] Commenting upon the same subject Prof. H. W. Conn tells us that "their minute size would make them harmless enough if it were not for an extraordinary power of multiplication. This power of growth and division is almost incredible. Some of the species that have been carefully watched under the microscope have been found under favorable conditions to grow so rapidly as to divide every half hour, or even less. The number of offspring that would result in the course of twenty-four hours at this rate is, of course, easily computed. In one day each bacterium would produce over 16,500,000 descendants, and in two days about 281,500,000,000. It has been further calculated that these 281,500,000,000 would form about a solid pint of bacteria and weigh about a pound. At the end of the third day the total descendants would amount to 47,000,000,000,000 and would weigh 16,000,000 pounds."[3] If Prof. Conn had gone on with his calculating, as it is to be hoped the reader will do, he would have shown that by thus doubling every half hour the 16,000,000 pounds would be 32,000,000 pounds in the first half hour, 64,000,000 pounds in the second half hour, 128,000,000 pounds in the third half hour, 256,000,000 pounds in two hours, 512,000,000 pounds in two and a half hours, 1,024,000,000 pounds in three hours, and thus continuing until, in a relatively small number of hours, all of the protoplasm-forming food upon our planet would be converted into bacteria. This, of course, means that our bodies and the bodies of all other living things would be consumed and changed into bacterial tissue. It is quite evident that no such result can be reached, but why? Simply because our tissues and the tissues of plants and animals refuse to be eaten up in this wholesale manner. As soon as life disappears from our bodies, or our tissues are lacerated or otherwise weakened in their resisting power, the multiplication begins. As long as life and health last our organized bodies struggle with all their power against the pressure of this aggressive proliferation. It is as certain as fate that but for the barriers that higher living forms have been able to put up against these marauding germs every other form of life but their own would be compelled to disappear from the face of the earth. Our cells must kill, inhibit, or force into starvation countless millions of them every day. It is a struggle to the death between us all the time. It is a struggle that has never for a moment ceased in countless milleniums of time. As it is there is not an available spot on or within us, where they can cling or rest, that they have not preempted. Our cells limit their freedom, as we do that of caged lions, or they would invade our circulation and make life a burden to us. Let there be a laceration, a bruise, an injury from heat, electricity, or frost, a chilling of the circulation, or any other condition that lowers our vital resistance, and their merciless proliferating begins at the expense of our being. Herbert Spencer was certainly right when he asserted that "natural selection has always been going on, is going on now, and must ever continue to go on,"[4] although he knew but little about this phase of it. In the battle with pathogenic microorganisms death is the inevitable fate of all those whose tissues are unable to beat them back and hold them at bay. Fitness is bodily resistance and only the fit are able to survive. This, too, is just as true for the parasite as it is for its host. Their power to resist us is their fitness and only the fit among them can survive. To both germ and host "the dictum of the environment is: accommodate to xyz or die in the attempt."[5] Every favorable change made by one of them must be overcome by an equally protective or a more protective change in the other. In this way adaptation is added to adaptation from generation to generation. In this way heredity heaps up the wealth of protective appliances. Here it can surely be said that,

"All of good the past hath had,
Remains to make our own time glad."

This idea was evidently in the mind of the writer of the British Encyclopedia article on "Parasitism"

*Supplementary to a paper on the same subject in the MEDICAL RECORD, July 31, 1909

when he wrote that, "It is possible that many of the most remarkable integumentary specialisations of the animal kingdom are defenses against parasites (somewhat as stings or thorns which protect foliage, or the hairs which keep ants from flowers); thus the nemocysts of coelenterates, the molluscan shell or the crustacean mail, the vigilant pedicillariae of the echinoderm, or the scales of the fish are alike largely specialized as defenses against the never-ceasing attacks of swarms of larval parasites eagerly struggling to gain entrance or footing anywhere."[6] The fact here referred to that every integument is exactly suited to protect its possessor from the kinds of parasites by which it is attacked is both interesting and important. Our skin would not properly protect a fish or an oyster nor would the coverings of fish, oyster, lobster, or snake be proper or protective coverings for us. Every kind of integument is only fit for the resistance of the enemies that its wearer meets or has met during its evolution. They have survived because of this fitness. Remove it and they would perish. They are all defenses against injury and the infections that follow injury. This process of heaping up adaptations has been going on for so immense a period of time, and in every form of living thing, that—in a sense—all are, at any given period of time, to be counted among the fit. But for incessant change we would all remain fit. It is because the respective relations between pathogenic germs and ourselves is constantly shifting that we are always slowly being forced toward the region of unfitness. No sooner have we built up a wall of defense for our blood than some microorganism varies in a way that enables it to make a breach into the same. No sooner have our cells adopted a means of poisoning or dissolving them than they have again varied in a manner that neutralizes our poisons and checks the effectiveness of our solvents. Those that do not vary thus become the tamed facultative forms that may in time become pure saprophytes. They are forced into adaptation to a new way of living. If not able to assume the new mode of life they must die. "Now we can see," says Prof. Crampton, "why adaptation is a universal characteristic of species—there are no unadapted. If such there were, they have fallen long ago and the world knows them no more. True it is that perfection is not attained by any creature, but it must establish a *modus vivendi* or it perishes."[7] As far as our structures go in the direction of perfect adaptation we are all adapted. As far as they fall short of this, because of some new shifting of the conditions of battle, they are all unadapted. Our adaptations protect us against the multitude of dangers that our forebears had to face but not against the new dangers to which they were utter strangers. "The Darwinian theory," says Prof. W. K. Brooks, "simply affirms that" our adaptations "work well enough to enable the organism to hold its own against such competitors as it has met with, but admits the possibility of indefinite improvement."[8]

We are never free from the danger of infection. Our oldest, most subtle, and worst enemies—disease germs—threaten health and life always and at many points. Our skins, our mouths, our alimentary tracts, our food, our water, and even the air we breathe constantly contain microorganisms of varying degrees of virulence. They never leave us. Streptococci, staphylococci, pyogenic cocci constantly lurk in the canals of our hair follicles, seek favorable opportunities for proliferation within the sebaceous glands, and hide in every crevice of the epidermis. "We carry in our skin surfaces constantly," says Dr. Simon Flexnor, "the germs of suppuration."[9] Once let them gain the slightest advantage over our cells and the result will be pimples, boils, carbuncles, abscesses, erysipelas, or general cocci infection. Against them heredity has accumulated an exceedingly interesting set of adaptations to which familiarity has bred indifference. Every one of them is, or has been, life saving. They are, therefore, of a kind that are said by biologists to be of "selective value." A remarkable feature of them is that their selective value is entirely concerned in protecting us from pathogenic microorganisms. The skin, in all of its functions, seems to be chiefly—or wholly—a defense against infection. To the Darwinian this can only mean that its entire structure is an accumulation of myriads of surviving fitnesses in its wars against disease. If Natural Selection is true we could never have had a skin like that which we now possess had it not been for disease as the selector. If the reader will carefully scan the following list of protective appliances which the possession of our present integument supplies, my meaning will, perhaps, be clearer. (a) It is constantly shedding its surface cells and thus ridding the body of bacteria. (b) It is covered with hard, horn-like cells impenetrable to bacteria and of inferior nutritive value for them. (c) It thickens by wear and thus lessens our danger from a germ invasion when such an invasion would otherwise be unavoidable. (d) It lubricates and moistens itself thus preventing the formation of cracks and fissures through which bacteria could enter. (e) Its mechanism for the control of internal temperature maintains the general resisting power of the body against disease. (f) The flow of blood, in puncture or cut, washes out the wound and rids it of many bacteria. (g) The clotting of the blood seals up the injury from further infection. (h) It gives prompt warning of danger from infection by the production of intense pain the instant that it is punctured or cut. (i) It informs us of movements upon its surface, on the part of marauding insects and proliferating germs, so that we are often able to avoid inoculations with disease germs by scratching off the moving objects. (j) It supplies us with broad nails to enable us to evict these moving things. (k) It provides a reflex mechanism that by the sensation of tickle must have saved primitive man from many wounds and many infections. (l) It supplies another reflex mechanism by which to protect the delicate eye from injury and infection through winking. (m) The touch-spots, by their curious distribution, must have saved primitive man from many attacks of infective disease. (n) The heat and cold spots supply warnings from dangers that threaten vital resistance. (o) Our practically hairless skins lessen fatality during attacks of exanthematous diseases.

As can be seen, this entire list of defenses is for our defense against pathogenic microorganisms. If we are not the selected survivors of creatures that once had a different kind of skin we might as well have been, so far as any reasonable explanation of the facts is concerned. The germs are here and, from all appearances, have always been here. The selecting of fitnesses is now and, so far as can be seen, has always been going on. Geologists tell us that there has been ample time for a countless number of fitnesses to have piled up to make us what we are. Every peculiarity that distinguishes our skin from that of a fish, amphibian, or reptile seems to

be exactly such as we would gain by the aid of time, selection and germs. Well may we say with Prof. Poulton that, "When a naturalist has found the formula 'if Natural Selection be true, so and so ought to happen,' the safest of all guides into the unknown, when it has brought home success many times and in many different directions, when he knows that many other workers in other fields of biological inquiry have had a similar experience, he gradually comes to feel a profound confidence in the permanent truth and the far-reaching importance of the great theory which has served him so well."[11] Why should he not acquire such faith? For half a century Darwin's theory has been the same to biologists, of every stripe, as the mariner's compass has been to the captains who have guided their ships by its aid. The evidence in favor of natural selection is cumulative. Its apparent failures, one by one disappear before advancing knowledge. With Prof. Conn we should be willing to say "that inasmuch as the law of natural selection is a universal force which all admit, while all other forces of evolution are yet in dispute, and inasmuch as many seemingly useless organs have been shown to be of use, it is perfectly legitimate to claim that when we come to understand them, we shall find that all characters are of value, and that the principle of survival of the fittest has been concerned in the development of them all."[12] It is a singular fact that a very large number of the most apparently staggering examples of anti-Darwinian objections resolve themselves into adaptations against disease. Some of them will appear as we progress in the presentation of the data of this paper while others will be reserved for some future article. In pre-bacteriological times they appeared to be utterly irreconcilable with natural selection. Indeed, as we shall see, they baffled completely the ingenuity of Spencer, Darwin, and Wallace. Only when viewed from the standpoint of modern pathology is it possible to see that they are Darwinian. One of the first objections urged against natural selection was made by Mivart when he declared that, "We cannot believe that the first minute beginnings of adaptation are valuable enough to be preservative."[13] In the battle against pathogenic microorganisms the most infinitesimal additions or subtractions can tip the delicately poised scale toward survival or toward death. When life is already trembling in the balance differences of inconceivable minuteness may register the decree of fate. Prof. Conn's question—Can it be imagined that the lengthening of the tail by a couple of inches can be of selective value?—must be answered in the affirmative now that we know something about tsetse flies and trypanosomes. When Mivart penned the words we have quoted no one knew of the subtle but telling influence that disease has upon natural selection. When we have learned more upon this subject than we yet know it will be time enough to inquire about how minute the additions to adaptations must be in order to become of selective value. One tenth of an inch added to the length of a tail, by enabling its possessor to reach an otherwise unprotected tenth of an inch of its body surface, might, other things being equal, supply the very fitness needed for survival from an attack of nagana. Who can say how slight a change in the chemical structure of the corneal cells of our skin would enable bacteria to penetrate and flourish upon them? Who can say how slight an alteration in the desquamating power of our skin would enable proliferating cocci to infect the interiors of our bodies?

"The epidermic layer," says Metschnikoff, quoting Sabourand, "sets up a defense by the production and expulsion of corneal cells. In the normal course of the life of the epidermis, the cells of the deeper layers, coming to the surface, become exfoliated and thrown off. 'There is thus produced, a continual exfoliation of the dead layers, and a continual eviction of such microorganisms as are living on them. The epidermis is dense and its cells have a hard envelope; the microorganism is not endowed with motion, or at least not with sufficient to be of service in effecting an entrance. It can only penetrate the epidermis by a multiplying *in situ*, a microorganism originates alongside another, another in front of it, and in front of this again others. In this way they burrow between the opposed cells just as a root penetrates into the ground; so great is the resistance of the horny cells that we never find any microorganisms within them, but between them only.' The epidermic cells, containing microorganisms, exfoliate, and the skin is thus ridded of them. Frequently the process, as it goes on constantly and slowly, is invisible; but often, on the other hand, it becomes exaggerated and manifests itself in the form of a cuticular desquamation which leads to the elimination of a large number of microorganisms."[13] If such patent fitnesses are not the accumulated capital of millenniums of selection then to what earthly cause shall we accredit them? Weismann's statement regarding the adaptations of mimicry applies with equal aptness here. "There is only one explanation possible," he says, "for such patent adaptations and that is selection. What is more, no other natural way of their originating is conceivable, for we have no right to assume teleological forces in the domain of natural phenomena."[14] Consider for a moment that peculiar power which the skin possesses of thickening by work or wear. Where among all material things can its like be found? The hardest steel and the most dense platinum can be thinned down to nothingness by the same kind of treatment. Continuous attrition produces a result that is exceedingly anomalous in the case of living integuments. It is particularly evident in the palms of the hands and soles of the feet, places where such thickening is most needed. Use and wear mean increased exposure to conditions favorable to injury or puncture. Injury or puncture mean increased danger of infection. The thickening is an adaptation against disease. During millions of generations of such exposure the absence of such thickening must have meant extinction. Only those animals whose skins varied in the right direction could have survived. Prof. T. H. Morgan tells us that "We may regard this as a general property of the skin, which is present even in those parts where, under ordinary circumstances, it can rarely or never be brought into use."[15] While this is quite true of modern man it was not so of primitive man, nor is it now so of simians, or lemurs. In the latter cases —and they are types of those animals which, according to the theory of natural selection, preceded us— all parts of their bodies must be subjected to intermittent wear, owing to their arboreal life. Pushing through dense jungles, clambering for nuts among interlocked boughs of trees, with scratchings and rubbings in order to get rid of adhering parasites or vermin, could hardly be accomplished without daily and hourly bringing this property into requisition as a life saver. But thickening without pliability would have resulted in cracking, so we find that the palms and soles are more liberally sup-

plied with sudorific glands than is any other part of the body. "As long as the uncracked epidermis only is presented to bacteria," says Prof. Dearborn, "there is relatively little danger of infection."[16] Through the sweat glands these parts are kept sufficiently moist and oily to maintain their normal condition under such strain as they are constantly subjected to. Unlike the rest of the body they are not supplied with sebaceous glands. The absence of hair makes these unnecessary and the uses to which hands and feet were put by simians would have made oil lubrication rather dangerous. The avoidance of drying, cracking, and puncture are sufficiently provided against without them. Still another menace was avoided by an increase in the number of sweat glands and the absence of sebaceous glands. Work makes heat and a thickened skin with increased heat added needed a mechanism to balance this danger from an accumulation of temperature. The chief function of the sudorific glands for the body is that of keeping down temperature. But for them every effort we made in work or exercise would raise the body heat to the danger point. "Krause estimates that their total number for the whole cutaneous surface is about two millions."[17] The evaporation of the excreted moisture carries off the heat. Too much evaporation, however, would lower the temperature to an extent that would be equally dangerous and so we find that there is a nervous mechanism for its regulation. Dilation of the splanchnic vascular areas or constriction of the cutaneous vascular areas lessens the flow of blood through the skin and raises the temperature again. The lungs also help us in the removal of surplus heat.[18] The conditions of gland supply on the palms and soles is reversed in the case of the glans penis and prepuce. Here there is an absence of sudorific glands and a supply of a special kind of sebaceous glands—the glands of Tyson.[19] Exudation of moisture in this region would encourage bacterial proliferation, while absence of oleaginous material would cause drying and cracking. Under the arms, where sudorific glands abound and where two surfaces of skin might touch and harbor proliferating bacteria, there is a growth of hair that keeps the surfaces apart and thus avoids this danger. All over the body, except in the places named, sebaceous glands abound. Their secretion keeps the hairs from becoming brittle and forms a thin protecting layer over the surface of the skin. "By means of this secretion the skin is oiled and is thereby rendered soft, pliant, and almost impervious to water."[20] Its lack of conductivity of heat and electricity also prevent too rapid changes in our store of these. As regards the insulation which it provides too little is known. Here physiology has a much neglected field to cultivate. Pathology, too, should try and discover the relations that exist between electricity and constitutional resistance to disease. It is absurd to suppose that so potent an agent, and so ubiquitous an agent, should not have an effect upon disease and survival almost, or quite, as great as that of temperature. Our skins are non-conductors, the sebaceous secretion is a non-conductor, and our hair and nails are likewise non-conductors. Such an adaptation cannot be useless and yet no one can say, at present, what its use is.

Wounds that penetrate the skin produce bleeding. A slight flow of blood from a wound is beneficial, an excessive flow fatal. In the vast majority of injuries to the skin the flow is only sufficient to lessen the danger from microorganisms that were forced in when the damage occurred. When it has accomplished this result it spontaneously ceases. Great wounds during feral and savage life could not be of selective character because, when produced, the vigilant enemy was ready to eat up the wounded prey. Accidental wounds of a serious character must have been extremely rare. There were no blasting explosions, no railway wrecks, no manglings by cannon, and none of the numerous sources of severe injury that are the associates of civilized life. Natural selection has, therefore, never had a sufficient opportunity to supply us with spontaneous closure of severed large arteries. What it has done, for us in the case of minor injuries is really wonderful. Familiarity blinds us to the astonishing features of this miracle. "Outside the body," says Dr. B. L. Abrahams, in the *Lancet*, when commenting upon the coagulability of the blood, "this is a normal process, having for its object the closure of wounds; inside the vessels it is abnormal and fraught with great danger. It is to the advantage of the body to favor the one and to hinder the other; so we find intravascular clotting difficult to produce but extravascular difficult to hinder."[21] Could phenomenon be more startling than this? If told of it for the first time, instead of seeing it as a common event of life, we would promptly declare it to be a fairy tale. Where else can we discover so miraculous a contradiction of properties in one and the same substance? It clots into a jelly exactly when it is of a benefit to us that it should do so. It flows like water when if it should do otherwise we would surely die. In veins and arteries it is a free flowing liquid but the moment it touches the edge of a wound that needs healing, through its agency, that moment it ceases to flow and plugs up the damaged spot against invading bacteria. Reverse this condition for an instant and death would reign supreme through all the earth. How happen we to have blood that clots at all? How came the clotting to occur with such exact precision as to place and time of our requirements? Biological chemistry can tell us much regarding the chemical conditions responsible for the clotting but can cast no light on the weird strangeness of the dual fitness. Ask the chemist to explain how the adjustment came to exist that made the blood clot outside the veins instead of inside of them and he will be dumb. Nothing but the law of natural selection can illuminate this mysterious condition of things. With the phylogenetic development of living forms having blood and blood-vessels these properties must have been slowly gained by the selection of variations that led to this result. It is evident, too, that other protective devices came into being along with this and in the same manner. Before the most minute arteriole can be severed the watchful nerves give out a cry of pain. Not even a needle point can break the merest dot of the skin's continuity without this danger alarm being felt. We are thus compelled to guard our epidermis from thorns and thistles, insect bites and abrasions, cuts and tears, at every appearance of such a danger. Why? It is not because such slight cuts are, in themselves, such serious things. It is because they act as portals of infection and thus have a life and death value for the sufferer. It is because ages of selection have most likely wiped out every creature whose skin did not keep becoming more and more sensitive and painful to such injuries. Nor was this adequate. The danger from infection in this way is so great that the pain had to be anticipated by another prior annoying sensa-

tion. The crawling vermin and the proliferating bacteria were made to add this other warning as an anticipation of possible puncture. Our sense of comfort was, therefore, disturbed by a feeling of itchiness. This compelled scratching and scratching dislodged mites, pediculi, fleas, bugs, chigoes, bacteria, and other such marauders. Our thick-skinned, hair-covered lemurian progenitors did their scratching with claw-like nails. Our thin and hairless skins would be constantly lacerated by claws. Wide nails could not get past their matted hair to do successful scratching. We do not require claws to get through the hair upon our bodies. The fitness of wide nails must have come with our delicate skins. Any other kind of nail for us would increase the death rate by increasing infection. Our present exceedingly low death rate from infection, through scratching, starting erysipelas or general pyemia, must be the last remnant of what was once a very high one. From the time that our forebears first got their thin skins to the time that the claw-nails widened out into our present pattern it is highly probable that the deaths among them, from this cause, must have been very great. Itching as a fitness against infection must be as old as, or older than, claws. It was evidently of little or no use as a warning against the light touch of larger carniverous enemies for still another sensation was evolved by natural selection to forewarn of these. In order to be sure that their prey is alive and not the carcass of an animal dead of some contagious disease all ferocious beasts seem to have a habit of smelling and lightly touching bodies that they happen upon without having killed. On discovering that they are edible a vital part is seized and the resting or sleeping prey despatched immediately. If the odor is repulsive it means danger to the carniverous animal and it goes its way without the hoped-for feast. Primitive man probably sought protection from lions, tigers, bears, wolves, and the like, by sleeping in holes or caves. Often these were small and provided scant safety. His feet, with the soles exposed, would reach to the narrow passageway. Without the warning supplied by the light touch of the enemy's snout or paws he would have been seized, pulled out, and devoured. Only such of them as developed a sense of tickle, that compelled a sudden withdrawal of the feet, could be saved. When forced to sleep under a bush, or in other location where almost complete exposure was unavoidable, strength and adroitness alone could save. In such cases ticklishness would save many lives by occurring on parts of the body that most needed defense. These, in fact, are found to be the very parts that respond most promptly to tickling, not only in man but in many other animals. "A young ape or dog," says Dr. Louis Robinson, "which, in the innumerable sham fights of its youth, learns to defend the axillæ, where a single bite might sever the axillary artery; the neck, with the carotids and windpipe just under the surface; the flanks, and borders of the ribs, where a comparatively slight tear lays open the abdominal cavity; and the groin, where the great femoral vessels lie close to the skin, would, without doubt, be vastly better equipped for the fierce combats for supremacy in after-life than an animal which had not undergone the same elaborate training. * * * An inquiry into the special warlike tactics of some other creatures which show a marked degree of ticklishness gives our argument additional support. All the *Canidæ* and *Felidæ* habitually attack the throat; and, in the romps of young puppies and lion cubs, it seems to be the chief end of the game to 'get in' at this spot. Now, the throat and adjoining parts are in these animals markedly the most ticklish regions. There are reasons for thinking that among ourang-outangs the same spot is more often assailed in actual warfare than is the case with the chimpanzees, and a young ourang appeared to be much more ticklish in the neck than a young chimpanzee."[22] While the reflex movements due to ticklishness are not direct selections by disease they appear to be indirectly such. The habits of the carnivoræ that lead to the touching and smelling of bodies, in order to make sure that they are not dead and decayed, have all the appearance of being directly due to selection. Some carniverous animals are less particular than others regarding what they eat, and mere decomposition does not stay their appetites; but there are reasons for believing that even these have a choice and will not eat everything in the shape of food they happen upon. The one pronounced reflex movement that has every appearance of having been the direct result of natural selection is that of winking by the eyelids. Here we have an adaptation that is of direct and decided benefit in that it saves the delicate tissues of the eyes from injury and consequent infection. But for the prompt closing down of the lids upon the mere suggestion of approaching danger many eyes would be destroyed and many lives lost by the infections that would follow contact of solid bodies therewith. Any change leading toward the loss of this power would, in time, lead to the extermination of the inheritance line of those losing it. All past changes that led toward its increased efficacy led to the survival of the race through the changed ones. Time heaped up the fitnesses until they reached their present delicacy and efficiency.

The distribution of the touch-spots over our bodies has, for years, been a most puzzling problem to physiologists and a bone of contention between Lamarckians and Neo-Darwinians. Strange to say, Herbert Spencer raised this as his most powerful evidence against Weismann in the fight about acquired characters. Had Spencer realized the important part that disease plays in the survival of the fittest it is hardly likely that he would have given such prominence to this point in his article upon "The Inadequacy of 'Natural Selection.'" For so strong a believer in selection to give over to his enemies so remarkable a proof of the truth of that principle shows how the most powerful of intellects can go astray when the data is inadequate. He surrendered a powerful fort to the enemy in an effort at suppressing what he thought was philosophical rebellion. The new facts of bacteriology and of protozoology would have saved him from so serious a lapse had he known the last words of these at the time he wrote the article referred to. Referring to Weber's experiments on the sensitiveness to touch of compass points, as displayed by various parts of the body, Spencer says: "As thus measured, the end of the forefinger has thirty times the actual discriminativeness which the middle of the back has. Between these extremes he found gradations." He refers to other contrasts of the same kind and then asks: "What is the meaning of these differences? How in the course of evolution have they been established? If 'natural selection' or survival of the fittest is the assigned cause, then it is required to show in what way each of these degrees of endowment has advantaged the possessor to such extent that

not infrequently life has been directly or indirectly preserved by it." In order to emphasize his doubt of there being selective value in the peculiar method in which these spots are distributed he declares that, "If the cause alleged is natural selection, then it is necessary to show that the greater degree of the power possessed by this part than by that, has not only conducted to the maintenance of life, but has conduced so much that an individual in whom a variation had produced better adjustment to needs, thereby maintained life when some others lost it; and that among the descendants inheriting this variation, there was a derived advantage such as enabled them to multiply more than the descendants of individuals not possessing it. Can this or anything like this be shown?" For the purpose of strengthening his objection he next asks: "How about the back of the trunk and its face? Is any advantage derived from possession of greater tactual discriminativeness by the last than by the first? The tip of the nose has more than three times the power of distinguishing relative positions which the lower part of the forehead has. Can this greater power be shown to have any advantage? The back of the hand has scarcely more discriminative ability than the crown of the head, and has only one fourteenth that which the finger tip has. Why is this? Advantage might occasionally be derived if the back of the hand could tell us more than it does about the shapes of the surfaces touched. Why should the thigh near the knee be twice as perceptive as the middle of the thigh? And, last of all, why should the middle of the forearm, middle of the thigh, middle of the back of the neck, and middle of the back, all stand on the lowest level, as having but one thirtieth of the perceptive power which the tip of the forefinger has? In order to clinch the argument and, as he seemed to suppose, make it wholly unassailable he says: "Doubtless some of those who remember Weber's results, have had on the tip of the tongue the argument derived from the tip of the tongue. This part exceeds all other parts in power of tactual discrimination, doubling, in that respect, the power of the forefinger-tip. It can distinguish points that are only one twenty-fourth of an inch apart. Why this unparalleled perceptiveness? If survival of the fittest be the ascribed cause, then it has to be shown what the advantages achieved have been; and, further, that those advantages have been sufficiently great to have had effects on the maintenance of life."[23] Prof. T. H. Morgan, who believes in some unknown power or law lying behind variations and that fashion's adaptations *en bloc*, agrees with the destructive part of this criticism. In the apparent leaps of nature known as mutations he thinks he can see an influence that lessens the responsibility of natural selection and, perhaps, supersedes it. To this he attributes the touch-spot arrangement. Spencer credits it to the Lamarckian principle of use. The parts that are used most develop the most spots. Unfortunately for Spencer's explanation no such distribution exists and Prof. Morgan takes pride in pointing this out. He has as little use for Spencer's Lamarckian theory as he has for Darwin's. He first shows that we have not a particle of evidence that the using of a part can increase the number of sense organs. He shows that, according to the Spencer-Lamarck theory, the lower part of the forearm should have more touch-spots than the eyelids because the forearm at that point is touched much more frequently than the eyelid. The reverse of Spencer's contention is true. The forehead being touched more frequently than the eyelid should also have more, while, in fact, it has fewer. The knee, that is subject to touch and pressure much more frequently than forehead, forearm, or eyelid, has fewer touch spots than any of the latter. It, therefore, demonstrates the falsity of Spencer's explanation.[24] But for the fact that Prof. Morgan's own theory is one of as complete mystery as any of the miracles of antiquity, critics might get a chance to make a shy at it. To try to riddle a theory that acknowledges its own genealogy to be unknown would be as futile as firing a gun at an immaterial ghost. The wonder is as to why neither Mr. Spencer nor Prof. Morgan tried to think of the spots in the order of their frequency, beginning with the most frequent, and paralleled that order by any sort of theoretic danger By the law of natural selection the greater the frequency the greater must have been the danger and the less the frequency the less the danger. Belfield-Lefevre has shown that "those portions of the skin where the touch is most acute, and where two points of contact are perceptible at slight distances, are," other things being equal, "those which estimate most correctly the degree of pressure."[25] This function of estimating pressure in the ratio of the number of the touch spots is important. Foster tells us that "The more mobile parts or those which execute the widest movements most easily and frequently, such as the hands and lips, are those by which we can thus discriminate sensations most readily."[26] This comment follows immediately after the following table of Weber's findings:

Tip of tongue	1.1	mm.
Palm of terminal phalanx of finger	2.2	"
Palm of second phalanx of finger	4.4	"
Tip of nose	6.6	"
White part of lips	8.8	"
Back of second phalanx of finger	11.1	"
Skin over malar bone	15.4	"
Back of hand	29.8	"
Forearm	39.6	"
Sternum	44.0	"
Back	66.0	"

If the reader will now join with me in trying to put two and two together in this physiological puzzle we may be able to solve it, even if it did defy authorities as great as Herbert Spencer and Prof. Morgan. Let us stick to Darwin's method—the method of Zadig, according to Prof. Huxley.[27] If natural selection is true the center of danger in reference to these touch spots must be the tongue. It exceeds all other parts of the body in its sensitiveness. The second point of greatest danger to life must have been the palm of the terminal phalanx of the finger. What has the tip of the finger got to do with the tongue? Why does it come next to the tongue as a cause of danger to the life of a man? Do these two ever come together as a source of possible danger? Let us now compare the extremes. The tongue is 66 times more sensitive than the back and the end of the finger is 33 times more sensitive than the same region. Does the back of man, monkey, or lemur ever reach the tongue? But Foster says that "the more mobile parts" are the parts of sensitiveness, and, therefore, according to any selection explanation, all danger centers around the chances that a part has of reaching the tongue. But the tongue is only reached in this way when licking has to be done or when something upon the part has a chance to reach the tongue. The less the chance of anything reaching the tongue, it would thus appear, the less

must have been the danger. That this is *most emphatically* the case is seen in what is a decided exception to Prof. Foster's rule. The back of the hand is nearly 15 times less sensitive than the palm of the terminal phalanx and yet—strange to say—the back of the hand *can reach the tongue* just as easily as the palm can. But does it in the usual movements of an animal reach it with anything like the same frequency as the palm? In animals that feed themselves and take their drink by the aid of hands it most assuredly does not. As the touch-spots are a heritage from our hairy ancestors, and as these ancestors were not overcleanly, accumulations of infected material must often have stuck to their hairy coverings. When the mass got large enough to be felt as a tangible body it would become an annoyance to be removed by picking it away, shaking it off, or brushing it off against shrubbery. To make sure that it was not something good to eat it would be tested by taste and smell. In places most easily reached by the tips of the fingers the danger would be the greatest of its reaching the tongue. In clinging to the teeth its danger would be exceedingly great. There it would find warmth and moisture—the ideal conditions for multiplication of disease germs into a dangerous dose. Without keen sensitiveness of the tongue to minute particles of infective matter clinging to the teeth there would be no incentive to having a clean mouth. Liberally as we are endowed our sensitiveness to touch by our tongues does not discriminate with as much keenness as would be to our advantage. Health is often impaired by dirty teeth. Imagine what it would be but for the delicacy of touch on the part of the tips of our tongues. The touch spots, as distributed over the body, diminish in numbers over any given area inversely as the danger was from infection among our hairy ancestors. What, if not natural selection, could ever have given us any such distribution? That natural selection could and would have brought it about under such conditions seems a perfectly fair inference. The mouth is the portal of entry of fatal disease germs, the fingers by carrying food to the mouth carried these germs and the numbers carried were in proportion to the dirtiness of parts in relation to the ease with which the mouth could be reached by such dirt. The more sensitive natural selection left a part the more the danger subsided from that part. The less the danger of infecting the mouth by any part the less intense was the play of natural selection through that part.

The distribution of the heat and cold spots of the body is so difficult to determine with any great degree of accuracy that experimenters differ materially in their results. The sensations vary with the varying temperatures of the skin itself. To attempt to discuss the cause of a distribution that is known only in a rough way would, obviously, be futile. Prof. Morgan throws this down as a gauntlet for either Darwinians or Lamarckians to pick up, but he takes very good care not to offer any explanation of his own.[28] As the cold spots are more numerous than the warm ones we can infer, from a Darwinian standpoint, that primitive man suffered more from cold than he did from heat. The fact that the sensation of cold occurs immediately and that of heat gradually is further evidence of the greater selective value of cold.[29] The mucous membranes have poorly developed temperature sense as compared with the skin, another condition that agrees with the requirements of natural selection.[30] The entrance portals to mucous membranes maintain the cutaneous function for heat and cold.[31] This is decidedly in favor of natural selection. It protects the interiors by a guard at the door. This guard, strange to say, is epiblastic in origin and is, therefore, really a part of the skin, although appearing to be a mucous membrane.

Darwin, in his "Descent of Man," tells us that, "From the presence of the wooly hair or lanugo on the human fetus, and of rudimentary hairs scattered over the body during maturity, we may infer that man is descended from some animal which was born hairy and remained so during life. The loss of hair is an inconvenience and probably an injury to man, even in a hot climate, for he is thus exposed to sudden chills, especially during wet weather. As Mr. Wallace remarks, the natives in all countries are glad to protect their naked backs and shoulders with some slight covering. No one supposes that the nakedness of the skin is of any direct advantage to man, so that his body cannot have been divested of hair through natural selection. Nor have we any grounds for believing, as shown in a former chapter, that this can be due to the direct action of the conditions to which man has long been exposed, or that it is the result of correlated development." On the same page he adds a note giving the following as the views of Mr. Wallace upon this subject: "Mr. Wallace believes 'that some intelligent power has guided or determined the development of man,' and he considers the hairless condition of the skin as coming under this head. The Rev. T. R. Stebbing, in commenting on this view remarks that, had Mr. Wallace employed his usual ingenuity on the question of man's hairless skin, he might have seen the possibility of its selection through its superior beauty or the health attached to superior cleanliness. At any rate, it is surprising that he should picture to himself a superior intelligence plucking the hair from the backs of savage men (to whom, according to his own account, it would have been useful and beneficial), in order that the descendants of the poor shorn wretches might, after many deaths from cold and damp in the course of many generations, have been forced to raise themselves in the scale of civilization through the practice of various arts, in the manner indicated by Mr. Wallace."[32] The explanation which Mr. Darwin himself offers is that of sexual selection. It is exceedingly questionable whether a female anthropoid ape would deem hairlessness beautiful and sufficiently so as to be willing to desert all males with a covering of the kind that was to them "fashionable." In such matters habit constitutes the criterion of beauty. Esthetics deal with harmony or symmetry. The intense dislike that we all possess against being odd, eccentric, or unlike others, is not due to any sense of beauty but to habit. It is a kind of conservatism. For a hairy member of a hairy race to vary toward unhairiness would, probably, be deemed the reverse of beautiful. If the hair should disappear asymmetrically it would be looked upon as hideous, and any member of such a community changing in this way would be considered a freak to be avoided. Among negroes, as Darwin tells us, the black, thick-lipped man is chosen as the beautiful man. The blacker he is the more beautiful he is thought to be. The negro's sense of symmetry cannot differ much from our own, but his race habits, in this particular, are quite unlike ours. Had either Darwin or Wallace known of the intense struggle for existence that is going on between microorganisms and the higher forms, it is hardly likely that they would have surrendered to

the enemy in the way they did. The problem, owing to the lack of knowledge of their time, was absolutely irreconcilable with those forces of natural selection known to them. Being unable to defend the true explanation they sought out makeshifts, and as a result none of the great leaders could agree among themselves. They were completely baffled by the situation, and what was really a remarkable adaptation for saving life was looked upon by them as a maladaptation due to some other cause than a survival of fitness. Besides, there are adaptations for the survival of the microorganisms of disease that are just as important for them as ours are for us. We have no monopoly of acquiring fitnesses. Nature is as careful of the microbe as of man. Both are subject to the same law.

Prof. Theobald Smith tells us that "The parasite must find an unguarded entry or one which yields readily to its efforts. It must have a means of defense within the body, and it must finally reach the exterior to enter a fresh subject. * * * In that exquisitely parasitic, highly specialized group of microorganisms producing the eruptive diseases the final process is carried on in the skin. In these diseases the mechanism of escape is the most perfect."[33] It is quite evident that this "most perfect" mechanism of escape is of supreme importance to the germ. What about its relation to us? If the germs found their escape barred by some great difficulty, would it not seem to be to the benefit of both to have it removed? If certain death faced us through keeping the germs within us, would it not be a decided advantage for all who were attacked to have as easy a method as possible of getting rid of them? This highly specialized group get out of us by way of the skin. If we must harbor them, is it not best that the skin lets them get out with the least possible resistance which would, naturally, mean the least possible damage to ourselves? Our thin and hairless skin lets them out easily, but what about the hairy skins of our hypothetical ancestors? Before these microorganisms were quite as highly specialized as they now are how did they and their hosts fare? Let us see how we fare even now after generations of selection. In one of these diseases, dermatitis exfoliativa, "the eruption begins in one or more localities, most frequently on the extremities, the face, or scalp, with diffuse erythematous or papular patches. * * * After three to eight days there follows a stage of exudation and desquamation, lasting from three to eight weeks. By the confluence of the original patches a large portion of the entire body presents a crimson surface of thickened and indurated skin, continually shedding scales or flakes of epidermis of various sizes, two or three pints sometimes being collected in twenty-four hours. * * * After a certain time the inflammation subsided, the skin still remaining thickened, with a brown, polished appearance, sometimes with painful fissures. The hair and the nails were invariably lost, and did not grow again for several months. * * * Relapses were a common feature, as many as nine having been observed in one case. Aggravated symptoms from the alimentary tract, albuminuria (in about 50 per cent. of the cases), weakness of the heart, lung troubles, or the marasmus, brought on a fatal result in about one-tenth of the cases."[34] Try and picture such a disease as this getting a start among hairy creatures such as the original progenitor of man was. What havoc it would produce among them. The pulling out of the hairs would necessarily add to the mortality by adding to the number of suppurating sores containing the germs of the disease or by terminal infections due to streptococci. The so-called "mange" cannot approach it in severity. Destruction of life, at first excessive, would gradually subside as immunity was acquired. Since both males and females, in great numbers, could be attacked in an epidemic of this kind, it is quite clear that there would be intermarriages of the recovered ones. *Any variations in the germ and sperm plasm would be of a somewhat common character, and the intermarriages would intensify the same and give us mutations.* As the disease is a lingering one the sufferers from it would be the "lepers" of the "society" of that time. It is more than likely that they would be avoided as dangerous, and so compelled to seek homes away from the rest of their race. With so severe a disease natural selection would, necessarily, eliminate all of those with the heaviest hair first and then keep lessening the hairy covering by preserving those whose cases were least severe—those most nearly hairless. In the quadrumana "the hair is always longer or more dense along the spine or middle of the back from the nape to the tail, often rising into a crest of hair or bristles on the ridge of the back," and, "as this character prevails through the entire series of the mammalia, from the marsupials to the quadrumana," we can see in this exactly how the hair "has disappeared more completely from the back than from any other part of the body."[35] These are the facts that puzzled Mr. Wallace and caused him to say that, "It seems to me, then, to be absolutely certain that 'Natural Selection' could not have produced man's hairless body by the accumulation of variations from a hairy ancestor."[36] The long, dense hair of the back and spine would create the most dangerous lesions during desquamation and so kill off most rapidly those that failed to vary in the direction of less hair, shorter hair, and less coarse hair. Woman is less hairy than man. While caring for the ailing, and nursing her children in dark caves or huts, she would be far more constantly in contact with the desquamated skin and the germ-discharging suppurating sores. Her dosage would be larger and she would be longer subjected to the same. While she would be eating stored food exposed to the pus discharges and exfoliated particles of skin he would be using fresh food from forest or field. In these conditions we likewise can see a possible explanation for the existence of that form of the disease known as dermatitis exfoliativa neonatorum.[37] Natural selection would be less severe on infants because of the less coarse character of their hair. Their immunity would, therefore, be slower in reaching completeness than in the case of the mothers. Generations of cultivation confined to babies would tend to produce a strain particularly adapted to them. Women are most immune, as would be expected from the complete way the disease must have acted upon them. The various types of this class of diseases behave exactly as if due to different strains of an originally identical kind of germ. Our lack of hair, and particularly its complete absence from the spine, woman's hairlessness and the exposure she would have had, man's present greater susceptibility to the disease, and the imperative deduction of natural selection from this viewpoint, if all mere coincidences, certainly are extraordinary ones. Quite naturally no amount of evidence could sway those who would call this a "disgusting" or a "disagreeable" conception of man's origin. Where feeling is placed in advance of fact,

fact must give way every time. It has ever been thus. The modern Nathaniels are in no way different from the ancient ones, and so they continue to ask, "Can there any good thing come out of Nazareth?"

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THE ACETONE TREATMENT OF INOPERABLE CARCINOMA.

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Gellhorn of St. Louis published his first paper on the treatment of inoperable carcinoma of the uterus by acetone, in the *Journal of the American Medical Association* of April 22, 1907.

At that time we had in the New York Polyclinic Hospital, in the service of Dr. Brooks H. Wells, with whom I am there associated, a patient with advanced cancer of the cervix. This woman in consequence of the fetor, sepsis, pain, and hemorrhage incident to her disease was in a very miserable weak condition and had been brought into the hospital on a stretcher. Acetone was used in this case with most gratifying results, the fetor, sepsis, and hemorrhage being relieved so that the woman gained rapidly in strength, weight, and color, and after five weeks was able to return to her home on foot. We have used the acetone since in fifteen cases with very satisfactory results.

Favorable reports on the use of acetone have been published by Polano of Wurzburg, Hëckel of Greifswald, Sémon of Danzig, Dorset & Taussig of St. Louis, and Mair & Fisher of Philadelphia. As I have been unable to find anyone in New York who has published any report of its use, I wish to call your attention to its value and to the indications and method of its use.

Patients with inoperable cancer have derived but little benefit from the remedial agents mentioned in literature. Thyroid feeding, trypsin, calcium carbide, electricity, the cancorin of Adanikrewicz, injections of various sera, or of irritating substances such as alcohol, acetic acid, corrosive sublimate, methyl violet, venom of cobra di capello, oil of turpentine, and arsenious acid. With the exception of the Roentgen rays and trypsin, which aspired to radical cure, all of these modes of treatment merely aim at making the patient's life endurable as long as it lasts.

The primary objects were and still are to reduce the weakening hemorrhages, lessen the septic absorption, and to check the intolerable stench of the discharge. Kuestner and Gottschalk devised an artificial occlusion of the vagina as a last though but temporary resort. The distressing odor, which really constitutes the most formidable symptom of the disease, led Gellhorn to look for something that would suppress it, and he found acetone.

Acetone is a transparent, colorless, mobile, and volatile liquid of a characteristic ethereal odor and a pungent, sweetish taste. On the skin it causes a sensation of cold. It is used in the laboratory for hardening tissues. In it the tissues shrink so rapidly owing to its hygroscopic qualities, that if left in the fluid for more than half an hour, they are too hard for the microtome knife. It was this hardening property of acetone which led Gellhorn to its use. He found the ulcerating surface of cancer could be hardened *in vivo*, the discharge being checked until the escharotic portion would be cast off. The resulting free surface could then again be hardened and occasionally it was possible to harden deeper portions or even the entire tumor, thus rendering the growth temporarily harmless.

The acetone treatment is indicated in any inoperable case of cancer of the uterine cervix, or of the surface of the body, in which the breaking-down area can be submitted to its action. The treatment should, if possible, be preceded by a thorough scraping out of the ulcerating area under anesthesia, otherwise the acetone is uselessly spent in hardening dead tissue. The curetted cavity or crater is then carefully dried with gauze sponges and one-half to one ounce of acetone is poured into it through a Ferguson or other tubular speculum. For this purpose the pelvis of the patient must be raised as in the Trendelenburg position. The narcosis is now interrupted and the patient left with elevated hips for fifteen to thirty minutes. Next the acetone is permitted to run out through the speculum by lowering the pelvis of the patient and the cavity is packed with gauze soaked in acetone. The healthy mucosa of the vagina and vulva are cleaned with sterile water and a dry tampon is inserted into the vagina to absorb any excess of acetone.

After the preliminary curretage and cauterization the regular treatment requires no further hospital care, is administered twice or three times a week beginning the fifth day after the operation, is

done without narcosis, and may be given with the patient in bed or on the examining chair in the office. The pelvis of the patient is raised and the tubular speculum inserted into the cancerous cavity. With progressive diminution of the crater, smaller specula are employed. The speculum is filled with acetone and held by the patient for half an hour and then emptied by lowering the pelvis. Care should be taken to prevent the acetone from running over the vulva or perineum. The normal vagina is not affected by acetone but on the vulvar mucosa and outer skin acetone produces a faint, whitish discoloration and an intense burning sensation which soon disappears and may be immediately relieved by the application of cold water. If vaseline is applied to the vulva, lower part of the vagina, and the speculum and after the acetone has run out the cavity is swabbed dry and a cotton tampon coated with vaseline, is introduced into the vagina before the speculum is withdrawn the intense burning sensation is prevented. The tampon is removed by the patient in a few hours.

The immediate effect of this simple procedure is to check any bleeding. The surface of the crater becomes covered with a white film. Wherever there has been an extravasation of blood, the discoloration is light brown. There is a marked reduction in the intense odor, the discharge at first becomes watery and soon disappears. With it disappears the former stench, and at the same time hemorrhages fail to recur, and after two or three weeks treatment a considerable diminution in the extent of the wound cavity is noticeable. This has been confirmed by several observers. The walls of the cavity become smooth and firm so that the finger cannot remove any friable tissue. Occasionally owing to this fact the preliminary curettage may have to be repeated.

Because of the checking of the weakening hemorrhage and discharge and the elimination of necrotic tissue and toxins, the general condition of the patient improves rapidly. Sensations of pain caused by the extension of the cancer to adjoining organs or nerve trunks beyond the reach of the acetone are not relieved; these require, as before, anodynes. However, they require less and can often be relieved by aspirin.

Gellhorn did not, and we have never been able to, find acetone in the urine of patients treated by us. Maier of Philadelphia, in one of his patients, was able to find a large quantity of acetone in her urine several hours after treatment.

The patients on whom acetone was used had passed beyond the reach of any radical operation and in some cases the cancer had consumed the greater part of the cervix and vagina. The treatment, in a simple and harmless way, has given these patients a period of comparative ease and comfort. Acetone is probably not applicable to cancer of the lower vagina and vulva, because of the pain it produces. We have had no experience with the salt of acetone, acetone bi-sulphite, which Gellhorn has just advised for use in these cases. It gives off pure acetone in contact with the wound secretions. He says its action is only slightly inferior to acetone. (1) Gellhorn, *Journal of Obstetrics*, May, 1909).

I am able to report also one case of cancerous ulceration of the surface of the body treated by acetone; a cyst of the back, which had broken down and become cancerous, in a woman 74 years old. This was completely healed by acetone. I want to thank Dr. Brooks H. Wells for his kindness in allowing me to report certain of his cases with mine.

The case reports following are selected as being typical of the conditions in which acetone is useful and of the results to be expected from its use.

Case I.—Mrs. B., aged 47, was admitted to the New York Polyclinic Hospital, service of Dr. Brooks H. Wells, on May 1, 1907. The patient was brought into the hospital on a stretcher in a very critical condition suffering from profuse hemorrhages from the vagina brought on by any slight motion, as coughing or turning in bed. There was a necrotic discharge which produced an odor unbearable to the other patients in the ward. Her temperature was 102°. She was very septic, pale, thin, and weak. On examination there was found advanced carcinoma of the cervix with a very large and deep necrotic cavity. Under ether anesthesia the cavity was scraped out and packed with gauze soaked in acetone. Gauze removed in twelve hours and replaced with fresh acetone soaked gauze. There was no bleeding, a slight brownish discharge, no odor. May 5. Some bleeding on wiping out the cavity which was stopped by acetone applied through tubular speculum. No odor. Temperature normal. Appetite good. Patient feels much better. June 7. Acetone applied through speculum every second day. No bleeding, odor, or discharge. Appetite fine. Has gained remarkably in strength and color. Discharged from hospital and went to her home in Vermont, where the acetone was continued by her physician. On October, 1907, he reported that Mrs. B. was in very good condition, attending to her home duties and not troubled by hemorrhage, discharge, or odor.

Case II.—Harlem Dispensary. Mrs. A., aged 42. Had been bleeding from the vagina off and on for six months with profuse stinking discharge, loss of appetite and weight; has complained of pain in lower abdomen for one month. Examination showed a large friable cauliflower-like cancerous outgrowth from the cervix uteri with involvement of anterior vaginal wall and left parametrium. July 1, 1907, a thorough excochleation was done. There was free bleeding, which was promptly stopped by the application of acetone. The cavity left after the scraping out was packed with gauze soaked in acetone. During the month acetone was applied through the tubular speculum every other day. No odor. No hemorrhages. No pain. Menses normal. Appetite good. General condition improving rapidly. August. She comes two or three times a week for treatment. Slight watery discharge. No odor. No bleeding. September. She attends to family and does washing. October. Appetite and general condition good, cavity 2 inches deep; walls hard. No bleeding. No odor. November. Cavity smaller; walls hard. No odor. Works regularly. February, 1908. Complains of pain, but is relieved by aspirin. Looks well. No discharge. May. Cavity about an inch deep. No odor. No blood. Requires morphin at times. June 30. Died of uremia from pressure on ureter. No odor or hemorrhages up to time of death.

Case III.—Mrs. B., aged 45. Patient had been treated by a physician for six months for hemorrhages and a stinking discharge, but no physical examination had been made. She was finally told that she must have a tumor and had best go into a hospital. August, 1907. On examination a tumor was found which extended above the level of the

umbilicus. In the upper part of the vagina was an irregular cavity the size of an apple involving all of the anterior lip of the cervix and extending up into the tumor. A diagnosis was made of fibroid uterus and carcinoma. The cancerous cavity was thoroughly cleaned out with a sharp curette and packed with gauze soaked in acetone. Treatment was continued by application of acetone through a tubular speculum at first every other day and later twice a week. October. No bleeding. No odor. Slight watery discharge. No pain or bleeding on coitus. Attends to home. Walls of cavity hard and firm. December. Husband took her West where she died.

Case IV.—Mrs. R., aged 28. Had borne seven children in eight years, the youngest being fifteen months old. No miscarriage. Menstruation began at fifteen and was normal. For one year she had been bleeding irregularly. For six months she had had a stinking vaginal discharge and because of this her husband had deserted her. Had some pain on micturition. Had lost weight and strength. June 9, 1908. Examination showed extensive carcinoma of cervix, anterior lip gone, and involvement of anterior vaginal wall and bladder. The sloughing, bleeding cavity was cleaned and acetone thoroughly applied. Bleeding was promptly stopped by the acetone. July 1. Patient returned for treatment; has had no bleeding until a week ago; odor has just returned. Examination at this time showed the cervix destroyed except for a small piece of the posterior lip, both anterior and posterior vaginal walls being involved. A large cavity extended to above internal os. She was taken to the Polyclinic Hospital and under ether the remains of the cervix were curetted away and the cancerous cavity scraped out, care being taken not to perforate the bladder or rectum. There was free bleeding which was stopped by acetone. Three days later acetone treatment was commenced at the Dispensary; cavity firm; slight brownish discharge; no odor. Two weeks later patient admitted that she was supporting herself by prostitution. No discharge; no odor. Patient remained under treatment irregularly, once or twice a week, all summer and during this time had no odor, discharge, or hemorrhage. Had to take ½ gr. morphine daily to relieve pain. In October was sent to Home for Incurables by her brother as she had no means of support.

Case V.—Mrs. C., aged 52. She had never been pregnant and her menstruation had never been more than an irregular show. In January, 1906, a surgeon amputated her cervix for a "growth." This operation was followed by a vesicovaginal fistula and she was sent into Dr. Wells' service at the Polyclinic. He operated but could not secure healing of the wound. A second operation was done by turning a cuff of the vaginal mucosa over the opening and thus closing the vagina. This failed to close completely a pin-hole opening being left. It was noted that the tissues were very friable, but there was no suspicion of cancer and a histological examination of the tissues was not made. In September, 1908, she came to me at the Harlem Dispensary with carcinoma involving the vaginal septum and the posterior vaginal wall. The finger could be passed through the septum into a cavity made up of bladder and vagina covered by firm, friable tissue from which came a stinking discharge mixed with the urine. Acetone was applied, the discharge lessened, and in a short time the odor disappeared. The patient was made comparatively comfortable. The acetone seemed to have no ill effects on the bladder. In October friends sent the woman to the Home for Incurables.

Case VI.—Mrs. G., aged 48. Came into the Harlem Hospital Dispensary in July, 1907. She had had three children and two miscarriages. Menstruation always irregular but without pain. She had been flowing on and off for seven months and had been told by her physician that it was the "change of life." For one month she had had a profuse, foul, and stinking discharge. Examination showed a carcinoma which had destroyed all of the cervix but a narrow rim, leaving a cavity the size of half an egg, extending into the uterus. Parametria thickened. Cavity curetted and packed with acetone-soaked gauze. Odor disappeared after the first treatment. Three weeks later the cavity was much smaller; walls firm; no bleeding; no odor; and only a slight watery discharge. Attends to her household duties. Has slight pain which is controlled by aspirin.

Case VII.—Patient of W. J. Furness. Mrs. F. 74 years of age, was operated on for a cyst of the back. The surgeon failed to remove all of the growth which later broke down leaving a large necrotic cavity over the region of the scapula. The odor from this was unbearable. Histological examination by Dr. Jeffries, Pathologist of the Polyclinic, showed carcinoma. I suggested acetone, which was applied and stopped the odor at once. After a few weeks of treatment the wound completely healed. Later the cancer recurred in the axillary glands which were removed at the Polyclinic. She is now in the Lebanon Hospital with a recurrence.

Case VIII.—Mrs. S., aged 40. No children. No miscarriage. Menstruation regular. Operated on two years ago for cancer of womb; uterus removed per vagina. Recurrence six months ago in the scar at the top of vagina. Treated by thyroid extract internally, *x*-ray over abdomen, and radium in the vagina. After the treatments she would have when she got home a profuse hemorrhage. This occurred after each treatment and was so severe at times that she had to be packed. I saw her; an examination revealed a carcinoma size of an apple at the top of the vagina. In the center of the growth was a hole through which the finger could be passed into a large cavity. The growth was curretted thoroughly, care being taken not to puncture the rectum. Bleeding was stopped by the application of acetone. With treatments every other day she was made so comfortable that she was able to enjoy life. No odor; no more hemorrhages; discharge very slight and watery. Four months later a fecal fistula formed from involvement of the rectum. Acetone treatment relieved her and kept down the odor, until her death a month later. For six weeks before her death she required morphine for pain.

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Death of Unexposed Interstitial Fibroma.—P. Begouin states that nodular fibromata, purely interstitial, may undergo an aseptic destruction by blocking of the single branch of the uterine artery that supplies each nodule. This caused a destructive degeneration of the growth that is not true gangrene, since no germs are present, but is of the nature of sphacellation. The author has had such growths removed and examined bacteriologically, and no microorganisms were found to be present. These growths are entirely shut off from contact with the air, and there is no method of access for bacteria. But if the artery supplying them is blocked by a thrombus they undergo death and degenerative changes.—*Journal de Médecine de Bordeaux.*

THE DIFFERENTIAL DIAGNOSIS BETWEEN CERTAIN FORMS OF TERTIAN MALARIA AND ENTEROGENIC INTOXICATION.

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When we fail to relieve the little symptoms—the minor deviations from health which so often limit working capacity—criticism is apt to arise. Patients presenting themselves with malaise, headache, and other inconclusive symptoms are likely to be treated symptomatically and the precise diagnosis suspended. If one can reach the exact trouble, appreciation will reward the effort.

To realize the confusion which has arisen between the two conditions under discussion, one has only to live in a quasimalarious district and encounter many people fruitlessly taking quinine, either on their own initiative or at the suggestion of some physician. The next step is the nostrum. How many patent medicines are there advertised to cure both malaria and "biliousness!" The irony of this situation is best ilustrated by the fact that "Indian Cholagogue" is considered a most effective remedy for malaria in this district.

It will be well to define terms. Those who have had experience with tertian malaria will recognize the fact that hardly half of the patients in whose blood the *Plasmodium malariæ* can be demonstrated present the classical symptoms of chill, fever, and sweat on alternate days. Any one or all of these symptoms may be held in abeyance. It is in the less typical types, which are frequent, where mistakes in diagnosis are likely to arise.

The serious varieties of enterogenic intoxications, in which the bacterial floræ effect a complete change to anaërobic types, such as in certain anemias, are not at present under consideration, but the more or less transient varieties. I have come to regard this class as suffering from putrefaction in the bowel, not so much because they eat a surplus of nitrogenous food—for many of them do not—but because they eat more than their digestive powers can handle. The relation between the intake and digestive capacity is disturbed. This does not presume a complete alteration in the bacterial content of the bowel to anærobic types, but simply that the normal intestinal bacteria can intoxicate if they are presented with digested nitrogenous food which is unassimilated.

It will be noticed that the pathway marked out is a very narrow one, and more so perhaps than our knowledge warrants; but there are very good reasons for presenting it in this fashion. In the first place, the *Bacillus coli communis* does not attack native protein, if there is anything else on which it may act, but it does attack and disintegrate albumen conglomerates which we are in the habit of calling "peptones" and carbon nuclei. The anaërobes have the power of attacking native protein, but only with difficulty without the assistance of aerobes are they able to elaborate carbon nuclei fractions like indol. If, then, a patient presents himself with symptoms which can be positively traced to "indicanuria," we are either driven to the assumption that there has been a sudden complete reversal of the bacterial flora to anaërobic types, or that semi-digested and unassimilated food has been attacked by the usual inhabitants of the bowel. The quickness with which some of them get well under appropriate treatment argues in favor of the latter assumption. In the second place, the protein molecule fractions (peptones and carbon nuclei) are themselves capable of producing enteritis. This has been proven so many times, clinically and experimentally, that further discussion of this point is unnecessary. It is entirely conceivable that the integrity of the pancreatic secretion may be maintained and still a semi-catarrhal condition of the small intestine persist—sometimes for a long period—sufficient to prevent absorption. Probably it was this state of affairs which Sahli had in mind when he insisted that the presence of indican in the urine presupposes some degree of pancreatic activity. With these facts in mind, the differential diagnosis will not be difficult to carry in mind.

In no two conditions are the subjective symptoms so misleading as in chronic malaria and chronic "biliousness." If they are depended upon to give the proper lead, three-quarters will be wrongly diagnosticated. Both may be attended by headache of much the same type, nausea, and a feeling of *laissez-faire*. There is also a lack of ambition, inability to work or concentrate the thoughts. If the patient goes to the theater, he despises his own energy, no matter how good the play. At times there is a feeling of self-hate and irritability approaching hypochondria. At other times the deviation from health is so small as barely to be noticed. The only element which may help in the differentiation is that of periodicity. If this is marked, the diagnosis will lead toward malaria; but as a symptom it must not be depended upon.

A history of similar troubles in other members of the family, showing exposure to similar infection on the one hand, or similar habits of life on the other, will not help. If there is a distinct history of chill, fever, and sweat in previous years, there is probability that the infection with malaria may have existed in latent form. To be of value, the history of such an occurrence should not show an infection older than three or four years unless there have been periodic outbreaks of a similar nature. The tendency to eat hurriedly, a relative excess of meat or acid foods, or the habit of excessive activity after eating, will tend toward a diagnosis of enterogenic intoxication. It has not been my experience that chronic malaria shows itself in acute exacerbations to any extent in the winter or spring months. Suspicious cases usually turn out to be "spring fever."

The bilious sclerotic, or yellow, sallow skin, may accompany either condition. The familiar blue appearance of those suffering from subacute malaria rarely is found in enterogenic intoxications. In both the tongue may or may not be coated, or there may or may not be eructations of gas and acid. The acidity of the gastric juice cannot be held as a criterion, as there may be indicanuria with an acidity or hyperacidity. If the liver is enlarged, the diagnosis leans toward enterogenic intoxication; but more often it is not enlarged. Enlargement of the spleen points towards malaria, but even in some of the most chronic forms it has not been my experience to find palpable spleens. In enterogenic intoxications it is often possible to feel solid masses of feces at various places along the large intestine, or hardened scyballous enteroliths if the abdomen be thin and flaccid. In about a third of the cases, particularly of the more acute forms, a spot of

maximum tenderness will be found over the head of the pancreas. The appendix is often tender, and there may be chronic appendicitis. If the appendix is not involved, the sympathetic ganglia internal to the appendix will not be tender.

Without discussing the microscopic or fermentative properties of the stools in enterogenic intoxications, it is possible to gain many diagnostic points from their macroscopic examination. The following features will often, but not always, be noted: There may be well-defined strata of material differing from each other in consistency, color and the presence of mucus and other anomalies, the first part of the stool having a tendency toward hardness and the latter part to formless softening. This is particularly true of those cases which resemble the first week of typhoid in their behavior. A more or less homogeneous stool, accompanied by mucus, of light color, and giving out a foul odor, is also characteristic. A perfectly normal person should pass stools with practically no odor and its presence in excess indicates putrefaction.

To place any reliance on the symptom of constipation without further investigation will lead to error in judgment. The constipation of rectal hypertonus rarely of itself leads to enterogenic intoxication. It is more common to hear these patients say that they have two or even three stools a day than it is to hear them say that they are constipated. Each may be present without the other.

In the types of malaria under consideration there is little change in the urine except when the fever is high. In that event the urine is similar to that passed during the course of any simple fever, with high concentration, precipitates of urates and sometimes (though rarely) a trace of albumin. In enterogenic intoxications there are characteristic changes. It is apt to be of high specific gravity (except when complicated by contracted kidney), high colored, and hyperacid. When the intoxication manifests itself in an acute manner or has extended over some time, a trace of albumin almost invariably can be detected with the picric acid test or even a marked trace with Heller's test. Further evidence of the kidney irritation is to be found in the accompanying hyaline and granular casts, which are usually quite numerous. If the kidneys have previously passed urine free from albumin, these symptoms will decrease as the patient recovers. The presence of indican and other products of bowel putrefaction in the urine needs special consideration. In this kind of protein poisoning (*i.e.* the kind not occurring as the result of specific infection of the intestinal contents) the indican test with Obermeyer's reagent is very dependable. My experience coincides with Anders, who recently said (*Archives of Diagnosis*, April, 1909), that there is an increase in the indican reaction in practically all cases. (Houghton, *American Journal of the Medical Sciences*, April, 1908.) It will correspond to 100 or over on Otto Folin's scale. Oftimes the reaction with Ehrlich's aldehyde (dimethylamidobenzaldehyde-para) indicating phenol does not show an increase. In the absence of both of these reactions, one may feel that the bowel is in a hygienic condition. On the contrary, the presence of an excess of indican is presumptive evidence of protein poisoning, whether the malarial organism is found in the blood or not.

Simple hemoglobin decrease may be found in both conditions, but is more frequent in malaria of the chronic type. The presence of the *Plasmodium malariæ* detected in the red cells by the microscope is conclusive, whether the indican of the urine is high or not, and calls for the administration of quinine. It is reasonably certain, on the other hand, that if the organism is not detected after two or three careful searches, that the patient is not suffering from malaria, but is, if the indol excretion is large, a victim of enterogenic intoxication. It has been demonstrated that the peripheral blood may not show the plasmodium, while blood from the spleen does. Such cases must be rare, however; for in my series, when such a condition has been suspected, the disease has turned out to be something else. The plasmodium of malaria does not affect the leucocyte count nor alter the differential count to any appreciable degree. In severe infections, there may be a slight mononucleosis, with some hemoglobin destruction. In enterogenic intoxications the picture is always different, betraying its septic nature. In severe grades with fever, and probable involvement of the mucosa, the leucocyte count may show as high as 20,000. To differentiate in such a situation between enterogenic intoxication and appendicitis or gall-bladder disease sometimes requires a high grade of diagnostic ability, many cases of so-called catarrhal appendicitis being no more or less than severe intoxication from putrefying intestinal contents. In the milder forms the leucocyte count rarely reaches 12,000, and in the mildest forms it may be normal. The differential count will oftentimes show a relative increase in polynuclears. If there is an eosinophile increase, hookworm or some other macroendoparasite should be suspected immediately.

The presence of malaria in the blood does not seem to alter the arterial systolic pressure, unless the condition has existed long enough to cause a slight simple anemia and secondary hypotension. With enterogenic intoxications, however, the conditions differ somewhat and require some explanation. It is possible to differentiate two kinds of people who habitually suffer from this trouble. The first is found almost exclusively in women, probably resulting from lack of general tone, deficient digestion and exercise. Among them neurasthenic symptoms predominate. The second, found in both men and women, belong to the plethoric and overfed who live sedentary lives. In the former class decrease of the indican reaction will be accompanied by a rise in systolic arterial pressure from possibly 95 mm to normal, and ergot will help in the cure. In the latter, there is apt to be hypertension, particularly if there are evidences of kidney insufficiency or irritation, or the process has extended over some time. The pressure will often register as high as 140 mm. Should it go above that point, one may feel sure that there is a complicating contracted kidney, or abdominal arteriosclerosis. The pressure, of course, may remain normal, either with or without kidney involvement.

Fever may be present or absent in both conditions. In malaria (of sub-acute or chronic types) the temperature changes are gradual, rarely go over 102° and the changes show a tendency to diurnal periodicity. The relation of the temperature to the pulse rate follows the "normal" course, as shown by other infectious diseases. The reverse of this is usually true in enterogenic intoxications. The temperature is higher than the pulse rate would seemingly call for. The tendency to sudden changes in temperature, particularly in children, is very great. One hour will show it as high as 103° and the next

as low as 99.5°. It may rise or fall several times during the day or show a marked remission after the passage of a large stool. The "febriculæ" of children and of the puerperium in a large majority of cases is due to the fact that the bowels have not been sufficiently cleansed.

In a goodly percentage of cases the two conditions occur simultaneously, as shown by the examination of the blood and the urine, probably bearing no other relation than that the fever of the malaria may diminish the secretion of the digestive juices. Where the two are combined, many cases of malaria will not yield to quinine until the liver and intestinal conditions are treated.

Positively do dependence can be placed on the fact that massive doses of quinine temporarily relieve the symptoms of enterogenic intoxication. There is ample evidence to show that quinine will produce a favorable temporary effect, either by stimulating the secretion of digestive ferments, restricting the activity of intestinal bacteria, or increasing oxidation (detoxicizing) capacity. The symptoms under these conditions will rarely be permanently relieved and recurrence will follow in a few days. For this reason there are many people who have become habitual users of quinine, thinking they have malaria. Osler has said, "The physician who at this day cannot treat malarial fevers successfully with quinine should abandon the practice of medicine." True malaria of the tertian type always yields to quinine, and if the symptoms persist after its intelligent use, that of itself is sufficient evidence that a mistake in diagnosis has been made.

Finally, it must be noted that few cases of indicanuria can be cured so long as the patient remains on the diet or pursues the habits of life which caused it, or by the simple exhibition of calomel and soda. As long as the excess of indican persists in the urine, the intestines are in an unhealthy and unhygienic condition and need attention.

SPASTIC CONSTIPATION, A SYMPTOM.*

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In past decades, chronic constipation was classed as a separate disease and treated as such, very little attention being paid to its varieties, or to its causation, direct or remote; but more careful clinical study has established the causative relation of many diseases to chronic constipation, and the number of cases which are being diagnosed as genuine idiopathic constipation is becoming smaller and smaller.

Two general types of chronic constipation are now recognized, viz., atonic and spastic, which differ in their symptoms, and are amenable to an entirely different plan of treatment; but even now current medical literature affords very little information concerning spastic constipation and its treatment. As the name implies, spastic constipation depends upon a spastic contraction of the longitudinal and circular muscular fibers of the intestinal wall, caused by irritation or inflammation. An analogous condition to this is seen in the obstinate constipation and colicky pains of chronic lead poisoning; in which condition, the splanchnic inhibitory nerves of the intestinal ganglia are believed to be paralyzed, and permit of a hypertonicity of the intestinal muscular fibers. Spastic constipation is much more apt to be encountered in nervous, high-strung individuals, and occasionally cases have been reported which seemed to have no other cause except a neurosis.

It also appears that irritation in the uterus, bladder, or prostate, may excite, reflexly, acute attacks of spastic constipation, when no anatomic changes are demonstrable in the intestine. Anal fissure or ulceration of the rectum or colon may also present this symptom. Spastic constipation very often develops upon the basis of an atonic constipation, which may have existed for years, and in this case generally marks the oncome of catarrh of the colon. It is this phase of spastic constipation that I have met with most frequently and to which these remarks are chiefly directed. I can heartily agree with Dr. Crummer of Omaha in his epigrammatic statement that "In the medical wards of the Vienna General Hospital the most frequent diagnosis written on the slate at the bedside is 'M.C., morbus communis,' an euphonious name for tuberculosis, but in America, even as widespread as is tuberculosis, if morbus communis were used to refer to the most frequent disease, it would have to be another M.C., referring this time to mucus colitis."

On going over my case records covering the period of the last three years, I find there were 191 having catarrh of the colon alone or in conjunction with other disorders, and of these 191 there were 76 cases, or 40 per cent., who had spastic constipation, more or less pronounced, as a symptom. Any of the causes, then, of an atonic constipation, or a chronic colitis, may be the indirect cause of a spastic type, chronic colitis affording an excellent opportunity for the development of this enterospasm. The patient complains of periodical attacks of sharp cutting pain in the course of the colon, or radiating from the umbilicus, especially before the expulsion of gas or feces, and in the intervals more or less dull aching pain in the lower abdomen. These attacks may come on at intervals of several hours or days, or may be continuous for weeks at a time.

Laxatives if effective at all are only so in large doses, and then accompanied by considerable pain. I have seen a patient with this condition who had exhausted the list of milder purgatives and had come to the use of four compound cathartic pills every alternate night which only resulted in one very small movement and almost unbearable pain; in this case full doses of belladonna promptly effected a copious evacuation. If enemas are used, the water at once returns perfectly clear, or if it succeeds in passing the contracted segment, fails to return at all. The stools are generally insufficient in quantity, either hard or putty-like in consistency, pencil sized or ribbon shaped or scybalous, and accompanied by a larger or smaller quantity of mucus. The mucus varies in quantity from day to day, and may coat the surface of the stool as a sort of membrane, may appear like macaroni, the movement may be entirely made of mucus, or the amount of mucus in the feces may be so scanty as to require grinding in a mortar with water and placing in a black plate for its detection.

Patients often remark with amazement the small caliber and small quantity of the feces voided after so much effort and pain, like "the mountain delivered of a mouse." They also generally complain of a sense of incompleteness after defecation, and

*Read before Fulton County Medical Society, June 17, 1909.

of fullness in the rectum, though examination shows the rectum to be empty, whereas in the atonic form a sense of relief and well-being follows defecation. In accordance with the old idea that all constipation is atonic constipation, and requires stimulation by coarse food, patients often report that they have been faithfully taking dried figs, raw wheat bread, wheat bran, raw vegetables, and even sand, all of which promptly aggravated their condition.

On physical examination the ascending or descending colon and sigmoid, and sometimes the entire colon, may be palpated and rolled back and forth under the examining fingers as a hard rope-like structure, quite tender to pressure. On digital examination the rectum is generally empty of feces, and is felt to contract firmly on the examining finger. In typical cases of atonic and spastic constipation the differentiation between the two is easy, but inasmuch as one is often developed upon the other we may meet with transition stages which are confusing.

In atonic constipation there is no pain or excessive flatulence, no corded or tender condition of the colon on palpation, but it may often be felt filled with fecal matter; laxatives and enemata are effective in producing a stool. The stool is generally hard and of large caliber, sometimes goose-egg shape in rectal constipation, and no mucus is visible, except perhaps a shellac varnish appearance on the surface.

The subjective and objective symptoms of spastic constipation may simulate those of chronic appendicitis or gall-bladder disease if the enterospasm, pain, and tenderness is centralized in the cecum or the right segment of the transverse colon; indeed, these conditions coexist, not infrequently, in the same patient.

Spastic constipation may be continuous for months, or may come on at irregular intervals, the movements between times being atonic in type, and of large caliber, or more frequently they may take on a diarrheal character, especially after taking cold, or after gross errors in diet, but always accompanied by mucus.

Spastic constipation occupies the center of the stage in that peculiar malady of neurasthenics, mucous colic, the pathology of which is still a subject of dispute among authorities. Nothnagel and many others have held it to be a neurosis of secretion similar to attacks of bronchial asthma; while Paul Cohnheim and his school claim that all cases have anatomical changes in the intestinal wall as a basis, and the mucous colic and membranous enteritis are only different manifestations of a chronic catarrh of the colon, as influenced by a condition of neurasthenia. From 70 to 90 per cent. of the cases of mucous colic occur in neurasthenic, hypochondriacal, hysterical women, many of whom have a condition of enteroptosis, or some disturbance of the uterus or ovaries. This disease is characterized by sudden severe attacks of colicky pain and obstinate constipation, which may be accompanied by nausea, collapse, and subnormal temperature, which, in turn, is followed by the passage of large quantities of membranous mucus. The patient then experiences relief for a variable period of time, but may have other attacks after several days, weeks, or months. The mucus is opaque, leathery, and often is fashioned in a membranous tubular cast of the bowel, one foot or more in length. Microscopic examination of these casts shows no fibrin present, and its membranous character can only be explained by its long sojourn in the bowel, and the dessicating process which it undergoes. Repeated attacks weaken the patient, render her morbid and hysterical, and altogether it presents a condition most obstinate to treatment.

Successful treatment will, naturally, depend upon the discovery and removal of the causes, remote or immediate, in that particular case. The history of the patient should be carefully elicited, and a physical examination made which should include examination of the gastric contents, urine, and feces. All measures to regulate and strengthen the nervous system are, in general, to be employed to the fullest extent. Supervision of the personal hygiene in each case is therefore imperative, abundance of out-door life, rest after meals, regular and sufficient hours of sleep, the drinking of a proper amount of water, avoidance of violent exercise, or excessive mental strain. The general plan of treatment here outlined is also indicated in chronic catarrh of the colon, which is generally the cause of the spastic constipation.

Neither the coarse refuse diet of atonic constipation, nor the concentrated bland diet advocated by some for spastic constipation, are suitable, but a middle ground between these two. Food should not be too concentrated, and too completely digested, thereby promoting constipation, nor should it contain hulls and husks of vegetable fiber, fruit skins, berry seeds, gristle of meat, etc., nor should those foods be used which irritate chemically. Every mouthful of food which is swallowed by such a patient must be so selected, so prepared, and so masticated that it would pass without difficulty through a fine seive.

In a general way, if there be no special contraindication, we can use bouillon or purées without grease or tomatoes, young tender vegetables thoroughly cooked without grease, cream, sweet milk, buttermilk, fermented milk, tender boiled or roast beef, mutton, or chicken, boiled or broiled fish, well cooked crusty bread made from finely ground flour or meal, raw, soft-boiled, or soft-poached eggs, gelatin, butter, olive oil, stewed apples, peaches, prunes, baked apples, without sugar and all having been put through a seive and freed from all lumps, skins, and seeds. To be forbidden, are: coarse bread, oatmeal, all fried foods, pork, all potted, canned, cured, or smoked meats or fish, tomatoes raw or cooked, radishes, cucumbers, raw onions, cabbage, all raw fruits, figs, berries, nuts, all salads, pickles, condiments, sweets, pastries, cheese, alcoholics. Hot sitz baths, hot stupes on the abdomen, and hot carminative teas are often of value in the acute crises of pain.

General massage of the body and extremities is permissible, but massage of the abdomen is strongly contraindicated, as is also vibration and electric currents, excepting galvanism.

The galvanic current can be used to advantage especially in those cases which have no catarrhal colitis, but are developed upon the basis of a neurotic spasm. One should employ one of the types of rectal electrodes which is so protected that the metal tip does not come in contact with the mucous membrane, and the rectum and sigmoid being distended with saline solution from a fountain syringe; from two to ten miliamperes may be used for a period of five to ten minutes.

The most valuable single aid to treatment in this condition is the high colon injections of olive or

cotton seed oil; this method, described by Fleiner of Heidelburg, some fifteen years ago, has not been employed as generally by the profession as it deserves. The oil should be introduced as high as possible, through a colon tube, in quantities of six to twelve ounces, at bed-time, and should remain in the bowel all night; the patient should use this in the knee-chest position, or on the back, with the hips elevated. This treatment acts as a curative agent for the colitis, aside from the relief of the constipation. Belladonna and hyoscyamus, by mouth or rectum, and atropine hypodermatically, afford considerable relief to the patient by their effect on unstriated muscular fiber, and may be continued in the intervals between the acute attacks. The routine use of drug laxatives, without any attempt to discover or remove the cause, is criminal in any chronic constipation, and especially so in the spastic type.

In those cases where spastic constipation is a manifestation of catarrh of the colon, I have found that, however faithfully treatment is maintained, a condition of cumulative autointoxication and intestinal putrefaction arises in the bowel periodically every four to eight weeks, which can only be relieved by calomel purgation; fortunately, these attacks recur at longer and longer intervals, till finally they disappear. It may be necessary to employ gentle laxatives in combination with the other measures, in the beginning of the treatment. In those cases where dry scybalous stools persist in spite of suitable diet, etc., agar-agar with or without watery extract of cascara, may be used to advantage to cause a copious mushy stool. This was first suggested by Adolf Schmidt of Halle, and operates on the principle that when ingested with mushy food the dried agar-agar absorbs water, swells up and becomes slimy, passes through undigested, adds volume to the feces, and has no irritant effect, mechanically or chemically.

If enteroptosis is present, a properly fitting bandage should be applied. Divulsion or division of the sphincter ani is valuable as a remedial agent if a fissure or similar condition is located at the anus, but otherwise it is useless.

Pronounced cases of mucous colic, and membranous enteritis, as seen in neurasthenic or hysterical individuals, often require three or four weeks rest-cure, in connection with the other measures described above. In very obstinate cases of this kind, cecostomy, or appendicostomy has been performed, and colonic lavage performed through the fistulous opening, a closure of the fistula being accomplished by operation after recovery.

A CASE OF MONGOLIAN IDIOCY.

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On reading a report in the Medical Record of June 5, 1909, on the presentation of 14 cases of Mongolian idiocy by five members of the Clinical Section of the Royal Medical Society, I was struck by the absence therefrom of several interesting points, especially the irregularity of date of bone development in such cases. I make this absence my excuse for reporting an isolated case which I showed on May 4, 1909, before the German Hospital and Dispensary Clinical Society.

Family History.—In the parents of the young patient, whose photograph accompanies this article (Fig. 1), there is no history of cancer, tuberculosis, syphilis, or insanity. There is no consanguinity. Both have enjoyed much more than the average good health.

Personal History.—The patient himself is the youngest of three, the other two being normal individuals. His mode of life is that of most children of the slums. He recently had pneumonia, and is supposed to have had rickets in infancy. If he had rickets there are certainly at present no signs remaining. Though rickets is common in these cases of Mongolian idiocy or imbecility, or, as it is frequently called, Kalmuc amentia, I prefer to believe that in this case the so-called rickets was but the symptom complex of the early unrecognized Mongolian type. The mother noticed that when the child was two days old he could not suckle as had the other children. The father states definitely that the now existing cranial deformity and likewise the rickets existed at birth. The child first learned to creep when four, and to walk when four and a half. He never exhibited the slightest emotion until over four years old, when he became frightened at the sight of a street car. His teeth first appeared after the third year. The present teeth, except two upper and one lower incisor, still belong to the first set. They are all in a horrible state of decay, which started in shortly after the teeth appeared. Though nine years old, he is still unable to dress himself. He has not advanced beyond the kindergarten class of the public school. He plays around like a child of four. His mother considers him a good child. He always smiles and is good natured and sweet tempered. Tears are almost unknown. His hearing is good, but his sight is not of the best, or at any rate the powers of observation are very poor.

Fig. 1.

Physical Examination.—Mere superficial inspection shows he is imbecilic. He wears a perpetual grin, causing an abnormal wrinkling of skin for his

age. He is physically underdeveloped for his nine years. The circumference of his anteroposteriorly flattened skull is 18½ inches, the average normal being 21. His chest is 23¼ inches to a normal of 25 4-5. His height is 43 inches, whereas the normal is 52 1-5 inches. He possesses an ample amount of adipose tissue and seems well nourished. The skin, especially of his hands, is very dry. His head, as before stated, is flattened from before backward. The fontanelles are closed. The forehead bulges. The face is full-moon shaped. The mouth is large and has slightly upturned corners. It is usually open. The tongue, as emphasized by Dr. Thomson (*British Medical Journal*, 1907), though it protrudes less constantly than in cretinism, here is thickened, irregularly fissured, and the papillæ are swollen. The palate is high and narrow, the cheeks are flushed. The nose is squatty or button-shaped, the bridge flat and sunken, the nostrils triangular and point more forward than down. The ears are small and round. The eyes show that characteristic which caused Dr. Down, who first described this form of amentia, to speak of it as the Mongolian type—namely the palpebral fissures slanting down and in with redundant skin to the upper lid and marked epicanthus. There is slight exophthalmos and a

Fig. 2.

marked strabismus. The irides are slightly speckled. The eye backgrounds are normal. Chronic inflammation of the upper respiratory tract is seen in persistent blepharitis, chronic rhinitis, and frequent cracked lips. All these are notably common in this condition.

The neck and thorax are normal. There is no heart lesion. The lower half of the abdomen is slightly protuberant. The pelvis is small, pushing the bladder upward, making it rather prominent in the abdomen. There is a small ventral hernia just above and to the right of the umbilicus.

Now, examining the extremities, we come to the square fat hands with the short fifth finger and relatively shorter thumb, which makes these Mongolian imbeciles so clumsy with their hands. It is well known that the various carpal bones develop their ossification centers at different ages, so that from an *x*-ray picture of the hand we can tell the approximate age of a young patient. At the suggestion of Dr. Stetten I went carefully into this matter in the hope of learning to what age my patient's development had been brought. At nine years the ossification centers of all carpal bones except the pisiform should be present and give full-size shadows with the *x*-ray. Here we find (Fig. 2) that none have reached full growth. The semilunar which usually appears in the fifth year is absent and the pisiform which shows up ordinarily not until the twelfth year is already present.

To add to all these troubles our young patient has a slight persistent albuminuria, anemia, and a few annoying hemorrhoids.

Tuberculosis, syphilis, alcoholism, and severe uterine prostration from exhaustion during gestation—these things in the parents are given as frequent etiological causes. None of these played any rôle in my case, and the real cause is probably as yet unknown. It is equally common in male and female and in the first born as in the last of a large number. Race, climate, and social position need not be considered.

The diagnosis must generally be made, as in this case, by exclusion; by the flat skull, the bulging forehead, the Mongolian eyes, the thick, heavy tongue, and the chronic inflammation of the upper respiratory tract. This type of idiocy is more easily recognized in children between the first and fifth years.

Mongolianism must be differentiated from other forms of feeble-mindedness or imbecility as seen in children. Including Mongolianism, Holt mentions eight forms of idiocy.

1. Cases lacking a brain or lacking the frontal lobes evidently do not include our patient. Children of this class never live more than a few months.

2. Hydrocephalus.—Our patient has an undersized, not a large, head.

3. Microcephalus would give a smaller head than our patient has. The head would be flattened from side to side instead of from before backwards, and development would be even less far advanced.

4. Paralytic forms are all ruled out by the entire absence of paralysis.

5. Cases of inflammatory origin follow meningitis, which our patient has never had. His trouble dates from birth.

6. Epilepsy is ruled out by the absence of convulsions.

7. Amaurotic family idiocy would give blindness and the typical ophthalmoscopic picture. Our patient has very fair vision.

8. From cretinism it is distinguished by the eyes; by the high forehead (all cretins have low foreheads), by the thick fissured tongue; by the chronic inflammation of the upper respiratory tracts, and by the ineffectuality of thyroid treatment.

The pathological picture, though not very clear, has as its chief feature a lack of development of the cells of the brain in all its parts.

The prognosis is bad. These children will not improve as will cretins. Frequently they are affectionate, sweet-tempered, and well-behaved. They have a cheery smile which leads their parents and teachers to work hard with them. They learn but poorly and are a great disappointment in the end. Even to teach them to use their hands is of no avail. The hands being fat and square and the thumbs short, they always remain clumsy. Very few of these patients reach maturity. They die of some intercurrent infection to which they are so very susceptible.

The treatment is unsatisfactory. No drugs are even advised. So little can be done along educational lines that they are best off in institutions with others of their kind.

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NONSPECIFIC USES OF ANTIDIPHTHERITIC SERUM.

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NUMEROUS investigators have made important studies in the use of antidiphtheritic serum in conditions other than diphtheria, and the results in the majority of the cases allow us to suppose that we have in this serum a valuable therapeutic agent in the treatment of various infections, either general or local. Its use is every day more extensive, and on account of its innocuousness, as even in massive doses there is little danger, we have no doubt that very soon it will be extensively used in the treatment of numerous infections.

How does antidiphtheritic serum work after it is injected in the human body? By not only increasing in a positive way the vital power of the individual, increasing his opsonic index, but also by reenforcing the resistant powers of the organism whatever they may be, and allowing them to attack and destroy more vigorously than before the toxins that invade the human body and are the products of the various infections.

It is not only in the cases of general infections that the serum gives good results, but in many localized infections also. Taking, for example, the eyes, in which most of our experiments have been conducted, we have learned that suppurative keratitis, of whatever origin, is always influenced in a favorable way by this serum. Dr. J. Santos Fernández[1] of this city having become convinced of the inefficiency of the usual treatment of this disease, was inclined to try the one recommended by Toulieres,[2] which consists in the injections of antidiphtheritic serum, and he reports a few cases from his clinic that were favorably influenced by the serum. Since his work was published we have treated at his clinic several more cases of suppurative keratitis, with the subcutaneous injections of antidiphtheritic serum, and have had very good and prompt recovery in all the cases thus treated, attention being called to the rapidity with which the absorption of the purulent exudate in the anterior chamber began.

In other eye affections it has also been used. In fact, Darier[3] affirms that in the infectious ulcers of the cornea, in the infections by penetrating wounds of the eyes, in the serious complications that sometimes arise after cataract operation, in cases of infectious iritis, in herpes zoster ophthalmicus, etc., the affection is rapidly checked by two or three injections. In these cases there is noted first the absence of pain, and, afterward, rapid recovery, with, as a rule, remaining vision, which is better the earlier the serum is administered. Alonso,[4] in a recent work of recapitulation of the different sera, affirms that they facilitate the rapid recovery of the ocular diseases mentioned; and he prefers the antidiphtheritic serum on account of its almost complete innocuousness. In several of the general diseases this serum has been used with success and has given its best results in respiratory affections. In asthma it has been proved that several cases have been cured by its use; and in our national literature, and only a part of it, we have seen that Dr. Ruiz Casabé described,[5] in 1898, a case of asthma cured by injection of antidiphtheric serum. Dr. R. Grau[6] has very recently described three cases of the same disease, also cured with the serum. In pneumonia it has also been used, and sometimes its use has been followed by success. Grau[7] also reports a case of bronchopneumonia and another of influenzal pleuropneumonia, treated with the serum with satisfactory recovery in both cases. Muñoz[8] describes a case of a boy suffering from bronchopneumonia with serious symptoms. He injected the antidiphtheritic serum which produced a very marked and prompt improvement, and the patient was rapidly cured.

In a recent epidemic of measles in Wajay (Havana Province) and its surroundings, there were a great number of complicating bronchopneumonia cases and a colleague that treated a good number of these cases, tells me he has used the serum in several, with prompt and notable success.

It is evident that this serum has an almost specific action on some microbic elements that are not those of diphtheria. Besides, as it is not dangerous, we think that its use ought to be more generalized, at least, as an experiment to study it in a systematic way, and to derive from its use as much benefit as possible.

Very recently there was published[9] a paper referring to the unpleasant results of this serum. The author, Dr. H. F. Gillette, says, that in his opinion if we would eliminate the dangers of administering serum to the asthmatic, we would cure over 50 per cent. of all cases of asthma by antitoxin; but he thinks, until that is done, it will never be a popular procedure.

In a review of the literature Dr. Gillette reports twenty-eight cases in all in which collapse or death has followed the administration of horse serum. Of these, fifteen died. The doses employed were not very large; but most of the patients had previous respiratory troubles of some kind, and, as he says, "in the report of the cases it will be noted that some had an irritation of the mucous membrane of the eyes, nose, and throat; and some had asthma when about a horse or stable."

We would say that the small number of cases described is not a drawback to the popularization of the procedure, and furthermore we can begin giving small doses of the serum, proving, as it were, as we do with any other drug. Take opium for example: we know that it is a dangerous drug, more so in children; and yet we employ it, taking such precautions as may seem best, a procedure which may also be applied to the antidiphtheric serum.

In conclusion, we will say we believe that the trial stage of this serum has ended, and that it has entered with honors into general use, adding a very potent and valuable agent to our therapeutic armamentarium.

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MEDICAL RECORD.

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INDIGESTION.

IN a recent number of the *Practitioner* are some common sense articles by practical members of the medical profession on ordinary every day ailments. After all, it is the small complaints that count the most, for they trouble the greatest number of people, and if not guarded against lead to serious results. Some common ailments, of course, are but manifestations of grave maladies, but whatever their origin may be, it is at all times well that they should be diagnosed and treated as quickly as possible. Perhaps the most common, as it certainly is the most unpleasant of all the so-called small ailments, is indigestion, and this affection is discussed in the *Practitioner* by F. J. Smith of London. After dismissing from present consideration those cases of indigestion which are the symptoms of gross organic disease and which do not seriously enter into the daily routine of general practice, Smith divides those suffering from dyspepsia into three classes, babies, children, and adults, and records his opinion that it is in babies that the most genuine cases of indigestion occur, *i.e.* cases of a simple lack of sympathy between the stomach and its contents. As to the artificial feeding of infants, the cause undoubtedly of most of the indigestion that occurs among them, Smith holds decided and somewhat original views. He is quite sure that much harm, far more than is dreamt of by the scientific sanitarian, is done to babies by the boiling, or so-called sterilization, of milk, which renders milk less suitable for the nutrition of the infant. Naturally, he insists that, so far as possible, the milk-yielding cows should be healthy and that the sanitary arrangements and cleanliness of the milking sheds and dairies should be as nearly perfect as can be. He also enters a protest against the view that babies cannot digest a small proportion of carbohydrate material.

The indigestion of children is referred to briefly, and much that occurs up to the age of fifteen or sixteen years is laid at the door of the manner in which children, and especially American children, are brought up and the absurd way in which they are fed.

As for the indigestion of adults, Smith is quite satirical with regard to the varieties and subvarieties of description with which the scientist of to-day has exercised his ingenuity, and declares it to be his opinion that with each invention of an instrument for exact investigation we lose a proportion of that clinical instinct and delicacy of finger touch which were so highly prized by our predecessors and which enabled them to be astonishingly accurate in diagnosis. "We lose, too," he says, "that personal interest and keen observation of the patient which are so invaluable; our minds become concentrated on the disease, and we forget the patient with all his own natural resistance to, and most extraordinary and unknown powers of overcoming disease, if encouraged to use these powers and if not overwhelmed with drugs and courses of treatment." The author is further of the opinion that the multiplicity of names given to indigestion are useless and ofttimes misleading.

The various symptoms of indigestion are briefly run over and the causes thereof suggested. It is pointed out that in flatulence after meals, the later its occurrence after food the less likely is the case to be one of simple indigestion. A mere sense of fullness after a meal is almost certainly due to functional trouble; if it occurs later and is then associated with some pain, it points strongly in the direction of gastric or duodenal ulcer. With respect to the causes of simple indigestion the most frequent is the hurry and bustle of modern city life, the rush for the train with a hurried breakfast half masticated, an equally hurried lunch, or with some, especially elderly people, a heavy lunch with a liberal allowance of alcohol, the rush back home after a heavy day's work and a good square meal with more alcohol. Smoking, too, on an empty stomach is strongly deprecated if one wishes to avoid indigestion. Attention is drawn to the fact that worry is one of the main causes of indigestion and that this cause is more potent with women than with men.

So far as diet for indigestion is concerned, Smith says there are only a few fads he goes in for personally; one of these is to assure all his patients that cold boiled ham or bacon is of all flesh foods the most easily digested. The other fads are that chicken is less digestible than beef and mutton when the latter are properly masticated; that there is no difference between red and white meat in digestibility; that fish need not necessarily be boiled, and lastly that if any patient likes to try any fad of the faddists, it will probably do him no harm to do so.

The author is altogether in accord with the medical policy of the present day in giving few drugs. His armamentarium for indigestion contains iron, bismuth, saline purgatives, alkalies and acids, and a few aromatics. In deciding what drugs to give, one should divide patients into the full blooded and the anemic, because it is of no use in the indigestion of anemic girls to give drugs for indigestion until the anemia has been helped or cured by iron. In administering drugs for indigestion the following routine has been evolved: To let the patient have the last meal of the day at 5 P. M., and then to give medicine, which generally consists of 2 drams of subnitrate or carbonate of bismuth and 1 dram of bicarbonate of sodium at 10 at night, at 2 A. M., and at 6 A. M. There are, however, obstinate cases of indigestion which will not yield to ordinary treat-

ment, and for such as these the remedy is a short confinement in bed. The great advantage of bed with limited bread-and-milk diet and the evening administration of bismuth and soda, is that, according to Smith, it will almost without any exception cure those cases which lie on the borderland between simple and organic dyspepsia.

There is much sound truth in this dissertation on dyspepsia which has been so freely quoted from. There are no doubt thousands suffering from functional indigestion due to causes easily understood and often removable. Some bring it upon themselves by errors of diet and neglecting the chief antidotes of the disorder, air and exercise. Others are compelled to live lives that favor indigestion and are unable to procure the air and exercise necessary to the preservation of health. Worry is, indeed, a potent cause of dyspepsia; it may be said to be the main cause among those women who are of a highly strung, nervous disposition. The advice may be given to all not to be led astray into taking all kinds of drugs. There are a few which are indicated and a sufferer, under the care of his physician, will soon discover those that suit him. If, however, he or she develop the habit of flying to every drug that is advertised, it will not be long ere such a person becomes a chronic dyspeptic.

BACTERICIDAL SERUM IN DIPHTHERIA.

While the therapy of diphtheria has made wonderful progress since the introduction of a specific antitoxin, no such progress has taken place in the prophylaxis of this disease. One difficulty in the way consists of the fact that virulent bacilli may remain a long time in the throats of patients afer recovery from the disease; the specific antitoxin in neutralizing the poisons produced by the bacilli during the clinical period of the affection affects but little the organisms themselves. These "bacilli carriers" form foci, therefore, spreading the disease by contact with others. While isolation in special hospitals is maintained until the complete disappearance of bacilli from the throat, this is not always possible in private practice, and in any case involves an irksome limitation of the patient's liberty during convalescence. The introduction of a specific remedy acting upon the bacilli themselves would be warmly welcomed by the profession in general, and health officers especially.

Such a remedy in the form of a specific serum was prepared by Wassermann in 1902, and has since been tried by several observers, one of whom, G. B. Fleischer, communicates his results in *Russkii Vrach* for September 12, 1909. This experimenter manufactured a specific serum by immunizing dogs with diphtheria bacilli of graded virulence and then used it in the form of tablets, comparing its effects with simple swabbing of the pharynx with a solution of bichloride in glycerin and water. He found that the latter method differed very much in its effectiveness, depending upon the shape of the tonsils, those with numerous irregularities protecting the bacilli from the action of the antiseptic. On the other hand, patients treated with the specific serum in the form of tablets became free from bacilli in a short time, quite without any relation to the anatomical peculiarities of the lymphatic apparatus of the pharynx. The quarantine period after recovery from disease was shortened in their case to from two to five days, while the patients treated by swabbing with antiseptic solutions harbored bacilli from one to three weeks.

The two objections to the use of this serum consisted in the difficulty and expense of preparing it and in its rapid deterioration. The gain in shortening the period of quarantine seems to have been large enough, however, to encourage the manufacture of serum on a commercial scale, as has been done recently with other products of like character, such as antigonococcic and the antistreptococcic sera. The community certainly can derive nothing but benefit from shortening the quarantine period in contagious disease, in respect to both the expense of isolation and the prevention of the spread of disease.

THE PRACTITIONER AND HIS TUBERCULOUS PATIENTS.

An editorial writer in a recent issue of the *British Medical Journal* calls attention to the lack of mutual understanding which often exists between the physician and his tuberculous patients, especially those of the "open" type, that is, those who are voiding bacilli and are potential sources of infection. Patients of this class, the writer says, are frequently kept in complete ignorance of their disease, and even their relations or those who live with them are kept uninformed of the true state of affairs. No doubt in these cases the doctor is acting upon the principle that the patient should be spared the distress of learning that he is a consumptive. But after a period of private treatment the patient seeks entrance to a special or general hospital to the wards of which only early cases are admitted, and there finds out the true state of affairs. Can the family attendant, asks the writer quoted, wonder for a moment how it is that the net result is his discomfiture and undoing? The hospital physician is in a difficult position, for he is obliged to contradict the practitioner who has had charge of the case for so many months.

The remedy for this is simple, but it entails some trouble on the part of the practitioner, and in some cases fresh study by him regarding the developments which have taken place in hospital management and in sanatorium treatment. So long as hospitals, dispensaries, and sanatoria are conducted on their present lines, the general practitioner must realize how much is being done by them to check the tide of the disease detect it in its earliest stages, and treat it on rational lines. The trouble is often with the practitioner educated years ago, not one of wilfulness, but one of ignorance. Twenty years ago tuberculosis of the lungs was not taught so far as regards the incipiency of the disease. The student was presented with the clinical picture of a full-fledged case. And even now the medical schools as a class are hardly tuned up to the demands of the hour. The use of the microscope is

a *sine qua non* in the diagnosis of the incipient case. But even before it reveals the presence of the bacillus, modern methods of examination will, if faithfully and persistently applied, reveal the true state of affairs.

Here in New York little fault can be found with the practitioners of the present day; nevertheless any one who examines candidates for admission to an institution for tuberculosis can but be impressed with the extent to which the disease will often have progressed without its true nature having been recognized.

The Hookworm Commission.

The announcement that Mr. John D. Rockefeller has given a million dollars to start the fight against uncinariasis in the South comes as an assurance that the hope expressed some weeks ago in these columns that an organized effort would be made to combat the disease will be realized. However much or little the commission itself may accomplish directly the publicity given to its findings and its acts will undoubtedly be of enormous service indirectly in bringing the sanitarians and health officers of the South to a realization of what is now expected of them in the way of suppression of this evil. It is, of course, upon them that the final responsibility will rest of eradicating the hookworm, for the constitution of the commission does not hold out great promise of immediate practical results, containing as it does only one zoologist and two nonpractising physicians, with five educators, one editor, one consulting philanthropist, and two business men. It will, no doubt, collect a mass of statistics showing the wide prevalence of the parasite, emphasizing the handicap, mental, moral, and physical, with which it loads the people of the South, and exposing the utter neglect of the first principles of hygiene by most of the small farmers, white and black alike, which is the root of the evil. This is what is needed to arouse the conscience of the people and to create a public opinion, without the assistance of which health officers can never effectually enforce their regulations. There will perhaps be a few sensitive souls who, like the Methodist Bishop of Georgia, will resent Mr. Rockefeller's donation as an insult to a free people, but by the mass of sensible citizens of the South, as well as of the rest of the country, his generosity will be gratefully acknowledged, and the work of the commission appointed to administer his gift will be followed with interest and hope.

Treatment of Hydrocephalus.

There are few diseases of childhood which hold out less hope for recovery, and offer poorer opportunity for effective therapeutics than internal hydrocephalus. Due usually to a hypersecretion into the ventricles or to an obstruction of the foramen of Magendie, the nature and location of the lesions make local treatment practically impossible. Efforts have been made to relieve the pressure by ventricular or lumbar puncture, and in a few cases some temporary benefit has been obtained. This has, however, been only temporary. Mikulicz attempted permanent drainage of the ventricle with a cannula, but in practically every case meningitis resulted. Attempts to drain from the ventricle to the subdural space have been made, by Krause by means of a silver tube, and by Payr by the use of a section of vein, but the results were no better. The latest addition to the list of operations for hydrocephalus appears in an article by von Bramann in the *Deutsche medizinische Wochenschrift* for September 23, 1909. Acting on the suggestion of Anton of Halle, a. S., the author attempted to make a permanent opening between the ventricle and the subdural space. The technique consisted in trephining near the midline and just behind the coronal suture in older children, and opening the anterior fontanelle in infants. The dura was opened wide, a tenaculum passed down the longitudinal fissure, and the cerebrum slightly retracted, care being taken to avoid the veins. A slightly bent cannula of a diameter of two to three millimeters was then passed between the brain cortex and the dura mater to the falx, and the carpus callosum was carefully punctured. After the ventricular fluid had been drawn off the cannula was moved forward and backward in order to widen the opening. The cannula was then withdrawn, the dura stitched up, and the skull cap closed, the intraventricular fluid pressure being trusted to keep the channel open. Von Bramann has performed this operation in eight cases of hydrocephalus. Some of the children died shortly from pneumonia or other infections not associated with the operation. Several, on the other hand, survived the operation and at the time of the report not only were living, but showed decided improvement in both nervous and mental condition. This operation would seem to be based on a sound physiological foundation. If the channel made through the corpus callosum remains open it should relieve the pressure produced by the obstruction of the foramen of Magendie, and it has the added advantage of leaving a closed wound in the skull, and no foreign body in the brain. The effect of the injury to the corpus callosum remains to be seen.

Microorganisms in Acute Anterior Poliomyelitis.

Infantile paralysis has recently attracted a great deal of attention in and about New York city by the occurrence of an extensive epidemic in the year 1907 and of a smaller one during the past summer. These epidemics are very suggestive of the infectious origin of the disease, as indeed is the clinical picture showing in its first stage vomiting, fever, intestinal disturbances, etc., similar to those seen in other infectious diseases. The most striking element of the disease, the flaccid paralysis, is really a consequence of the destruction produced during the acute stage rather than an independent symptom. Recently, original work has been done in this country in tracing the infective character of the affection, and in one case at least the transference of the disease to a monkey by the injection of an emulsion of the spinal cord of a child dying of poliomyelitis has been successfully accomplished. In connection with this a short preliminary communication published by Potpetschnigg in the *Wiener klinische Wochenschrift* for September 30, 1909, is of interest. The author had the opportunity of observing twenty-two cases of the disease in the acute stage, an epidemic having been present in his neighborhood. Lumbar puncture was performed in fourteen of these cases, and in all the spinal fluids obtained Gram-positive micrococci, usually of diplococcus character, were found. The organisms were discovered independently by several physi-

cians of a hospital and proved to agree well in cultural and structural characteristics. In one patient, moreover, brought to the institution in the first day of the illness, Dr. Potpetschnigg succeeded in recovering a similar organism from the blood. Further work is in progress in determining the rôle of the organism in the disease. The author used bouillon as a medium, employing large quantities of spinal fluid in making cultures and carrying on the growth of the organisms on agar plates after one day's growth in bouillon. It may be worth while for American observers to follow the same technique whenever the disease is recognized in its earliest stages. The results of such work here and abroad will certainly be awaited with interest.

News of the Week.

The Herter Lectures at the University and Bellevue Hospital Medical College will be given this year by Professor Otto Cohnheim, of the University of Heidelberg. The lectures begin on Monday, December 6, at 4 P. M. and continue daily throughout the week. The subject is "Enzymes and their Actions." Those interested are cordially invited to attend.

Investigation of Contagious Diseases in Massachusetts.—In an investigation as to the needs in Massachusetts of a State institution for the care of town paupers with contagious diseases, reports from 128 cities and towns show that there are at present 1,088 such persons dependent upon town charity, while there are still 97 towns to be heard from. These figures do not include tuberculous paupers.

A Commission for the Eradication of Uncinariasis.—There was organized, October 26, at the suggestion of Mr. John D. Rockefeller, who has donated the sum of one million dollars to carry on the campaign, a commission for the investigation of the hookworm disease in the South. This commission is composed of Dr. William H. Welch, Dr. Simon Flexner, Dr. Charles W. Stiles, Dr. Edwin A. Alderman, Dr. David F. Houston, Prof. P. P. Claxton, J. Y. Joyner, Walter H. Page, H. B. Frissell, Frederick T. Gates, Starr J. Murphy, and John D. Rockefeller, Jr.

Low National Death Rate.—The death rate for 1908 in the registration area set aside by the Census Bureau for tabulation purposes was 15.3 per 1,000 population, the lowest figure yet recorded. In rural districts covered by the tabulation the rate was slightly lower, averaging 14 to the 1,000 inhabitants. During the same period the death rate for England and Wales was 15.7 per 1,000. The total number of deaths returned for the year 1908 in the registration area was 691,574, while for the preceding year it was 687,034. This apparent increase of 4,540 is explained by the fact that during 1908 two new States, Washington and Wisconsin, were added to the registration area. The month of maximum mortality in 1908 was January, with 67,763 deaths, and that of minimum mortality was June, with 49,701 deaths. The death rates of the individual States vary from 18.4 for California to 10.1 for South Dakota.

New York's Health.—During the week ending October 23 there were 1,346 deaths in the city, and the rate, 15.38 per 1,000, was greater than the death rate for the same week last year, which was 14.48, representing 1,228 deaths. The largest increase was in death from heart disease, there being 162 cases, as against 123 a year ago. There was also an increase in deaths from typhoid fever, pneumonia, diarrheal and Bright's diseases, but only 145 deaths from tuberculosis, as against 156 last year.

French Birth Rate Low.—Vital statistics for the first six months of the present year show an excess of deaths over births in France of 28,205.

Antituberculosis Campaign in Factories.—An active fight against tuberculosis is to begin in the factories of Rhode Island. It will take the form of circulars of instruction placed in every pay envelope, the taking up of individual cases of tuberculosis of threatening symptoms by the local organizations, the posting of wall placards of instruction, and the giving of noon-hour or evening lectures. The factory committee of the Rhode Island Antituberculosis Association is in charge of the campaign. The State Association and the Providence Board of Trade, in cooperation with the State Board of Health, are arranging with factories throughout the State to carry out the new plans.

Increased Appropriation for Tuberculosis.—The New York Budget adopted by the Board of Estimate, October 29, allows for an increase of $263,500 for tuberculosis work.

Cattle Laws in Illinois.—Beginning November 15, all certificates of tuberculin tests for cows in the State of Illinois, filed with the State Department of Health must be approved by the State Veterinarian before they will be accepted. The State Veterinarian will appoint deputies throughout the State who will work under his supervision and will file their reports with him. The State Veterinarian has ruled that these deputies must report all the tests yielding positive as well as negative, results. It is the intention of the State to brand all animals giving a positive reaction. This will be done by punching the letter "T" in the right ear.

American Hospital in Paris.—The American Hospital built and equipped through the generosity of the American colony in Paris was formally opened October 28 in the presence of the U. S. Ambassador White, Minister of Education Doumergue, who represented the French Government; members of the Board of Governors, and the medical staff. The hospital, the need of which has long been felt, is beautifully situated at Neuilly, and is surrounded by spacious grounds. It contains twenty-five beds, many of which have already been endowed. Among those who have thus contributed are J. P. Morgan, W. K. Vanderbilt, and Miss Helen Gould.

New Hospital for Vancouver, Wash.—A new five-story hospital to be known as St. Joseph's Hospital is being constructed in Vancouver, Washington, at the cost of $125,000. The building will be 136 x 48 and 76 feet high. There will be 128 rooms, and also a solarium at each end.

The Carrol College Infirmary and Dispensary has been opened in Milwaukee in connection with the medical department of the college.

The Presbyterian Hospital of Omaha has recently moved into new quarters in the former home of Bishop Worthington. The new hospital has private rooms for forty patients. With the view of future extension an acre of ground surrounding the hospital has been obtained.

Bequest to Yale Medical School.—By the will of Dr. Levi S. Shoemaker, of Wilkesbarre, who

died recently in Germany, the medical department of Yale college will receive $600,000 upon the death of Mrs. Shoemaker.

Tuberculosis Night Camp.—The new department at the New York Throat, Nose, and Lung Hospital, 229 East Fifty-seventh street, for the treatment of tuberculosis at night, was opened on Wednesday evening of this week. The department will be a night camp of those in the early stages of the disease who cannot afford to leave the city, and have to work in the daytime. It is in a remodeled building next to the hospital.

Charitable Bequests.—In the will of the late Jane G. Phelps the following hospitals were remembered: Presbyterian Hospital of New York, $10,000; Tarrytown Hospital, $5,000; Lincoln Hospital and Home, Manhattan, $5,000. Chicago Charities Benefited $382,000 by the will of the late Mrs. Nelson Morris. Of this amount, $300,000 is left for the founding of a convalescent hospital or home for children. This bequest is made preferably to Michael Reese Hospital. The Children's Memorial Hospital receives $5,000; Michael Reese Hospital, $10,000; The Chicago Lying-In Hospital and Dispensary, $2,500; The Chicago Home for Incurables, $5,000, and the Chicago-Winfield Sanatorium, $5,000. At the twenty-fifth anniversary of the Montefiore Home in New York the announcement was made of gifts aggregating $101,500. The chief presents were from Messrs. Jacob H. Schiff, $50,000; Murray Guggenheim, $25,000; Mortimer L. Schiff, $10,000; Felix M. Warburg, $10,000; Paul M. Warburg, $5,000; Isidor Straus, $1,000, and Dr. Morris Loeb, $500. By the will of the late Miss Anna J. Van Reed of Reading, Pa., the sum of $13,000 is bequeathed to the Medico-Chirurgical Hospital of Philadelphia.

The Southern Medical Association will hold its annual meeting in New Orleans on November 9-11. The officers of the association are *President*, Dr. G. C. Savage of Nashville, Tenn., and *Secretary and Treasurer*, Dr. Oscar Dowling of Shreveport, La.

The Minnesota State Medical Association, at its annual meeting held at Winona, recently elected the following officers: *President*, Dr. W. A. Jones of Minneapolis; *Vice-Presidents*: Dr. W. F. Dimitt of Red Wing, Dr. Hugh F. McGaughey of Winona, Dr. G. W. Bray of Biwabik; *Secretary*, Dr. Thomas McDavitt of St. Paul; *Treasurer*, Dr. R. J. Hill of Minneapolis; *Board of Counsellors*, Drs. E. A. Hensel of Alexandria, F. A. Knight of Minneapolis, and F. A. Dodge of Le Sueur. The next annual convention will be held at Minneapolis, October 6 and 7, 1910.

The Kentucky State Medical Association on October 21 chose Lexington as the place for the next annual meeting, and elected the following officers for the ensuing year: *President*, Dr. I. E. Wells of Cynthiana; *Vice-Presidents*, Dr. P. H. Stewart of Paducah, Dr. J. O. Carson of Bowling Green, and Dr. J. S. Lock of Louisville; *Delegates to the American Medical Association*, Dr. W. B. Boggess of Louisville and Dr. B. F. Van Meter of Lexington.

The Southern California Homeopathic Medical Society at its annual meeting at Los Angeles elected the following officers: *President*, Dr. W. J. Hawkes; *Vice-Presidents*, Dr. M. B. Campbell and Dr. F. Estes; *Secretary and Treasurer*, Dr. F. S. Barnard.

The Ionia County (Mich.) Medical Society at its annual meeting held at Ionia, October 18, 1909, elected officers for the ensuing year as follows: *President*, Dr. George A. Stanton of Belding; *Vice-Presidents*, Drs. C. C. Dellenbaugh of Portland, F. A. Hargrave of Palo, W. J. Wilkinson of Orleans, F. B. Morse, Lake Odessa; *Secretary and Treasurer*, Dr. C. S. Cope of Ionia.

The Associated Physicians of Long Island held the thirty-fifth regular meeting at Rockville Centre, Saturday, October 23, under the presidency of Dr. Frank T. De Lano of Rockville Centre. Papers were read by Dr. Harris A. Houghton of Bayside, L. I., Dr. H. A. Alderton of Brooklyn, and Dr. Roland Hazen of Brentwood.

Obituary Notes.—Dr. Benjamin Harrison Kidder, U. S. N., retired, of Malden, Mass., died at his summer home in Edgartown, Mass., October 26, 1909, aged 73 years. Dr. Kidder was a native of Massachusetts and entered the United States Navy from that State as an Assistant Surgeon in September, 1861. He was first attached to the gunboat *Marblehead* in the South Atlantic Blockading Squadron from 1862 to 1864, and then went to the frigate *Colorado*, the flagship of the North Atlantic Squadron, on which he served throughout the remainder of the Civil War. He afterward served on the *De Soto*, *Terror*, *Ossipee*, *New Hampshire*, *Wyoming*, *Wabash*, and the *Powhatan*. He was promoted to the rank of Surgeon in 1868 and became a Medical Director of the Navy in 1893. Five years later he was placed on the retired list with the rank of Rear Admiral.

Dr. Samuel R. Elliott of New York died October 26, 1909. He was a graduate of Columbia University and a veteran of the Civil War. Dr. Elliott was the son of one of the first men to practise ophthalmology in this country.

Dr. John M. Eaton of Harvard, Mass., died at his home, October 22, 1909, aged 77 years. He was a graduate of the Harvard Medical School in 1850, and served as army surgeon in the Civil War.

Dr. James W. Ryder of Boston, Mass., died at his home, October 21, 1909, aged 41 years. He was a graduate of the Dartmouth Medical School in 1896, and was a member of the Suffolk County Medical Society, the Massachusetts Medical Society, and the American Medical Association.

Dr. William Cooke Steedman of Lagrange, Ky., died October 21, at Louisville, aged 40 years. He was a graduate of the Louisville Medical College, in 1899, and was a member of the Oldham County Medical Society and the Kentucky State Medical Association.

Dr. William G. Terwilliger of Brooklyn was killed in an automobile accident on October 31, 1909, near Long Beach. Dr. Terwilliger was 38 years of age. He was a graduate of the College of Physicians and Surgeons of Columbia University, 1894, and was a member of the Medical Society of the County of Kings and of the New York State Medical Association.

Dr. George B. Dowling of Tarrytown, N. Y., died in New York, October 30, 1909, aged 42 years. Dr. Dowling was a graduate of the New York Homeopathic Medical College in 1889.

Dr. Josiah Cadmus of New York died at his home, on October 28, 1909, aged 90 years. Dr. Cadmus was a graduate of the College of Physicians and Surgeons of New York and had practised in the city for over sixty years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

OPENING OF MEDICAL SOCIETIES—EXHIBITION OF CLINICAL CASES—OVERSTRAIN OF HEART—INDIAN CONFERENCE ON MALARIA—DANGERS OF DRY SHAMPOO—ARTIFICIAL FEEDING—OBITUARY.

London, October 15, 1909.

This has been a very busy week. The medical societies have opened with renewed vigor after their recess and questions of interest in relation to the public health have been discussed by several nonprofessional associations. The Royal Society of Medicine opened its session on Friday by an interesting exhibition of cases in the Clinical Section, and on Tuesday followed up with a paper in the Surgical Section by Mr. Godlee on "Prognosis in Some Diseases of the Lungs and Pleura Usually Treated Surgically." In the meantime the Medical Society of London opened its session on Monday evening with the president's address, followed by a paper on "Perforation of the Small Intestine," by Mr. Hugh Leet. On Wednesday the Hunterian Society had its first Hunter Lecture, by Dr. Martin, on "Infective Processes in the Intestine." To-day we have Professor Keith's demonstration at the Royal College of Surgeons, the Electrotherapeutic Section at the Royal, and at the Tropical Society a discussion on sleeping sickness. In the clinical exhibition just mentioned Dr. H. W. Bayley gave a demonstration of the *Treponema pallidum* in syphilitic lesions, of the *Spirochæta dentium* in carious dentine, and of the *Spirochæta refringens* in balanitis. Dr. Bunch showed a man with *Mycosis fungoides* of twelve months' standing who had improved under arsenical treatment (hypodermically) and *x*-rays locally. Dr. Rolleston showed a case of inky pigmentation of the mouth and marked freckling of the face in a man of 25 admitted for pernicious anemia with enlarged liver and spleen. The number of red globules varied from 1,515,000 to 3,015,000, the percentage of hemoglobin from 40 to 76, the leucocytes from 2,960 to 4,000. Only one nucleated red corpuscle had been seen.

Mr. A. Carless showed a man from whom he had removed the entire upper jaw, part of the molar bone, the floor of the orbit, the nasal process, and ramifications in various directions of a growth which proved on microscopical examination to be an epithelial odontome. The above operation relates to the left side. The patient did well, but returned five months after with a tumor on the right. This maxilla was therefore removed, leaving the orbital plate, and the patient has continued well for twelve months. He has been fitted with a denture and can masticate soft food and does not seem to suffer much inconvenience. There is but slight deformity—so slight that the president, Mr Pearce Gould, said he never expected to see so little in such a case. He had not had one so successful in this respect.

Mr. Sherrin showed a case of Meckel's diverticulum containing calculi producing symptoms thought to be appendicular. On opening the right iliac region he found a sac connected with the ileum containing the calculi. On removal it was 4 inches long, partly closed at the attached end by a valvular opening, filled with irregular brownish brittle concretions, composed of calcium oxalate and cholesterine, with a trace of bile pigment. Uneventful recovery followed. Four similar cases have been recorded. Dr. A. E. Garrod thought the concretions looked like gallstones. If bilirubin were present that would necessarily be so. Cholesterin would be compatible with any mucous membrane inflamed and occurred in the urine in cystitis.

Dr. E. I. Spriggs showed a boy of 16 with rheumatoid arthritis and enlarged spleen and other glands. The disease began at the age of 10 and progressed till most joints were affected. The vertebral, temperomaxillary, and sternoclavicular had escaped. The axillary, epitrochlear, supraclavicular, and inguinal glands were enlarged; the spleen reached below the costal margin for about an inch. Dr. A. E. Garrod remarked that he did not think the disease was different in children and adults, the more general reaction in children being a common modification in accordance with age. Dr. Rolleston said a Continental observer had reported that he had isolated an organism from the glands in such cases, both in children and adults. Sir Dyce Duckworth said such cases (which were described by Dr. Still) he had himself always looked upon as a blend of the strumous and rheumatic diatheses. A number of other interesting cases were shown at this meeting.

Professor Theodor Schott of Nauhaim gave an address on Monday at the West London Hospital. He spoke in English and his subject was "Acute Overstrain of the Heart," as to which he described his renewed research. He began by referring to his experiments reported to the Vienna Congress, 1890. Their object was to decide whether bodily overstrain could produce perceptible changes in the normal heart, and if so what was the nature of the changes. He engaged young men free from any abnormal cardiac condition to wrestle together until a high degree of dyspnea was produced with the great muscular strain. By such experiment he found that severe overstrain led to difficulty of breathing and that the heart underwent a greater or less degree of dilatation, which, however, he thought should be regarded as temporarily abnormal, but not as pathological. These observations had been confirmed by *x*-rays. Chronic overstrain, he proceeded, was the result of a repetition of excessive muscular efforts. This view had also been confirmed by enlargements of the heart found in cyclists and skirunners. Last year he had renewed his researches, and the first question he put to himself was whether a healthy heart muscle would become hypertrophied from excess of work. The answer was affirmative, and he also believed such work would cause dilatation. It was physiologically established, he remarked, that simple labor could lead to hypertrophy. Examples were many that excessive indulgence in athletics had led to chronic overstrain, even in those who had not added immoderate indulgence in tea, coffee, tobacco, or alcohol. Strong emotion, fright, and shock were also likely to produce serious effects on the heart, and medical men had plenty of opportunities of observing how anxiety and mental worry often impaired its muscles and nerves. The dilatation on mountain climbing he considered was only an accumulation of blood in the cavities. The deleterious effects of cycling were seen in nearly all experiments, and cases of heart trouble following racing occurred in large numbers. Zuntz and Schumberg found that heavily accoutred soldiers who had climbed high mountains had suffered from dyspnea, and on examination they detected a dilatation of the cardiac diameter of between two and three centimeters. Admitting divergences between some results, he said they were easily explained, for, according to the researches of later years, the construction of the heart was that of the most perfect motor with which we were acquainted, so that it was capable of answering to the smallest stimulus with a maximum development of power. It had, too, the faculty of adapting itself to changed demands, for the dog's heart would take up six times the ordinary quantity of blood and contract again completely. The human heart, in its muscular apparatus and its vascular system, had all kinds of compensatory arrangements. But nevertheless, he wished to point out that every physician who saw large numbers of heart cases could easily confirm his statement that in persons previously normal, solely through the most different forms of overstrain the heart might be brought, firstly, to acute dilatation, and later, through repetition of the cause, to permanent dilatation, with all its consequences.

The Indian Conference on Malaria was opened at Simla on the 12th and will continue until the 18th inst. Lord Minto, in welcoming the members, said it seemed to him desirable to have an assemblage possessing full knowledge of all local conditions, and that local authorities should have a joint plan of campaign, so with this view he had convened this Imperial Conference. It was with the utmost humility as a layman that he addressed that galaxy of expert talent, but the cruel epidemic of last year impressed on the public the magnitude of the question the Government had to deal with. Last year the deaths were a million over the average, believed to be largely due to malaria. Scientists assured him much of this appalling suffering and economic loss could be prevented. The chief problem of the conference was to confirm this and to show how. He trusted their deliberations would confer a great boon on India, and though a campaign would have to be long and hard-fought, he opened the conference in the firm belief that it would eventually be crowned with success.

Colonel Leslie, Sanitary Commissioner of the Gov-

ernment, then spoke. He stated that about twenty deaths per 1,000 in India were ascribed to fever, but it would be exceedingly hard to assign the proportion of these due to malaria. He dealt at length with questions relating to the extermination of mosquitos and with the use of quinine as a preventive. As to the latter he said much evidence had been collected to show that regular doses of quinine were a nearly complete preventive, and he suggested the establishment of provincial agencies for its distribution and also committees for inquiring into the causes of death and the distribution of malaria. The members of these committees would confer in Simla each autumn with the Scientific Committee of the Indian Government.

A charge of manslaughter in consequence of a death under the so-called dry shampoo has occupied attention since July 12, but has at last been withdrawn and no blame imputed to any one. It is of medical interest, as the liquid used was chiefly composed of tetrachloride of carbon, a substance about which the expert witnesses did not possess much information. It seems clear that the liquid had been applied as a hair wash for a long time without accident, but in the fatal case the lady was thought to have fainted and laid on the floor—thus depriving her of her last chance of revival; for the vapor of tetrachloride of carbon is very heavy, and a more powerful anesthetic than chloroform. Medical aid was called in, but the patient was dead. On the withdrawal of the charge, counsel stated that the prolonged proceedings were taken to warn hairdressers and the public of the great dangers of this process of dry shampoo. Curiously enough, two other deaths from an explosion occurred just after the close of the inquiry. In these last the tetrachloride was not used, but petrol, and the vapor seems to have been permitted to come into contact with gas—the natural result being explosion and a fire. But the inquiry into this is not concluded. The lesson is plain enough, that such dangerous substances ought not to be so used, or, indeed, sold to those who know nothing about them. In the former inquiry another medical question was raised: What is status lymphaticus? The pathologist who made the post mortem said there were indications of this condition. On the other hand, Colonel Lawrie, president of the Nizam's Chloroform Commission, who was present at the post mortem, and acquainted personally with the deceased lady, deposed that she was in perfect health when he saw her twelve days before the death. Further, he did not think status lymphaticus a pathological condition. Certain indications of it were pointed out to him at the autopsy, and they might be; but to him they appeared mere peculiarities. I think there are many who regard the existence of status lymphaticus as doubtful, and perhaps the point may lead to further investigation.

Artificial feeding threatens a winter of excitement. An inquiry has been granted by the High Court as to whether undue force was used in feeding some of the suffragettes. Yesterday two others were released after two days' fasting, and are now setting up an agitation against the injustice of not allowing them to be "tortured by forced feeding," like their dear comrades, though they tried to make their offenses just as serious. In opposition to these we have the "Woman's Anti-Suffrage League," formed to protest against their sex having a vote. They have prepared an active campaign to carry on through the winter by means of lectures, debates, and speeches in the chief towns. They will teach that respectable women do not demand the vote and hate violence; that to give a vote in response to violence would be disgraceful; that to condone lawbreaking on the plea that it is "political" would be a political crime; that criminals who act as lunatics bent on suicide are properly treated as such; that to pretend the doctors are cruel in using the stomach pump is a gross "political falsehood," and they are certain that artificial feeding is safe in the hands of the doctors.

Dr. G. J. Cooper, M.P., died on the 8th inst., aged sixty-five. He was seized with paralysis in the House of Commons the previous day and never rallied. He was a strenuous worker, had spoken at many meetings during the past month, and been his own agent at the recent revision court, and his own surgery was the meeting place of his party. It was thought he had overworked. He was educated at Leeds, Manchester, and London University College. He was formerly resident at Poplar Hospital for Accidents and Bristol Infirmary. He settled in Bermondsey, and became so much esteemed that he was elected a Member of Parliament for the division at the last election. The present session of Parliament has been a most exacting one in the Commons, and Dr. Cooper was always assiduous in his attendance. No wonder that this, with the care of an active practice, was too much, and the breakdown was the consequence.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

CARE OF INFANTS—NEED OF MATERNITY HOSPITALS IN GERMANY—EFFECT OF WALKING TOURS ON SCHOOL CHILDREN—STATISTICS OF PHYSICIANS IN GERMANY.

BERLIN, September 10, 1909

AMONG the various medical occurrences of Germany during the past summer there was one event specially worthy of a report and of especial interest—the First German Congress for the Care of Infants. This congress, which was honored by the especial patronage of the Empress, was held in Dresden. The first speaker was Dr. Keller of Berlin, who described the present situation of the care of infants, collected into one whole the various organizations, and explained their development.

Three speakers discussed lying-in hospitals, care of the pregnant, and infant homes as means of combating mortality. Dr. Dietrich of Berlin, of the Prussian Ministry of Public Instruction, reported that one-ninth of all the infants dying in the first year died in the first four days of life and one-fifth in the first month. Of a million births annually in Prussia four-fifths of the mothers were attended by midwives only. For this reason the most important means in the fight against the high infant mortality was the instruction of the midwives in relation to care and feeding of infants. As many unmarried, dishonorable mothers were homeless for the last months of pregnancy, and through lack of space were often discharged from the hospitals within six or seven days after the birth of their children, it was of pressing importance to Germany that more lying-in homes be created. In Berlin there were in all only three hundred beds in maternity institutions. Protection and care during the early months was necessary to give the child its proper foundation. The maternity institution must be the medium of giving to the people object lessons in the care and feeding of infants.

Dr. Salge of Göttingen spoke on the necessity for and the regulation of maternity hospitals. For legitimate children of the working classes also the maternity hospitals, by appropriate nursing, offered the best surety for proper development. The instruction of the midwives in the artificial feeding of infants and the treatment of illnesses was a point to be considered. This was the province of the physician.

Dr. v. Frangué of Giessen presented some interesting statistical material. In Germany ten thousand mothers died annually as the result of childbirth, seven thousand of them of puerperal sepsis. To this number must be added at least fifty thousand more who, on account of serious illnesses resulting from pregnancy and labor, were unable to nurse their children. If the hospitals were to supply maternity facilities for all the pregnant women who really needed it, over two hundred thousand mothers would have to be delivered each year. To-day this happened with only one-fifth of the mothers. If these measures against infant mortality should cost much money, it must be remembered that the healthier the resulting children the less need there would be for hospitals.

Dr. Meier of Munich spoke on measures to promote nursing of infants. A complete set of statistics for the entire German Empire was much needed. Instructive conclusions could be drawn from statistics of isolated divisions. For example, in one ward where 90 per cent. of the infants were breast-fed the mortality was 10 per cent., while in another ward, with but 30 per cent. of breast-fed infants, it was 40 per cent. The situation of the children of the wet nurses was especially sad. It should be required by law that the mother nurse her own child at least two months before giving it up for a strange infant. Above all things, the women of the cultivated classes should set the example by nursing their own infants. The universal adoption of a motherhood insurance was a pressing need.

Dr. Roeder of Berlin presented an interesting report at the Union of the Berlin School of Physicians on the hygienic results of walking trips. He examined

school children before and after a walking tour to see whether the favorable results of such a trip were only subjective, or whether objective benefit occurred. Fifty-six children were sent on walking trips in three groups, each under the leadership of a teacher. The children walked on an average ten to twenty miles a day. For breakfast they were given coffee, milk, and white bread, during the day bread and butter, and in the evening a warm dinner. As the result on body weight one series of well-nourished, strong children did not change weight during the six days' tour. A small number either lost weight or gained from one to three pounds. It was of interest, however, that during the following three months fifty of the fifty-six children gained weight from three to twenty-two pounds. From this it would appear that the violent muscular exercise stimulated the organism to increased metabolism and more rapid growth. Especially of interest is the comparison of nine girls who took the tour with twelve from the same school who had not been on the trip but had taken vacations at the same time. The girls who had walked gained 6.7 pounds during the next three months; those who had not walked only 4.8 pounds.

Drs. Reuss and Rosner of Stuttgart have presented some interesting statistics on the number of physicians in Germany. Whereas the population of Germany in 1885 was in round numbers 46,000,000, in 1907 it was 61,000,000, an increase of some 30 per cent. The number of physicians in 1885 was about 15,000, in 1907 30,000. The increase in physicians during this time was therefore proportionately more than three times greater than the increase in the population. While in 1885 about 4,000,000 persons were insured against sickness and paid 9,000,000 marks for medical attendance, during 1907 in the neighborhood of 11,000,000 persons paid 63,000,000 marks. From this it will be seen that the physicians honorarium has increased sevenfold during this period, while the number of the insured has increased less than threefold. Furthermore, since 1885 the relations of the insured have been supplied with medical treatment in ever increasing numbers without the statistics mentioning these relations in the list of honoraria received. Finally, it is undoubted that since 1885 the demand for medical treatment on the part of the insured has increased greatly.

THE EIGHTY-FIRST CONGRESS OF GERMAN NATURALISTS AND PHYSICIANS.

(From Our Vienna Correspondent.)

EXUDATIVE DIATHESIS—FRACTURE OF THE HIP—TENDON TRANSPLANTATIONS—THE SOURCE OF THE CARDIAC POWER—TREATMENT OF OBESITY—DIABETES AND TUBERCULOSIS—ESTIMATION OF NUTRITIONAL STATES—EARLY TUBERCULOSIS OF THE SKIN—THE ABILITY TO NURSE.

SALZBURG, September 25, 1909.

IN the presence of a great assemblage there was opened on September 19, 1909, in the old university city of Salzburg, the Eighty-first Congress of the German Naturalists and Physicians, in which participated the most prominent savants of Germany and Austria. Of especial importance were the papers of Professor Czerny on the exudative diathesis, scrofula, and tuberculosis, and in the surgical section by Professors Lorenz and Hacker on operative and bloodless orthopedic treatment.

Czerny stated that a special condition had induced him to work during the last few years on the subject of the exudative diathesis. This was the senseless and one-sided feeding of many children on milk and eggs, which, in the presence of the predisposition, produced the symptoms of this disease. Constitutional anomalies as the exudative diathesis were inborn, showed themselves in early infancy, and consequently must be studied at that period. Though not evident at birth, the first nourishment—even breast milk—produced symptoms. Usually these were not marked until the end of the first year, when a digestive upset produced the symptoms of the congenital disease. Besides digestive disturbances, infection processes, vaccination, or the use of tuberculin might be the exciting cause of the outbreak. Measles and acute tuberculosis were especially liable to produce symptoms of the condition. This last combination produced the picture formerly called scrofula. Dietary treatment cleared up the symptoms of the diathesis, but the tuberculosis remained. This was responsible for the idea that scrofula was a tuberculous process.

Professor Lorenz, in the surgical section, spoke on the ambulant extension treatment of fracture of the neck of the femur. Apart from the possibility of a fatal result, the fracture of the hip was of all fractures one of the most to be feared, as it belonged to the class with the most severe after effects. Aged patients were incapacitated for life, while children, adolescents, and adults were offered the sad prospect of a life of invalidism. It was a traditional error that fracture of the neck of the femur was a prerogative of the aged. On the contrary, it was very common during adult life and not rare in children. The most common form was the fracture of the head of the femur in the epiphyseal line in adolescence. This was not well known, as the condition had been considered a primary disease, coxa vara. The combination of fracture of the head and dislocation was often mistaken later for a healed fracture of the neck. The author had treated all such cases as fractures, with unexpectedly good results. As this separation of the cap of the head of the femur closely resembled in symptoms fracture of the neck, Lorenz had used his method in treating both classes of cases in children and adults. The aged were not included. In order to replace the fragment exactly the author did not trust the uncertain method of extension in bed, but corrected the deformity manually under general anesthesia and fixed it by properly immobilizing the legs in a bandage, which enabled the patient to walk around without danger of displacing the fragment. The correctness of the position could be controlled by the *x*-ray.

Professor v. Hecker of Gratz described two new operations for the autoplastic repair of both extensor and flexor tendons of the fingers. The first operation applied to the extensors, in those fingers which were supported by two tendons bound together, the thumb, index, and little fingers. One of these tendons was dissected out in the neighborhood of the wrist, brought forward, and used to join the peripheral end of the other to the last phalanx. The operation was done at one time. The operation had been carried out by the speaker in one case in which a blow from an axe had opened the first interphalangeal joint with a loss of 5 cm. of tendon, the result being complete restoration of extensor power in the finger. A skin transplantation was also done. The second operation might be applied either to the extensor or flexor surface of the finger, and for injuries on the finger itself or on the hand. It depended on using a superfluous tendon from the back of the hand. The most useful tendons for this purpose were the extensors of the index or little fingers. The operation was performed in two stages. In the first stage the appropriate tendon was found, cut across and drawn out through an incision above the knuckle and then passed down through a subcutaneous canal on the flexor surface of the proper finger, and implanted onto the terminal phalanx. In the second operation the transplanted piece was connected with the central tendon stump. The operation had been performed by the operator with restoration of function of a finger The author believed that the two methods would prove valuable. Every surgeon knew the difficulty of treating cases of injured tendons of the fingers. These methods offered more hope of proper healing than the implantations of dead material or the open tendon plastic operations.

In the internal medicine section Professor Adamkiewicz of Vienna presented an interesting paper on the source of cardiac power and rhythm. He said that the true source of the power of the heart was previously unknown. The author, on the basis of metabolic experiments on men, said that the rhythm of the heart was an immediate function of its power, and that the former was lost when the latter sank below a definite minimum, and that the power of the heart was in turn a factor of its nourishment and depended upon the chemistry of the blood. Thus the cardiac rhythm depended primarily on the chemistry of the blood and not upon any mechanical influence. An injury to the rhythm occurred as soon as the power diminished, much as a machine became irregular as its power diminished or a horse lost its stride when he was tired. He had further found in his researches that the particular source of cardiac power was the sugar in the food; that the burning of the sugar in the blood had the same significance as the burning of coal in an engine. A poverty of sugar in the human body expressed itself as a chemical lesion of the heart and resulted in cardiac weakness. This fact is not of purely theoretical inter-

est, but of practical value also. It often happens that signs of sugar starvation are mistaken for symptoms of fatty heart. If one treated these "signs of fatty heart" by removal of the fault in the diet, that is, by increase in the sugar intake, one developed the greatest likelihood of maintaining the health and life of the patient.

In the same section Professor Albu of Berlin spoke on the treatment of obesity by a vegetarian diet consisting of bread, vegetables of all kinds, raw fruit in large amounts, preserves (sweetened with saccharin or not at all), and now and then leguminous plants. Drinks with little nutritive value, as coffee, tea, mineral waters, buttermilk, lemonade, and occasionally sour milk were allowed. Potatoes also might be taken. Two to three eggs were allowed daily. The entire nutritional value of this food was reduced to one-half of that usually taken. The cure was carried on for from four to six weeks, and then twice weekly and later daily 150 grams of fat-free meat was allowed. This vegetarian diet usually produced a loss as high as twenty pounds. By this diet the feeling of satiety of the full stomach was obtained, with a relatively small nutritive value to the food.

Dr. Alfred Lustig of Franzenbad spoke on the subject of diabetes and tuberculosis, and said that repeatedly the two diseases were diagnosed in the same patients in whom a predisposition to the disease could be shown. On the one hand, a long-standing diabetes case often developed pulmonary tuberculosis, especially in young individuals; on the other hand, the children of diabetics were early attacked by tuberculosis. The author laid this connection at the door of a dyscrastic characteristic of the diabetic blood, which appeared to depend not entirely on the metabolic anomaly but also on the prolonged one-sided diet. While in young individuals the combination of diabetes and tuberculosis usually led to a rapidly fatal ending, this was not the case with old people. So also hygienic prophylactic measures enabled one to protect the children of diabetics against the onset of tuberculosis; or, at least, when it was present to weaken its character.

Dr. Karl Oppenheimer of Munich spoke of a method of estimating the nutritional condition of a patient. The circumference of the upper arm in a healthy, well-nourished individual was about 30 per cent. of the circumference of the chest, this ratio applying to child as well as to adult. The ratio of chest to arm was a constant, and was effected only by the state of nutrition. Oppenheimer proved the accuracy of this on 620 patients. Of 350 children from the poorest of the Munich population only 31 per cent. were well nourished.

In the section on pediatrics Dr. Karl Leiner and Dr. Friedrich Spieler of Vienna spoke on a disseminated skin tuberculosis resembling an exanthematous skin lesion, which they had repeatedly had opportunity to observe as the forerunner in the course of tuberculosis in childhood, and considered to be of great significance in the diagnosis and prognosis of tuberculosis of childhood, as it might be the only sign of the disease. The authors described the clinical picture of the disease, and the characteristic microscopic tissue changes of the condition, of which definite forms could be distinguished, in one of which the bacteria were very numerous, in another very hard to find, indeed.

Privat Docent Dr. K. Hegar of Freiburg spoke on the inability to nurse as the result of maldeveloped breasts. He contradicted the often-stated fact that there was no such thing as a breast which was not able to nurse on anatomical grounds. The basis of this belief lay in the fact that the recent movement among pediatrists and obstetricians had succeeded in causing many women, previously unable to nurse, to carry out that function successfully. Dr. Hegar reported the results of his own experience. Of 74 women, 25 were completely able to nurse, 21 partly capable, 22 lost their milk during the first two weeks, and 6 were never able to nurse. The cause of their inability lay in an insufficiently developed breast, especially of the gland, in malformations of the nipple, etc. For comparison and to show that at least in that region undeveloped breasts were very common, the author observed the condition of the breasts of a series of women who had never borne children. Of 94 such women, 22 had well developed breasts and nipples, 22 had good breasts but poor nipples, 21 very large breasts and poor nipples, 15 poor breasts and imperfect nipples, and 14 completely infantile type of breast.

Progress of Medical Science.

Boston Medical and Surgical Journal, October 21, 1909.

Asexualization as a Remedial Measure in the Relief of Certain Forms of Mental, Moral, and Physical Degeneration.—J. Ewing Mears refers to the various movements along the line indicated in the title of his paper and the legislative enactments which have been made in certain of the States in regard to it. Is it asking too much, he says, when the State, through carefully considered legislation, which in every detail shall safeguard the rights of the individual, seeks to protect itself against the degrading influence of the continually flowing stream of transmitted pollution which saps the mental, moral, and physical vitality of its citizens by asking the parents and guardians of the irresponsible defectives to yield their consent to the performance of an operation which in some instances may prove to be curative and in many to be palliative by abrogating sexual perversions and thus establishing conditions favorable to mental and moral cultivation, and in all, through its far-reaching result, is able to render them impotent to do harm? Failing to obtain this consent, has not the State the right to adopt such measures in the interest and protection of its citizens? Nay, further, is it not compelled so to act in the performance of its full duty to its citizens? The education of public opinion has so far progressed that to-day communities, through their appointed officers, exercise the right to deprive citizens of their liberty in order that a focus of infection may be stamped out; in epidemics of certain infections and contagious diseases the citizen is compelled to receive prophylactic treatment to render him immune, and in this way the spread of the disease is checked.

The Intravenous Use of Strophanthin in Broken Cardiac Compensation.—Three cases are reported by A. K. Stone, who says that strophanthin is an amorphous or crystalline powder, soluble in both alcohol and water. Each milligram of the substance has the potency of 20 frog units—that is, power to stop the hearts of 20 frogs of similar size and under similar conditions and with all other precautions that have to be observed in dealing with such a variable unit as a living animal. The dose for an adult who has not been taking any other form of digitalis or strophanthus, and especially in all those cases in which sudden collapse has occurred, should be one milligramme. This will give immediate and powerful results and will not have to be repeated for eighteen or twenty-four hours at the earliest, and practically there is no danger of heart block. The immediate result of the intravenous injection is to increase the amplitude of the pulse wave. In a few minutes the frequency of the heart is slowed. Therefore, when it is desired to get speedy relief in broken compensation where the heart is rapid and the blood pressure is lower than is needed to retain the balance of the fluids in the body, when the apex and wrist are far apart, when there is great distress and restlessness, with a sense of impending disaster, strophanthin given as directed will give in most instances immediate relief which will last seventy-two hours and sometimes even longer. This relief will be accompanied by free diuresis, or will permit diuretics previously inert to become active once more. The previous use of digitalis is, however, almost a sure contraindication to the use of strophanthin. Eight deaths are on record from poisoning by the latter. In addition, the injections must not be allowed to escape into the tissues or into the wall of the vein. A high blood pressure is not necessarily a contraindication, but bradycardia always is.

New York Medical Journal, October 23, 1909.

Cancer of the Stomach.—A general consideration of the subject is given by I. E. Cantaday, who says that in more than 60 per cent of cases there must have been an antecedent condition of ulcer. The two most common types, the pyloric and the prepyloric, give initial symptoms that differ decidedly. In the former the symptoms are obstructive from the beginning, and vomiting is seen from the first. Hypertrophy and dilatation follow early. When the growth has a prepyloric location, the first signs are separately vague, but taken together are quite sufficient for a diagnosis to be made. When a cancer is implanted in the ulcer or its scar there is a slow, progressive transition, becoming more and more severe. Evidence of transition from simple ulcer to malignancy can seldom or never be found post mortem. The excision of the ulcer as a means of prophylaxis will always be of much value. Exploratory incision is advised in all cases of chronic gastric ulcer of more than recent origin. Wherever there is gastric stasis a mechanical blocking can be relieved only

by mechanical means. As a general rule, the operative mortality after gastrectomy for cancer will be from 15 to 20 per cent.

Economies of Health.—R. J. Behan discusses the statistics of modern social efforts to collate the financial loss of sickness to the community. The State can prevent this loss: (1) By prophylaxis which includes the taking of precautions against its transference from one community to another, and the State can best regulate this by registration of all cases and a better diffusion of knowledge of the omnipresence of this disease among the people and of its means of prevention and of cure. (2) By care of the tuberculous sick. The tuberculous sick should be cared for, not only through reasons of humanity, but because by their proper care and training the tendency to carelessness which is always present in every case would be markedly lessened. He lays great stress upon the duties of corporations toward their employees with reference to the adoption of life-saving devices, safety machinery, etc., and to the necessity of proper care when once a workman has been injured. He gives some interesting figures in regard to the problem as affecting the Pittsburg district.

The Thiocyanates in Solution the Natural Physiological Solvents of the Body—A Clinical Study.—B. R. LeRoy is convinced that the thiocyanates work through their molecular union with the earthy salts, thus producing a substance that is both soluble and assimilable, which the body cells readily take up and convert to their own uses, thus acquiring the power of resisting the action of certain poisons and certain microorganisms. A series of six clinical cases is epitomized. The thiocyanates are given in aqueous dilution, first making use of a 1 in 1,000 solution in distilled water: a teaspoonful of this at mealtimes and at bedtime. The percentage may be increased, but the dosage is never increased. In certain cases a 2 per cent. solution is used. As it is well known that the thiocyanates (English, sulphocyanides) are the most active poisons to both animal and vegetable life that is known, it will appear to the clinician that extreme care in administering the thiocyanates must be taken, nothing must be taken for granted, the blood pressure must be studied with care and kept in a normal limit by increasing or diminishing the dose of the chemical. It will be highly advisable to give the patient scrub baths with rub down of an acid solution, to regulate the bowels by some simple means, and to order the patient to live a simple life. The scrub baths followed by the acid wash-down are as essential as the dietary control, for in cases where the thiocyanates were indicated and given without the baths to reduce the content of ammonia chemical changes are produced which are harmful, and symptoms of disease are intensified. One must always endeavor to lessen the content of ammonia in the system before giving the thiocyanates. The reaction of a normal amount of the remedy in the saliva is indicated by a blood-red color given the saliva with an acid solution of ferric chloride.

Rectal Erosions: A New Method of Examination.—S. Lewis believes that a superficial form of anal fissure which may be called an erosion is more common than is generally supposed. They lie at the bottom of folds, and are obscured by the sphincteric contractions. He employs the glass rectal dilators, sold by dealers in sets of three. One of these, as large as patient will bear, should be lubricated with glycerin or some other transparent lubricant (not petrolatum) and inserted. The entire surface is at once open to inspection. The normal mucosa is pale from pressure; and fissures, erosions, or emboli are as clearly seen as if on an open page before you. Partial relief of pressure by tilting or partial withdrawal of the "speculum" may assist. An electric diagnostic lamp is useful. The most satisfactory treatment he has employed has been potassium permanganate crystal or saturated solution followed by powders, ointments, or suppositories, as the case may demand.

The Lancet, October 16, 1909.

The Operative Treatment of Cataract.—The article of A. E. J. Lister is a clinical study of 576 personal operations done according to the method of Major Smith of the English army medical service. Of this entire number only two eyes were lost by sepsis. The author attributes this small number to the use of a douche of mercury perchloride, one to two thousand. This solution is a strong one for the eyes, but the patients are all under cocaine anesthesia, and the author thinks that this preparation in the strength named is a potent factor, as few of his cases were given any preliminary treatment to the conjunctiva. Troublesome lacrymation occurred in a few cases, but yielded to instillation of a weak zinc sulphate solution and boric acid drops. Escape of the vitreous occurred 29 times, but this accident diminishes with the skill and experience of the operator. The author passes on to consider the technique of the operation, dwelling especially on the importance of quickness on the part of the operator. In regard to the effects of the escape of the vitreous, he says that 98 cases were examined over three years after the operation had been performed, and in no case was there any detachment of the retina. It is quite probable that the eye in operations hampered with débris and the capsule of the lens which, apart from those cases in which definite iritis occurs, must usually cause some degree of irritation, does suffer more serious damage than does the eye which is free from any irritating material. On account of having so large a wound it is possible to remove most of the débris, so that the condition in these cases is not quite the same as it is in the ordinary capsulotomy operation. We have referred to but a few of the many interesting points of the original paper.

Venous Anesthesia.—A report of several cases is given by C. M. Page and S. G. MacDonald, who followed Bier's method. The skin is prepared as usual and then a sterilized Esmarch's bandage is firmly bound round the limb as high as the upper limit of the operative area. Above this and in contact with its last turn is fastened another rubber bandage, sufficiently tight to stop the arterial circulation. The bandage covering the distal part of the limb is now removed and a third bandage is firmly wound round the limb at the lower limit of the operative area. This bandage must be tight enough to prevent diffusion of the injected fluid into the distal part of the limb. In the leg a cannula is tied into the internal saphenous vein. Small vessels are now secured to prevent leakage and a syringe capable of holding 100 c.c. is attached by a tube to the cannula. The fluid is then gradually injected, and as infiltration sets in the area swells and becomes of a dusky white color. Complete anesthesia is secured in from five to fifteen minutes. When it is secured the cannula is removed and the vein tied off. The skin incision, unless it falls into line with the operative incision, is sutured and operative measures are then proceeded with. The anesthetic agent employed by the author was cocaine novocaine, and he says the danger of toxic symptoms from it will only arise at the moment when the upper bandage is loosened or when perfect hemostasis has not been secured. In his own cases of amputation the amount of novocaine has not been sufficient to alter the pulse rate except in the case of an old man whose arteries were extremely rigid. In fat subjects this method is inferior to that of spinal anesthesia for operations on the lower limb, owing to the difficulty of finding the vein. This part of the operation does not require in the average patient more than fifteen minutes.

Thyroidectomy and a Theory of Cancer Causation.—W. Stuart-Low gives the histories of five cases, saying that after years of observation of cancer and sarcoma in all stages he has come to the conclusion, looking at the thyroid gland as the flywheel of body growth and metabolism, that this organ is very liable to overwork, that the body metabolism is liable in this manner to become overworked, and that the thyroid may thus become a causation factor in the origin and continuation of malignant disease. He therefore advises more or less complete excision of the thyroid in inoperable carcinoma as the best means of eliminating or ameliorating a disturbing factor in the diseased organism of the carcinomatous. The results of his operations seem to show that the elimination of the thyroid has an influence on these inoperable malignant growths. It seems to have a deterrent effect on the rate of growth of the primary tumor, and the secondary glands seem to be favorably affected also. In his own cases the glands were softened and less painful. In all the pain was quickly relieved, the patients began to put on weight, and there was a distinct slowing of the pulse rate.

British Medical Journal, October 16, 1909.

The Origin of the Presystolic Murmur.—A. E. Cohn refers to a patient under observation for mitral stenosis who showed constantly in his venous curve a long a-c interval. During his last failure in compensation he was brought into hospital, where digitalis was given him. After two weeks his venous curve showed incomplete heart block, 2 in 1. Auscultation at the apex showed that when the heart was beating regularly a presytolic murmur was always heard. During the periods when the ventricles were silent the murmur corresponding to the presystolic murmur persisted, and was synchronous with a certain wave in the venous curve. It was clear that auscultatory

phenomenon occurred in a cardiac cycle in which there was a silent period of the ventricle seen in the pulse curves. It seems justified to conclude that the auricle, which alone was beating, was responsible for the production of this presystolic murmur. Not only were the heart signs wanting, but the systolic and diastolic murmurs which were features in the auscultatory signs in the case were absent in the cycles noted.

Determination of Tubercle Bacilli in the Blood of Persons Suffering from Phthisis.—A. M. Hewat and H. G. Sutherland refer to the work of Rosenberger and Forsyth, and are unable to agree with them. At no stage of localized pulmonary tuberculosis was the bacillus demonstrable in the blood. They allude also to the work of Schroeder and Colton of the United States Bureau of Animal Industry, who tested the blood of 42 cattle in all stages of tuberculosis by intraabdominal injections into guinea pigs with negative results in every case. In only 1 out of 20 cases was it possible for Hewat and Sutherland to demonstrate tubercle bacilli in the blood. In this case two acid-fast bacilli were found, morphologically resembling the tubercle bacillus. A second examination of the blood of the same patient proved negative after a prolonged search, so that they were led to believe that the presence of the two bacilli referred to was accidental.

Dystocia Due to Uterine Ventrofixation.—W. Smith reports a fatal case, the patient's operation being done five years before. Pains began September 13, but did no good. She was kept with suitable doses of opium and chloral. In the neck the os was somewhat dilated and the membranes protruded in a sausage-like bag. Next day they ruptured. Twelve hours later forceps were tried, but it was impossible to get the second blade on. Version was then tried, but found impossible, and perforation could not be done. Cesarean section was then done by the surgeon, who had done the ventrofixation five years before. The tubes were tied and cut. The uterine wall was edematous and the cavity stained with meconium. The fetus was macerated. The patient was in good condition after operation, but died of shock in forty-one hours.

Intermittent Closing of Cerebral Arteries.—W. Russell discusses the relations of this circulatory disturbance to temporary and permanent paralysis. It led to impairment or suspension of the function of the part affected, as manifested by sensory disturbances and motor faltering, or paralysis. It favors thrombosis in certain states of the vessel wall, or of the blood itself, or of both. If the heart be weak the blood flow is the more easily arrested, thrombosis is favored, and the risk of softening is the greater. If the heart be strong and the vessel not sound, hemorrhage is liable to occur. The bleeding does not occur in the closed portion of the vessel. It must take place on the proximal side, where the pressure is raised because of the distal closing. The causes of this accident are found in the gouty and rheumatic, in impaired metabolism, fatigue, toxic conditions of skin and kidneys, mental overwork, etc. Treatment should be directed toward the removal of the abnormal vessel irritability. Plethoric patients are not the greatest sufferers from this accident. Purgative and all extreme measures may be harmful. The irritable tonicity of the vessel wall is often controlled by spirits of niter. In more urgent cases ¼ to ½ gr. doses of erythrol tetranitrite may be given every three or four hours. The action is temporary, but it allows time for the bowels to act fully and for the elimination of waste products. Iodide of potassium is often serviceable. Violent purging in feeble circulation should be carefully avoided. Nux vomica is a useful tonic.

Berliner klinische Wochenschrift, October 4, 1909.

The X-Ray and Diphtheria Toxin.—Gerhartz reports a study of the effect of the *x*-ray on diphtheria toxin. His experiments were of two series. In one he took known amounts of a toxin of a known strength. From twice to six times the fatal dose for rabbits of definite size was given. In each series there were two rabbits of the same size. To one was given the toxin unaltered, and to the other a similar amount which had been exposed for a longer or shorter time to the *x*-ray. In each case the toxin which had been so treated was less toxic than the untreated. In the second series the similar doses of the toxin were given at once to rabbits, one of which was exposed to the *x*-rays. Here, too, the rays showed a definite protective influence in that these rabbits outlived the controls.

Münchener medizinische Wochenschrift, October 5, 1909.

The Antiproteolytic Substances in the Blood Serum of Healthy and Ill Infants.—F. Lust reviews the literature of the clinical significance of the estimation of antiferments in the blood, and emphasizes the fact that an increase of antiferments is found especially in cachectic conditions, as carcinoma. This increase of antiferments seems to be dependent not upon leucocytosis, but upon the amount of absolute cell destruction which is going on in the body—the proteolytic catabolism. On the grounds of these facts he investigated the antiferment content of the blood of a series of healthy and ill infants to learn whether the unexplainable atrophies of infancy were related to the adult cachexias. The method used, was Fuld and Gross' trypsin estimation method by the digestion of casein. The end reaction being estimated by the action of acetic acid upon the solution. On account of the small amount of serum obtainable, but reduced amounts of trypsin and of casein were used, and the serum was diluted 1:5 in physiological saline. A study of ten healthy children showed an antiferment content of the serum of much the same strength as in the adult. The index was from 0.2 to 0.25. That is, that 0.2-0.25 c.c. of a 0.2 per cent. solution of trypsin was required to overcome the antiferment in 0.05 c.c. serum (1:5). The age of the infant did not influence the index. Twenty-two cases of chronic indigestion, many emaciated and atrophic, were tested. Twenty-one of these gave a perfectly normal index; one only was 0.35. Nine cases of the class named by Finkelstein, "decomposition cases," were examined, infants with a steady loss of weight without gastrointestinal symptoms. These were also normal in index. This fact might be due to one of two points: either infants vary from adults in not producing antiferment from cell destruction, or these cases did not produce a true proteolysis. As others have shown that in metabolic experiments on such cases, the N-balance is practically never negative, and that the loss of weight is due to fat, not tissue destruction, the second hypothesis is correct. In acute gastrointestinal diseases conditions were different. In these there was a definite increase of antiferment from 0.35 to 0.5. The two cases with an index of 0.35 recovered; the five with higher indices died. This suggests the possibility of using the antiferment index as a prognostic aid. The theoretical importance of these findings are great in that they show that if there is a relation between the production of antiferment and proteolysis, in the chronic cases of marasmus there is no true tissue destruction, while in acute dyspepsia there is.

The Chemistry of Tuberculous Sputum.—Prorok has made quantitative estimations of the amount of albumin and albumoses in the sputum of phthisis patients. The method was as follows: A measured amount of sputum was shaken with 3 per cent. acetic acid, filtered, and the filtrate washed with the same solution. The albumin and albumoses went through to the filtrate. To this was added NaOH, until the specimen was but faintly acid, and the albumin salted out with NaCl, collected on a filter, washed with hot water, alcohol, and ether, and weighed. The filtrate and wash waters were saturated with $ZnSO_4$, to salt out the albumoses. These were collected on a filter and the N estimated by the Kjeldahl method. The method was used on twenty-one cases. The amount of albumin varied from 0.06 per cent. to 2.03 per cent., and of albumoses from 0.029 per cent. to 1.04 per cent. These results are higher than those obtained by other observers.

Deutsche medizinische Wochenschrift, September 30 *and October* 7, 1909.

Excision of Goiter and Local Anesthesia.—Hackenbruch describes in full his technique in employing local anesthesia in the operation of thyroidectomy. In spite of a certain nervous excitement, due to an appreciation of the course of the operative procedure, the markedly decreased risk with local anesthesia makes its use most desirable. The preliminary treatment is psychic and medicinal. The psychic treatment consists in assuring the patient that the operation will be entirely painless. To do this with the lower classes it is advisable to have the patient admitted to the ward some days before the operation in order that by conversation with other patients they may be reassured of this point. The medicinal preliminary treatment consists in for several days administering the tincture of strophanthus to quiet the pulse. The night before the operation from 7 to 15 grains of veronal is given. Just before the operation an opiate is administered. In the earlier cases this was morphine hypodermically, but later tinctura opii is used by mouth, 20 to 30 drops one hour before the operation, and repeated in one-half hour. The method of administration of the anesthetic used is the author's circular injection method. The entire tumor is surrounded with the anesthetic. Novocaine, 0.5 per cent.

in 0.8 per cent. salt solution, is used as an anesthetic. The solution is made fresh each time it is used, and to each 10 c.c. four drops of suprarenal extract is added. A syringe with a capacity of 10 c.c., with a needle 5 cm. long, and of the smallest possible caliber is used. The technique of the injection is as follows: First, at the outer upper pole of the goiter the needle is injected quickly through the skin, and then slowly inserted with continual injections deeply to the neighborhood of the cervical vertebra, in the direction of the great horn of the hyoid bone. It is then withdrawn until the point is just under the skin, and in a similar manner reinserted just under the skin to the middle line of the neck; a third insertion deep to the spine, and a fourth down the side of the tumor are made, all through the original skin puncture. A second puncture is made at the lower outer pole, just above the clavicle, and three injections, deep, upward, and medially are made. Repeating the procedure on the opposite side insures complete anesthesia of the entire gland, which will last for about one hour. In no case has any unfavorable symptom occurred due to the anesthetic.

The Significance of the Wassermann Reaction in Rhinolaryngology.—Weinstein reports a series of cases of disease of the nose and throat in which the Wassermann reaction was used, and from his results concludes that this reaction is a most valuable diagnostic aid. Its clinical availability is undoubted. In rhinolaryngology this aid must be accorded especial respect, as by its means many cases may be cleared up which without it would remain obscure. The positive reaction points with absolute certainty to an active syphilitic infection. A negative reaction is not absolutely definite, but gives a very strong probability (90 per cent.) of the absence of syphilis. In every doubtful case the Wassermann reaction should be used to establish the diagnosis.

The Most Important Mode of Contagion in Tuberculosis in Man.—P. v. Baumgarten says that there are three theories of the mode of transmission of the tubercle bacillus. The believers in the aerogenous theory hold that it is the only means of infection, and that family and workshop epidemics result from air contagion through dust. Experience and experiments, however, do not uphold this view. The enterogenous theory maintains that the disease is obtained by swallowing the bovine bacillus which attacks the glands. This form of infection, however, never causes a progressive tuberculosis. By the genneogenous theory the author means germination and congenital infection, the transmission of the bacillus through the germinal cells or from the mother to the fetus *in utero*. The possibility of this is proved by many conclusive experiments. It has been demonstrated also in man, at first rarely, but later more frequently, as the difficulty in discovering the organism in the fetus is being overcome by increasing knowledge and improved technique. More and more frequently we are learning to recognize this form of inborn tuberculosis. We are now beginning to appreciate the soundness of this teaching. It is not too bold to expect that the future general opinion will be that humanity should pay less attention to the individual social relation of the patients than to the prevention of the congenital implantation of the organism. In other words, v. Baumgarten says, the aerogenous and enterogenous will give way more and more to the "genneogenous" theory.

Implantation of Thyroid Gland in Myxedema and Cretinism.—V. Bramann calls attention to the former operations to implant thyroid gland into the human body in cases of myxedema. These efforts have been made into the subcutaneous tissue, peritoneum, spleen, bone marrow, and in the neighborhood of great vessels, usually with but very temporary results. He then reports three cases in which he implanted pieces of thyroid, 6 x 1 cm., into the bone marrow of the tibia with very good results. In this operation he carefully scraped out all marrow from the neighborhood of the implantation so that the thyroid came in direct contact with the bone, a fact which he believes explains his success. He says that the ideal operation is transplantations with vessel anastomosis, but until the technique of that operation is so improved as to bring its accomplishment within the range of practical possibility, one will find that the present operation is of use.

The Staining of Moist Preparations with the Azur-Eosin Method.—Giemsa reports a modification of his well-known stain by means of which moist specimens may be stained. The various steps are as follows: (1) Fix the moist, thin cover slip smear in sublimate alcohol (concentrated watery sublimate solution two parts, absolute alcohol one part), for 12 to 24 hours or longer. (Throw the glass in with the smear down on the solution; later immerse and turn over.) (2) Wash quickly in water and for from 5 to 10 minutes in a solution composed of potassium iodide 2 gm., distilled water 100 c.c., and Lugal's solution 3 c.c. (smear side up; gently oscillate). Immediately afterwards (3) wash quickly in water, and for 10 minutes in a 0.5 per cent. watery solution of sodium thiosulphate, by which method the iodine yellow preparation is completely bleached. (Smear side up, oscillating.) (4) Five minutes in running water. (5) Stain with freshly diluted Giemsa solution (1 drop to one, two or more c.c.) for one to twelve hours, or longer. After the first half hour pour off the old stain and add fresh. (6) Pour off and pass through (a) acetone 95 c.c., xylol 5 c.c., (b) acetone 70 c.c., xylol 30 c.c., (c) acetone 70 c.c., xylol 30 c.c., (d) xylol pure. (7) embed in cedar oil.

French and Italian Journals.

A New Method of Treatment of Syphilis, with Reference to Abortion of the Lesions and Attenuation of Its Virulence.—H. Hallopeau combines local treatment with general treatment in an attempt to abort, or attenuate the virus of the syphilitic infection. For local treatment he injects at the seat of the ulcer, or in the neighboring lymphatics, atoxyl or one of its derivatives, ten centigrams of each in boiled water. In this way he acts directly upon the treponemata included in the chancre, and those which have infiltered the lymphatics, or have been transported into the inguinal glands, which are very virulent. The diagnosis should be made by the use of the ultramicroscope, the quickest method of diagnosis. A local pomade of crystallized atoxyl may be applied over the initial lesion. The injections of atoxyl should be continued daily up to the period of secondary symptoms, that is, for forty-two days. This will prevent the roseola, and the adenopathies, since numerous foci of proliferation of the treponema will be sterilized. An internal treatment by mercury and iodide of potassium is put into practice at the same time, to act against the germs in the circulation. These various methods of treatment can be associated without disadvantage. The results are that the manifestations of the disease are very slight and of very short duration; there is indeed, a true abortion of secondary syphilis. The earlier this treatment is applied, Hallopeau says, the better are the results for the patient. We may hope, he thinks, to meet fewer cases of generalized syphilis, tabes, general paralysis, and cerebral syphilis in future.—*Gazette des Hopitaux*, August 3, 1909.

Vomiting of Pregnancy.—A. Pinard discusses the causation and treatment of incoercible vomiting of pregnancy. He believes it to be due to some poison manufactured in the system of the pregnant woman, which acts on the vomiting center in the medulla, as well as intoxicating the entire nervous system. It is similar to the poison that causes eclampsia. How it is manufactured, and what its cause is still unknown. One of the most serious symptoms that results from this intoxication is an acceleration of the pulse, with lowered arterial tension. As soon as this occurs, and the pulse has risen to over 100 per minute, it becomes necessary without delay to induce premature labor, else death will soon close the scene. In less severe cases an absolute milk diet may cause relief of the symptoms. The author has rarely seen a febrile condition occur until just before death. The cause of all cases of vomiting of pregnancy is the same; in some women the intoxication is overcome, vomiting ceases, and pregnancy goes on to term; in others the intoxication goes on to a fatal issue unless pregnancy is interrupted. —*Annales de Gynecologie et d'Obstetriques*, July and August, 1909.

Biological Action of Fulguration.—Ghilarducci describes several cases of malignant tumors treated by the method of fulguration. The instrument consisted of a powerful transformer with closed, magnetic circle, a special resonator, and an electrode with a current of air which permits of modification of the sparks. The immediate results have been good in torpid lesions of various nature, such as tuberculosis, and in a case of nodous lupus of the hand. Analgesia, lymphorrhea, the eschar, and the process of granulation and cicatrization of enormous losses of substance were all demonstrated. He experimented on fulguration of the spinal medulla and peripheral nerves in a rabbit. Some of these experiments showed that the spark had an almost selective action on nerve elements. Ghilarducci offers the suggestion that the analgesic action of fulguration may lead to experimentation on nerves exposed in cases of inveterate neuralgia.—*La Riforma Medica*, September, 1909.

Book Reviews.

Electricity in Gynecology. The Practical Use of Electricity in Diseases of Women. By May Cushman Rice, M.D.; Professor of Gynecology and Clinician in the Illinois School of Electro-Therapeutics; Member of the Chicago Medical Society and American Medical Association. Illustrated. Chicago: L. I. Laing & Co., 1909.

This is a small volume of 150 pages, dealing with electricity in gynecology. It is intended to supplement a course in electrotherapy. As an introductory work it can be commended. The author is quite conservative, and does not claim that electricity will cure everything, nor does she urge its use when other means are considered preferable.

Lehrbuch der Magenkrankheiten. Für Aerzte und Studierende. Von Dr. Hans Elsner, Specialarzt für Magen- und Darmkrankheiten in Berlin. Mit 46 Abbildungen. Berlin: Verlag von S. Karger, 1909.

Elsner has attempted to write a book on the diseases of the stomach that should rank midway between the numerous short treatises on the subject used by students and the equally numerous exhaustive monographs appealing to specialists in this branch of medicine. His volume is intended for the general practitioner; it contains all that is new in our knowledge of gastric disorders, without going into interminable discussions of the theories and explanations of them. The author first considers the general principles of diagnosis in the diseases of the stomach, giving a plan for obtaining the patient's story of his complaint and naming the diagnostic data to be obtained by inspection, palpation, and the mechanical methods of examination. Under the latter heading the use of the stomach tube, the inflation of the organ, Röntgenological examination, gastrodiaphany and gastroscopy are fully considered. Abundant space is given to the chemical examination of stomach contents and to the demonstration of occult blood in the feces, the search for which is considered by the author to form perhaps the most important single procedure in the diagnosis of stomach affections. Elsner very properly warns against the numerous errors into which the inexperienced physician may fall in interpreting the findings—the changes in the chemistry of the gastric juice caused by nervous influences and by the effect of the menstrual period in women, the simulation of spontaneous bleeding occasioned by trauma caused by the stomach tube, the appearance of occult blood explained by the presence of meat in the diet, or such sources of bleeding as hemorrhoids, nasal polypi, hypertrophied adenoid tissues, etc. The guaiac test for blood is the one that seems to be most favored by the author.

The second part of the book is devoted to the symptomatology, diagnosis, and treatment of the special affections of the stomach, whether of functional or of organic origin. The various chapters contain a well-digested presentation of the latest knowledge of the disturbances of chemical secretion in the stomach, such as achylia, hyperchlorhydria, hypersecretion, gastrosuccorrhea, etc.; such organic lesions as gastric ulcer and carcinoma of the stomach, and changes in size and shape of the organ depending on them are next considered. In the diagnosis of carcinoma, Elsner lays stress upon the use of bismuth suspensions for Röntgenological work; in the treatment of ulcer he gives a fair presentation of the milk diet of Leube and the high protein diet of Lenhartz. Personally, Elsner inclines toward the latter treatment, though he insists upon the necessity of selecting the nature of treatment to suit individual conditions, and not a theoretical picture of the affection.

The book thus forms a very useful compilation for students of medicine and for physicians. It aims to point out the rational and the logical that ought to replace the cut-and-dried diagnostic and therapeutic methods of the past in this difficult branch of medical activity. We heartily recommend the volume to the attention of the American medical public.

History of Yellow Fever. By George Augustin. New Orleans: Published by the author, 1909.

This book of 1200 pages, while necessarily a compilation, represents a vast amount of research work extending over more than a decade. The author, while not a medical man, has had exceptional opportunities for the conduction of the work, being Assistant Secretary of the Louisiana State Medical Society; Assistant Librarian of the New Orleans Medical Society; Special Stenographer for the Marine Hospital physicians, combating the yellow fever outbreak in New Orleans in 1897, etc. In the medical aspects of his subject the author has been assisted by a considerable number of physicians of local and national reputation as authorities on yellow fever, and their special articles on the cause, pathology, prevention, diagnosis, prognosis, and treatment of this disease represent the very latest knowledge along their respective lines of contribution. The book takes up, in Part I, a brief historical summary of the ravages of pestilential disease, the great epidemics of the middle ages, and the relation of insects to the propagation of disease. Part II discusses pertinent points about yellow fever, its nomenclature and a historical summary as to its probable place of origin. In Part III, the author gives the history of yellow fever by localities, including outbreaks and epidemics occurring in various regions and countries of Asia, Africa, Europe, and the three Americas. The chronology of all these outbreaks is given, and the literature and reports of the time are largely quoted for illustrative purposes. Part IV discusses various phases of the yellow fever outbreak in New Orleans in 1905, while Part V treats of the purely medical aspects of the disease as already referred to. The book cannot fail to be of great value, not only to the sanitarian and student of epidemiology, but also to the practising physician, especially to such of the latter as are located within the habitat of the yellow fever mosquito. The book is more or less modeled along the lines of the magnificent "History of Asiatic Cholera," by the late Dr. E. O. Shakespeare of Philadelphia, of which work Mr. Augustin's book will prove itself a worthy companion.

Short Talks with Young Mothers on the Management of Infants and Young Children. By Charles Gilmore Kerley, M.D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital; Attending Physician to the New York Infant Asylum; Assistant Attending Physician to the Babies' Hospital, New York; Consulting Physician New York Home for Crippled and Destitute Children; Consulting Pediatrist, Greenwich Hospital; Consulting Physician, Savilla Home, N. Y. Second edition. Revised and enlarged. New York and London: G. P. Putnam's Sons, 1909.

This little book, now appearing in its second edition, is intended to cover the multiplicity of details which modern scientific pediatrics requires that the young mother should know in order to give her babe the best chance to grow to healthy manhood. All the minutiæ of nursing, feeding, and care are described. The latter half of the book gives brief epitomes of the etiology, symptomatology, and treatment of the commoner diseases of childhood. A chapter is also devoted to the delicate child. As a collection of facts of value to the mother this book is certainly adequate.

A Text-Book of Practical Therapeutics. With especial reference to the application of remedial measures to disease and their employment upon a rational basis. By Hobart Amory Hare, M.D., Professor of Therapeutics in the Jefferson Medical College of Philadelphia. Thirteenth edition, thoroughly revised. Octavo, 951 pages, with 122 engravings, and 4 full-page colored plates. Philadelphia and New York: Lea & Febiger, 1909.

Few books are so well known or so popular with the American medical public as Hare's Therapeutics. Little need, therefore, be said about the new thirteenth edition of the book except to welcome its appearance and to notice the newer matter considered in its pages. Dr. Hare has, as usual, subjected his book to a thorough revision, giving the reader the benefit of his wide reading and experience in the use of the newest remedial measures, whether pharmacological or physical. Among the recently introduced remedies we note that salicylate of ethyl in the systemic treatment of rheumatic affections is given sufficient notice; the use of magnesium sulphate locally as an analgesic and of picric acid in the treatment of burns is discussed; Lenhart's treatment in gastric ulcer; Murphy's treatment of septic peritonitis; the newer antitoxins for gonorrheal infection and for cerebrospinal meningitis, and the more recent local and general anesthetics are included in the additions to the book. In a word, Dr. Hare's work is a compendium of all the recent as well as the old and proven methods and measures in the treatment of disease, and in addition is a treatise on the action and properties of drugs. It brings the study of drugs in relation to the practice of medicine and in its hopeful and well-balanced presentation of the rôle of medicines in the therapy of disease it serves as a wholesome set-off to the more fashionable therapeutic nihilism of the day. The book is perfectly annoted and cross-indexed, so that it serves as a quick book of reference in any emergency. It can be recommended to students as a text-book and to practitioners as a daily guide in the best practice of the day in the treatment of disease.

Society Reports.

AMERICAN ROENTGEN RAY SOCIETY.

Tenth Annual Meeting, Held in Atlantic City, September 23, 24, and 25, 1909.

THE PRESIDENT, DR. GEORGE C. JOHNSTON OF PITTSBURG, PA., IN THE CHAIR.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. Geo. E. Pfahler of Philadelphia; *Vice-Presidents,* Drs. Vernon J. Willey of Rochester, Minn.; C. E. Coon of Syracuse, N. Y.; R. D. Connell of St. Louis, Mo.; and R. D. Hammond of Providence, R. I.; *Secretary,* Dr. Percy Brown of Boston; *Treasurer,* Dr. Charles F. Bowen of Columbus, Ohio.

Detroit was selected for the next place of meeting, the time to be decided on later by the executive committee.

It was voted to discontinue the publication of the transactions in the form of an annual volume, and to substitute therefor an official journal, to be published quarterly, and to be devoted entirely to the use of the Roentgen ray in medicine. Dr. P. M. Hickey of Detroit was elected editor. The first issue of the journal will appear about December 1.

Roentgen Ray Examination of the Mastoid Region.—Dr. SIDNEY LANGE of Cincinnati emphasized the value of skiagraphic examination of the mastoid region in the diagnosis of diseased conditions of the mastoid. The radiograms were made with the patient lying on his side, the mastoid resting against the plate and the rays directed from above and behind, entering obliquely just below the parietal eminence of the upper side and pointing toward the mastoid of the opposite side. The axis of the compression cylinder was tilted upward (cephalad) at an angle of 25 degrees, from Reid's base line, and inclining backward 20 degrees from a plane passing vertically through both external auditory meati. The external ear should be folded forward, because its cartilages sometimes cast faint shadows on the plate. The exposure was of from five to ten seconds' duration. Both sides must be skiagraphed for purposes of comparison. The same tube might be used for both exposures to insure equality of definition and penetration. It was desirous to obtain as great uniformity in the two plates as was possible. The comparison of the two sides was facilitated by taking both on an 11 x 14 plate, covering over half the plate with lead while exposing the other half. A small compression cylinder, 4 or 4½ inches in diameter, would improve the quality of the plates.

The Relations Between Bodily Deformity and Gastrointestinal Irregularities.—Dr. PERCY BROWN of Boston called attention to two classes of cases, the first a class in which an apparent postural deformity absorbed attention to the exclusion of many subjective signs, and the second class one in which gastrointestinal symptoms persisted because of failure to recognize the real cause of the trouble. The Roentgen method of diagnosis was applicable in each class, binding into associated correlation the clinical aspects of bodily disfigurement or deformity and those of various ill-conditioned alimentary functions. The etiological complex in these abnormal conditions of the alimentary tract the author divided into (1) accidental deformities and (2) wilful disfigurements of the body. He found that in cases of lateral spinal curvatures the stomach might be so outlined as to make it appear almost inconceivable that ordinary peristalsis was not interfered with seriously. It had often appeared as if the stomach were twisted on its vertical axis. In kyphotic asymmetries of the spine, especially of tuberculous origin, Brown found no appearance in the shape and position of the stomach differing from those in scoliotic cases. It seemed, therefore, as if the torsion commonly observed in the scoliotic cases had a certain bearing on the malposition of the stomach, though not to such an extent as on the heart and lungs. Another large subgroup of cases in which alimentary imperfections were often found were those in which occupation postures and other postural habits were the underlying roots of the evil, but in which the perversion had not become structural. In this class were the milder types of postural lateral spinal curvature, round back, stoop shoulder, and the like. The wilful disfigurements of the body leading to visceral ptosis were the result of tight lacing, and so forth. In one case seen by Dr. Brown there was a most marked ptosis of the transverse colon, and he was of the opinion that improper shoeing had largely to do with disinclination to walk, followed by general lazy habits of inertia and overeating.

Dr. CHARLES M. HAZEN of Richmond, Va., pointed out that in most of these cases there was a lack of tone in the spinal column, which probably had been overlooked as a cause of condition.

X-Ray Diagnosis of Achondroplasia and Cretinism.—Dr. HENRY K. PANCOAST of Philadelphia, Pa., stated that whereas cretinism did not present any distinctly characteristic radiographic features, it was not likely to be mistaken for any other condition, such as achondroplasia or rickets. On the other hand, achondroplasia presented very striking characteristic radiographic features. There was a very decided deficiency in the epiphyseal development of the shafts or diaphyses of the extremities, making them appear not only very short actually, but also relatively, in comparison with other long bones, such as the ribs and clavicle. They also appeared too thick for their length. There was an abrupt expansion of the diaphyses or shafts in the neighborhood of the diaphysoepiphyseal junction, a rather abrupt bowing of the lower end of the femur, and the upper end of the tibia, with a fairly well developed head of the femur, poorly developed, short, thin neck, and a far better relative development of the trochanter, the latter being manifest in the adjacent portions of the shaft even before ossification in the epiphyses had begun, especially in the lesser trochanter. The appearance of the hands and feet was also characteristic, as was the appearance of the structure of cancellous bone. There was a tendency to symmetrical osteomatous growths on the long bones of the upper extremities, a deficient and irregular ossification and growth at the epiphyseal ends of the diaphyses, particularly in the knee.

Dr. CHARLES LESTER LEONARD of Philadelphia examined a case of cretinism about eight years ago, in which he found separate foci of ossification in the ends of the tibia and femur. There appeared to be three rings of ossification in all the small bones of the feet. He suggested that this might be a point of differentiation.

Dr. P. M. HICKEY of Detroit found in these cases a corresponding development or lack of development in the bones and in the mental capacity of the patient, the one keeping pace with the other.

Stereoscopic Roentgenography of the Chest.—Dr. P. M. HICKEY of Detroit urged making use of the stereoscopic method of roentgenography in the study of the pathology of the osseous system on all possible occasions. In the elucidation of fractures and dislocations it was far superior to plates which were made in two directions. By making two plates of the patient's chest during one respiratory pause all the difficulty heretofore encountered in this work would be obviated. To further this end, he had designed an apparatus which moved the tube rapidly, and which permitted of rapid changing of the plate. The tube holder consisted of a firm upright mounted on rollers and carrying a heavy board faced with lead, which could be adjusted at any height by means of a counterweight. The two supports which carried the tube were adjusted to

a smaller piece of lead covered board, which slid in two grooves. This board was provided with antifriction rolls. The plate holder consisted of an oblong frame, supported on two uprights. This frame could also be adjusted for height. Within the oblong frame was a plate carrier which held two 11 x 14 plates. This plate carrier was also provided with antifriction rollers, so that the slightest touch was sufficient to change the plate rapidly. The patient was instructed to hold his breath, one exposure was made, and as soon as the light vanished in the tube the assistant pulled the two strings, one of which moved the tube and the other the plate holder. The second exposure was then made. The time which elapsed between the two exposures was less than two seconds. To produce the stereoscopic effect the mirror stereoscope was used.

Roentgen Diagnosis of Pulmonary Lesions.—Dr. Charles Lester Leonard of Philadelphia stated that the Roentgen method of examination of the chest was of great value in adding to the knowledge obtained by other methods of physical diagnosis. This was particularly true in the case of earlier tuberculous lesions, especially the deep-seated, peribronchial infiltrations, and bronchial adenitis. In more advanced cases it added an element of greater accuracy and detail in localizing the affected areas, and corroborated the physical signs, while in all cases it was a mechanical method of registering observations which could be compared with others at a later date. The study of evident areas of consolidation, softening, and cavitation determined more acurately the situation and extent, while not infrequently deeply situated areas of consolidation and cavities had been shown on the skiagraph that had escaped detection by other methods. The increase in density produced by thickened pleura could not be differentiated from an equal area of infiltration except by a stereoroentgenogram. The results of a pleurisy, such as a localized empyema, or a pyo- and hydropneumothorax, could be distinctly shown. Besides the alterations in the lungs and pleura produced by tuberculosis, the Roentgen rays disclosed pericardial effusions and thickenings of tuberculous origin. Other features seen in the skiagram were the relative height of the diaphragm on both sides, the relations of the heart and larger blood-vessels, calcification of the costosternal cartilages, frequently noted in over seventy cases studied by the author. Attention was directed to the frequency of occurrence of such a calcification in tuberculous cases.

Dr. P. M. Hickey of Detroit sounded a note of warning with reference to interpreting shadows around the root of the lung as being due to enlarged glands, when in reality they were the result of a chronic inflammation around the bronchi. In two cases a diagnosis of tuberculosis was made, but the tuberculin test failed to confirm such a diagnosis.

Dr. L. G. Cole of New York emphasized what Dr. Hickey had said, and pointed out that an extensive experience had convinced him of the superiority of the Roentgen ray as a means of diagnosing early incipient cases of tuberculosis. In the radiogram the pathological changes were apparent long before they could be detected by physical examination. The mottled appearance of the lungs was absolutely characteristic of tuberculous infiltration, whether it was around the root of the lung or at the apex.

Dr. Kennon Dunham of Cincinnati emphasized the value of the Roentgen ray in the diagnosis of pulmonary conditions, especially as an adjunct to the tuberculin test. He warned against mistaking every case of enlargement of the bronchial glands for tuberculosis, because children have enlarged glands as the result of comparatively trivial causes.

Dr. Arthur Holding of Albany pointed out that the important feature of roentgenography of the chest was not so much the making of a diagnosis as it was to ascertain the pathology present in a particular chest. In the interpretation of the negative the two sides of the chest must be compared carefully, the presence of enlarged glands weighed cautiously, and the difference in the doming of the diaphragm noted.

Dr. George C. Johnston of Pittsburg mentioned that not infrequently a few small doses of potassium iodide, about three grains three times a day, would enable one to make a correct interpretation of a skiagram. It produced a localized congestion which materially facilitated the diagnosis of tuberculosis. He also stated that syphilis of the lung might be mistaken for tuberculosis, and cautioned against such an error.

Dr. Dunham stated that a dose of tuberculin had the same effect in these cases as has the potassium iodide.

Roentgen Ray Diagnosis of Diseases of Bones.—Dr. W. H. Dieffenbach of New York discussed the various diseases of bone with reference to their diagnosis by means of the Roentgen ray, and exhibited skiagraphs of cases of enchondroma, osteitis, osteomyelitis, osteomalacia, fragilitas ossium, bone cysts, osteoma, arthritis deformans, osteosarcoma, syphilis of bone, tuberculosis, and gonorrheal bone lesions. The author had made a special study of the latter condition, and claimed that certain characteristic lesions were found in bone, such as (1) deformity and enlargement of joints, (2) diminution of shadow involving the peripheral portion of all bones of the affected joints, and (3) small sclerosed intraosseous areas, either in the bone shaft or epiphyses—the so-called Carleton's spots.

Dr. Percy Brown of Boston did not agree with the author that the bone changes found by him in gonorrhea were pathognomonic, because they were found in nearly every case of infectious disease.

Dr. F. H. Baetjer of Baltimore had found as the result of rather extensive experience that in gonorrhea it was only after the cartilage had been eroded that the end of the bone was attacked. The disease never attacked the shaft itself.

Technique in Calculus Diagnosis.—Dr. A. L. Gray of Richmond, Va., was convinced that in the diagnosis of urinary calculi by means of the Roentgen ray it was better to employ a cone or cylinder, because, in the first place, it obviated a source of error that might present itself in foci of calcification in the lower costal cartilages, and, second, it was an easy method of directing the rays through the kidneys to the plate by the proper adjustment of the axis of the cone; third, the compression tended to force the back into closer contact with the plate, thereby increasing the sharpness of the calculus shadow and giving a picture of small concretions that would not otherwise appear, which was especially valuable in cases of so-called "sway back." In cases of "sharp backbone" the patient might be turned slightly to one side, and, although the rays passed through the body obliquely, the distortion produced was not sufficient to interfere with a correct reading. The author favored making four plates, one of each kidney, one embracing the ureters well into the true pelvis, and the fourth of the true pelvis, including the entire surface of the symphysis pubis. To make the kidney and ureter plates the patient should be in the dorsal position, with the head low and the thighs well flexed on the pelvis; the semisitting posture with the legs outstretched was best in making the plate of the pelvis. The author also cautioned against soiling the plate by sweat, because a sweat stain could not be differentiated from a calculus shadow. He protected his plate by means of rubber dam or thin celluloid.

In the discussion by various members, it was brought out that in calculus work the compression blends should always be used and that more than one plate should be made, including the pelvis. The means adopted for getting

the back as flat and straight as possible varied. Some radiographers used inflated rubber bags, others sandbags, but all agreed in the principles involved in these procedures.

Dr. Sidney Lange demonstrated the presence of a floating kidney by placing the patient on an inclined plane, head up, and then making a second exposure with the patient in the reverse position, feet up.

Speed Mania in Radiography.—Dr. L. G. Cole of New York said that the disadvantage of making extremely rapid exposures was that thereby many good tubes were rendered useless, although it was well recognized that absolute absence of motion was essential to good detail; in chest and abdominal work the time should not exceed the time a patient could hold the breath. The author compared radiographs made in extremely short time with the transformer with those made by longer exposure, both with the transformer and coil, and eliminating the question of voluntary motion. The results were eminently more satisfactory where the apparatus and tube were not pushed to the extreme limit. He suggested, therefore, that detail, and not speed, be the object sought after in radiography.

Dr. P. M. Hickey of Detroit pointed out that speed was not always necessary, but insisted on making a skiagram as rapidly as possible, when speed was indicated. The smashing of tubes he considered a minor detail, one which must be met by encouraging the manufacturers to make better tubes. The tubes of to-day were far better than those used five years ago. Therefore, a continued improvement in the quality of tubes might be expected.

Dr. George E. Pfahler of Philadelphia pointed out that in order to photograph the moving parts of the body it must be done in a period of time that was too short for that part to move in. Of course, if detail were not essential there was no necessity for speed, but in nearly every case detail was the one thing that must be obtained in diagnostic work.

Dr. E. W. Caldwell of New York thought that when a satisfactory appliance to produce a satisfactory current for the proper excitation of tubes was produced, the speed problem would to a large extent disappear, and with it many of the difficulties of the tube manufacturer. An apparatus which would supply a tube with one hundred milliamperes would do away with high speed.

X-Ray Work in Hospitals.—Dr. Rollin H. Stevens of Detroit had made a very careful investigation of the nature and cost of the Roentgen work done in various hospitals. The total cost of the equipment in fifty-eight hospitals was $68,350, or an average per hospital of $1,102.65. The majority of the hospitals owned their own equipment; in the others the staff or the roentgenographer owned the equipment. A few of the hospitals paid the roentgenographer a salary, others divided the fees, and others paid a salary and a percentage. In most of the hospitals considerable use was made of the Roentgen ray, not only in treatment, but for diagnosis, and many of them kept very careful records, some employing a large staff of assistants in the Roentgen ray laboratory. This study showed that no hospital aiming to do scientific work could afford to be without a complete roentgenologic equipment. The expenses should be paid by the hospital, and the roentgenographer should be paid a salary proportionate to the amount of time spend in the institution. Sufficient assistants and facilities should be provided for keeping careful and accurate records, so that the Roentgen laboratory would prove a boon and not a curse.

Some Laboratory Helps.—Dr. D. R. Bowen of Rome, N. Y., described an orthodiascope made from a half-inch iron pipe which he had devised and had used with much satisfaction. One length of pipe was suspended from a hinge in the ceiling and reached to within about two feet from the floor. Attached to this rod was a sliding sleeve carrying a pivot on which another rod rotated in a vertical plane. At one end of this second rod was the weight; at the other were the adjustable forks carrying the tube and screen. He also exhibited an all metal plate holder made of brass, with the exception of the window, which was made of gauge 33 hard roller aluminum. He had found this plate holder of use in stereoscopic work.

Use of the Roentgen Ray in Goiter.—Dr. Carl Beck of New York had employed the ray in the treatment of all forms of goiter with varying success. In cases of exophthalmic goiter he favored the combination method, that is, removal of a portion of the gland followed by Roentgen irradiation. In advanced cases, where immediate operation interference was contraindicated, Roentgen treatment should be employed until the condition of the patient was more favorable to operation. He had employed the combination treatment in fourteen cases, a cure resulting in thirteen.

Tuberculous Cervical Glands.—Dr. Kennon Dunham of Cincinnati had studied 13 cases, all of which showed an enlargement of the mediastinal glands, proving conclusively, in his opinion, that it was fallacious to attempt the radical removal of the glands in the neck in the hope of eradicating the disease. He advocated the combined use of mercurial injections and Roentgen irradiation of the glands involved, at the same time giving careful attention to hygiene and diet. Surgery should be reserved for those cases where the glands were broken down and sinuses were present.

Roentgen Ray Dermatitis.—Dr. M. K. Kassabian of Philadelphia divided this form of dermatitis into (1) the acute or accidental dermatitis of the patient, and (2) the chronic dermatitis of the operator. The former, he said, occurred but rarely now because of improved apparatus and technique, although some few patients possessed an idiosyncrasy in that direction. The chronic or operators' dermatitis was contracted but rarely nowadays, although when the ray first came into use ninety per cent. of its users were affected with dermatitis sooner or later. Only the most thorough protection against exposure to the ray insured safety. The author supervised the working of his apparatus from another room by means of mirrors, and never used a fluroscope. A lead line partition separated the rooms. The dermatitis usually came on slowly, and there followed in rapid succession redness, dryness, itching, ulceration, and pain, the severity of the symptoms varying in the individual cases. In the acute dermatitis the most effectual treatment was hot normal salt solution, which was soothing and healing. In the treatment of a chronic dermatitis the essential points were to avoid exposure to the ray, avoid injury, anoint the affected parts with lanoline, touch up fissures with an organic silver solution, keep the hands warm, wear gloves, do not use soap, and immerse frequently in hot water. A posterior digital splint might be applied to promote healing of fissures, but rest, absolute rest, was a most essential factor in the treatment. Warty growths must be excised and a skin graft done. It was the only certain and satisfactory procedure.

Treatment of Tuberculous Glands with the X-Ray.—Dr. Arthur Holding of Albany, N. Y., was convinced that the Roentgen ray possessed curative powers, almost specific in character, in cases of tuberculous adenitis. This belief was based on actual experience. When the lesions were small, he used the high frequency vacuum electrode first; in the more advanced cases he resorted to the Roentgen ray at once. If the glands were small they gradually disappeared; if they were large, they broke down. He opened such glands, allowing their contents to escape, and then proceeded with the ray treatment.

Roentgen Ray in Carcinoma of the Uterus.—Dr. H. W. Dachtler of Toledo, Ohio, reported several cases to

illustrate the status of the Roentgen ray in the treatment of this condition. A special speculum, large diameter and short length, was used, and a tube of small diameter, not over six inches, in order to bring the rays as close to the seat of trouble as possible. The knee-chest position was found the most useful. Treatment was begun the second day after operation and was continued daily while the patient was in the hospital. In the advanced cases both deep and superficial irradiations were given in order to prevent a recurrence. Not sufficient time had elapsed to draw conclusions on the effectiveness of this treatment, but thus far the results had been promising.

Measurement of the X-Ray.—Dr. C. M. Peabody of South Orange, N. J., presented a preliminary report on work he had done looking toward the measurement of the Roentgen ray. The fundamental principles involved were based on known physical laws, such as "the work done by any force varies with the time through which it acts." By making a series of exposures so as to obtain plates of graduated density, various units of work were obtained, and it would be seen that the *x*-light followed the law "that the work done by a given light varies inversely as the square of the distance from the source of light." The next principle involved was that the work done by any *x*-light varied with the quantity of current passing in the tube, other conditions remaining constant. He had elaborated a slide rule graduated in terms of the equation, and it had proved a simple and efficient exposure meter, using any tube with any current and at any distance. This formula was: $\frac{D^2\ T^2}{C\ P^2} = X$. D = distance in inches between the target and plate; T = thickness of tissues in inches, making allowance for cavities; C = the current, measured in milliamperes; P = Wehnelt penetrometer reading; X = exposure time, in seconds. This formula was based on a hypothetical unit light and applied to the Lumière plate. The author believed that he was on the road to working out a positive means of measurement and promised a further report at a later date.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held May 13, 1909.

Dr. Eli Long in the Chair.

Treatment of Club Foot in an Infant.—Dr. Henry Frauenthal presented a child having a club foot put up in plaster for the purpose of bringing out a discussion as to the proper time to treat club foot in children. The consensus of opinion on this subject was that the child should wait until it was about five years of age. This baby was but three months of age, and the feet had been put up twice. The child had been under treatment for four weeks. If it had been allowed to wait until it reached the age of five years a very considerable operation would be required.

Dr. Eli Long said that the child was very young to have its feet put up in plaster, and inquired if Dr. Frauenthal knew of any one who had obtained good results from such treatment.

Dr. Frauenthal replied that he knew of ten or fifteen cases that had been treated in this way, and inside of three months the children had perfectly good feet. At an early age the deformity was easily corrected. The treatment was in opposition to the opinion of good men, but they did not get good results so quickly and easily.

A Case of Congenital Stridor.—Dr. Charles Herrman presented this case from Dr. LaFetra's service at the Vanderbilt Clinic. The labor was normal and the child apparently normal until it was two days old, when this peculiar crowing sound was heard, which had since become accentuated. The child made no noise when asleep, but when it became excited and took a deep inspiration the sound was very distinct; this was true also at times when it was nursing. The examination showed only a distinct dullness over the upper part of the sternum, which might indicate an enlarged thymus. There were two theories regarding the etiology of this condition. The one generally accepted was that it was due to a congenital malformation of the larynx; the larynx was a little different from the larynx in the adult, and as the child grew older the epiglottis unfolded and the peculiar stridor appeared. Thomson believed that there was another factor, *i.e.* an incoordination of the respiratory muscles. He did not think that the malformation was not present, but that the incoordination was the prime factor. The sound was not heard in expiration. There was no marked interference with respiration, and no other sign of obstruction. The second view was that the condition was due to an enlarged thymus, which caused this stridor by pressure. There was a lack of evidence to uphold this view. Autopsies had been performed in a number of these cases, and they always showed this peculiar form of larynx, which seemed to indicate that the form of the larynx was the cause of the trouble. The condition disappeared at the end of a year and a half. Medication had little effect upon the condition, which simply persisted for a length of time and then disappeared. Pictures were shown, illustrating the condition of the larynx in two cases of congenital stridor, and also the peculiar form of the larynx in the newborn infant as compared with the adult larynx.

A Case of Persistent Jaundice.—Dr. Herrman presented an infant four months old, also from Dr. LaFetra's service at the Vanderbilt Clinic. The parents were healthy; there was no suspicion of specific disease. There were ten other healthy children. The labor had been normal and the child was breast-fed. On the twelfth day the mother noticed that the child was jaundiced. The child had three or four large white stools daily and no vomiting. The urine contained bile pigment. The liver extended four centimeters below the border of the ribs in the mamillary line, the spleen two centimeters. The temperature was 99.6°. At the end of a month the condition and weight of the patient remained about the same. A persistent icterus neonatorum could easily be ruled out. The absence of fever was against sepsis, as were also the comparatively good general condition after a month's illness, and the presence of bile pigment in the urine. With a complete obliteration of the bile ducts the patient would have become progressively worse, and would not have shown the intermittent periods in which a small amount of bile reached the intestine. The same might be said against a new growth pressing from without. Simple catarrhal jaundice was exceedingly rare at this age, but the case probably belonged to this group. The obstructive jaundice was probably caused by a catarrhal inflammation of the bile duct of infectious origin.

A Case of Status Lymphaticus.—Dr. G. R. Satterlee presented this case. The patient was a boy, two years of age, admitted to the Washington Heights Hospital April 10, 1909. His history revealed nothing unusual except that he had had diphtheria. The child had recently had convulsions on several occasions during the night. These convulsions were becoming more frequent, and were usually ushered in by an attack of crying with apparent pain in the lower jaw. Physical examination revealed nothing abnormal except an area of distinct dullness 2 cm. to the left of the left edge of the sternum in the first and second interspaces, and extending on the right almost to the right border of the sternum, above to the upper edge of the manubrium sterni. The area of dullness was continuous below with that of cardiac dullness. This dullness was

judged to be caused by an enlarged thymus gland, as was confirmed, it seemed to him, by the *x*-ray plates. The heart was hypertrophied, the right borders being at the right edge of the sternum, the left being about one-half inch to the left of the normal. There was a systolic murmur over the base in the neighborhood of the pulmonic area. This murmur had since disappeared. The abdominal muscles were rigid, and the area of the spleen percussed dull to a moderate extent. The organ, however, could not be palpated. There were evidences of rickets, and the right testicle was undescended. There were a few adenoids and the tonsils were slightly enlarged. The deep cervical lymph nodes were palpable, and the superficial posterior cervical, axillary, epitrochlear, and inguinal nodes were enlarged. The thyroid gland was slightly enlarged and the superficial veins running down in the region of the thymus were distended as well as those in the anterior part of the thorax. Blood examination showed 4,000,000 red blood cells, slight polychromatophilia, moderate number of normoblasts, a few microblasts and 94 per cent. of hemoglobin, index L2—leucocytes, 11,000; differential count 67 per cent. polynuclear neutrophiles, 23 per cent. lymphocytes, 8 per cent. large mononuclears and transitional leucocytes, 1 per cent. eosinophile leococytes, and 1 per cent. basophile leucocytes. Examination of the feces showed them to be soft, slimy, stringy, lemon yellow, with very foul odor and much mucus microscopically. The temperature was normal during the first seven days in the hospital. The child remained in the hospital for a week, during which time he had numerous convulsions. The treatment consisted of a milk diet with milk of magnesia, and high saline colon irrigations given twice daily. The patient was taken from the hospital on April 17 and returned on April 30. The convulsions were of shorter duration, the stridor was less marked, the color of the skin had improved, and the child was somewhat brighter. Cyanosis was present during the convulsions and crying attacks lasted steadily over an hour. On May 5 an *x*-ray photograph was taken under light chloroform anesthesia. After beginning the chloroform the pulse became very irregular and intermittent, but there were no symptoms of cardiac insufficiency. A diagnosis of status lymphaticus was made based on the enlarged thymus, the dyspnea with inspiratory stridor, the enlarged veins of the neck and thorax, the convulsions, preceded by a crying fit and accompanied by inspiratory stridor. Though rickets and intestinal disturbance were present they did not seem to be the controlling factors.

Dr. Satterlee, in discussing the *x*-ray pictures of this case of status lymphaticus, said that Dr. Walton thought there was mechanical pressure due to the thymus, but he thought it was a symptom complex. Chloroforming a child in this condition seemed rather a peculiar thing to do in order to get the picture, and when they finished he had a pretty hard time with the child for a while.

Dr. Northrup asked whether there was any difference in the respiratory murmur and dullness on the two sides.

Dr. Satterlee replied that there was some dullness noted at the left; no respiratory murmur could be detected.

Dr. J. Finlay Bell of Englewood recalled the case of a child that had been admitted to the Englewood hospital a few weeks ago with pneumonia and developed inspiratory stridor and mediastinal dullness. He thought that he felt the thymus. After several weeks swelling was noted between the scapulæ. This swelling was found to contain pus from which, upon bacteriological examination, were isolated pneumococci and no other organism. This was evidently an encysted mediastinal empyema, or a mediastinal abscess which gave many of the symptoms and physical signs of status lymphaticus.

Dr. Long said that the case reminded him of one he had seen where very similar conditions were presented. There were convulsions. In this case the diagnosis was intestinal disturbance.

Dr. W. P. Northrup said that he did not often make a diagnosis of enlarged bronchical lymph nodes, but cited a case in which the child was quite well nourished and showed a distinct shadow in that region according to the *x*-ray picture. There was a decided diminution of respiration on one side, and a distinct asthma on provocation. A couple of glands above the clavicle on the same side and a distinct widening of the shadow in the region of the thymus showed as distinctly as the spinal column. On the same side there was diminished respiration, bronchitis, and asthma. The bronchi and right part of the trachea were distinctly congested. If the child's head were pushed backward the child stopped breathing. On slight provocation he had distinct attacks of asthma and diminished respiration on that side. He thought this was a case of enlarged bronchial glands.

Dr. John Howland said that judging from the pictures the thymus was slightly enlarged. An enlarged thymus in children did not necessarily mean status lymphaticus. The term status lymphaticus was usually applied to children dying as the result of an enlarged thymus gland when that was the only pathological sign present and there was no other apparent cause for death. This condition was more common than was usually believed. It seemed that in children dying of status lymphaticus the picture was found because they died so suddenly. Hochsinger said that he examined thirty cases of laryngeal stridor and found an enlarged thymus shadow in each, and he had also examined perfectly healthy children and found an enlarged thymus in a large percentage of them.

Two Cases of Empyema.—Dr. O. M. Schloss presented these cases:

Case I.—This child, three months old, was admitted to Bellevue clinic complaining of cough, fever, and loose bowels. She had been well up to one month before admission. Her condition was diagnosed as bronchitis. On examination it was found that the child had profound anemia and general enlargement of the lymphatic glands. The left side of the chest looked a trifle larger and moved less on respiration than the right. Tactile fremitus was absent on the left side. The apex impulse was not palpable at the usual site, but about three centimeters within the left midclavicular line and corresponded to the fifth interspace. The left side of the thorax was flat on percussion from the angle of the scapula to the costal margin posteriorly and anteriorly from the fourth rib to the costal margin; while above these points the percussion note showed impaired resonance. The signs left little doubt as to the diagnosis, and an exploratory puncture showed thick yellowish pus from which streptococci and *Staphylococcus aureus* were grown. At operation about 120 c.c. of pus was evacuated. Although a simple operation was performed profound collapse followed. After the usual stimulants had been given the child slowly responded and a rapid recovery ensued. The prognosis in this case was at the outset rather bad, as streptococcic empyemas were generally regarded as the most virulent form and there was a general impression that infants under six months died more often than they recovered from their empyema. In this case a simple incision was sufficient, and he feared that had a rib been resected the outcome might have been different, as the shock from the simple operation had been so profound.

Case II.—This patient had an empyema following a pneumonia. He was in the Presbyterian Hospital eight days, and during this time several exploratory punctures were made with negative results. During the past few months the child had improved, had gained in weight, had a good appetite, and slept well. The physical signs of an

empyema were still present but less marked. This patient evidently had an empyema and, although the patient was not operated on, the pus was either removed by lymphatic absorption or by rupture into a bronchus. According to the history the latter was more likely, the drainage being imperfect. Pleural thickening and adhesions had formed and the lung was probably bound down and adherent. The question was, Had this patient bronchiectasis? The scattered areas of bronchial breath sounds, the occasional cavernous quality and the veiled puff, the periodic expectoration of large amounts of pus, the absence of pleural effusion, and the variation in the physical signs at the different examinations were in favor of this diagnosis. It was never possible to examine the patient before and after expectoration, which would have been a great advantage in her diagnosis.

Dr. Eli Long asked if anyone else could report cases of empyema that had not been operated on.

Dr. W. P. Northrup said that if he remembered correctly the diagnosis was old empyema, that the child had spit up the pus and that absorption and retraction had done the rest. The *x*-ray showed nothing. The *x*-ray and needle showed no pus and no operation was attempted.

Dr. Eli Long said that it was interesting to know that the v. Pirquet test in this case was now positive, while two months ago it was negative.

Dr. Schloss stated that the mother had told him that the child had spit up at times as much as a bowlful of material. It seemed probable from the history that operation was not called for.

Dr. Long said that the case was interesting to him because he had the idea that such cases when operated on when under a year old died. If a baby could do as well as this one, it would in the future revise his prognoses in empyema work.

Dr. Northrup said that he had a case only seven weeks old that did as well as this one.

Some Cases of Lisping.—Dr. E. W. Scripture presented some cases which he said might be termed "negligent speech." They were characterized by a lack of precision and correctness in using the muscles of speech, and were due to a kind of mental negligence or inattention. These cases could be readily cured by such comparatively simple methods that the general practitioner could effect cures in the course of regular office treatment.

Sarcoma of the Kidney.—Dr. J. Finley Bell and Dr. S. D. Jessup reported the case of a male infant, four months old, breast fed, who had a congenital sarcoma of the kidney. While these cases were by no means rare, they occurred with sufficient infrequency to make each one interesting. From the history and course of this case, together with autopsy findings, one was justified in making a diagnosis of congenital sarcoma of, or in the region of, the left kidney, its hilum, or ureter, causing obstructive hydronephrosis, multilocular in character. The various loculi corresponded to one or more dilated compartments of the kidney. Dr. Jessup presented the pathologist's report; the diagnosis was spindle celled sarcoma with cystic degeneration.

Dr. Northrup said that while congenital sarcoma was not very common it could not be said to be rare. One peculiarity was that they seemed to grow from a single pole of the kidney, the tumor being so large that the kidney seemed to be grafted on it.

Dr. Bell said that some time ago Dr. Jacobi reported a case of still-birth in which there was found sarcoma of the kidney.

Squint in an Infant Eighteen Months Old.—Dr. W. H. Holzapfel reported this case. The squint was corrected by eyeglasses. The case was one of many similar types with similar results, showing hyperopia to be the cause of convergent strabismus in most cases. The best results were obtained in children. After an eye became more fixed in position, not only glasses but operation was necessary in order to obtain binocular vision.

Dr. J. Finley Bell reported two similar cases occurring in his practice during the past eighteen months. It was to him a satisfaction to know that a young child's eyes could be successfully corrected with glasses.

Dr. Thomas S. Southworth reported the case of a child two and a half years old with squint. The case was referred to a prominent ophthalmologist in a large Western city, who told the parents to bring the child back when it was four or five years old. This was another instance of the fact that the position taken by the best ophthalmologists here had not yet reached the West. It was of the highest importance that such a squint should be corrected early, so that the power of the eye might not be lessened.

Dr. Eli Long said that while the operation for squint in a child was not particularly dangerous it was something that one did not like to undertake, and it was very satisfactory to know that there was some way of avoiding it. Dr. Long then asked Dr. Holzapfel what proportion of cases responded satisfactory to this treatment.

Dr. Holzapfel replied that satisfactory results were obtained in the vast majority of the cases, though comparatively few cases were seen in infants as the children were seldom brought to the ophthalmologists until they were from five to ten years old.

GENITOURINARY SECTION.

Stated Meeting, May 19, 1909.

Dr. Martin W. Ware in the Chair.

Vesical Calculi.—Dr. J. F. Tooker of Hwai Yuen, China, reported on a series of operations for calculi, over seventy in number, which he had removed during the past eighteen months. In China vesical calculi were particularly common in Canton and in the region north of Nanking, and at least 50 per cent. of these patients in the latter region were children, while in 75 per cent. they were under twenty years of age. In a series of 73 cases pus was found in the urine in 54, and 23 of these were under ten years of age. He showed one urethrovesical calculus which he had removed from a boy of eleven years, whose symptoms dated back five years. In reply to a question as to whether the opium habit, in its deleterious effects on the general health, acted as a factor in the production of vesical stone, Dr. Tooker said he did not think so, nor did he discover any parasite which could be held responsible for their prevalence. In nearly all these cases the stones were removed by suprapubic cystotomy, as the speaker said he had had no experience with the crushing method.

Urinary Calculi.—Dr. James R. Hayden showed a large collection of such stones. The first series comprised twenty-eight calculi that were passed from the kidney to the bladder, giving rise to the usual symptoms of renal colic, and then escaped spontaneously from the bladder without giving rise to any symptoms. In a second series of six cases the stones, also of renal origin, passed from the kidney to the bladder, with symptoms of renal colic, and then became impacted in various parts of the urethra, giving rise to either partial or complete retention. In the removal of these stones from the pendulous urethra, the speaker said he had found Ultzmann's urethral scoop very serviceable. External urethrotomy was employed for the calculi lodged in the bulbous-prostatic portions of the canal. Dr. Hayden also showed another series of stones which he had removed from the urinary bladder by the suprapubic route. In two of these cases the calculi had formed around particles of wax introduced into the bladder by sexual degenerates. He also reported a case of multiple

prostatic stones removed post-mortem, and one case where 102 vesical calculi were removed through an evacuating tube. In one case the calculus removed weighed 1,050 grains.

Multiple Vesical Calculi Voided Periodically by a Prostatic.—Dr. Victor C. Pedersen reported this case and showed the specimens. The patient was an old sailor, who had collected about 40 or 50 calculi which he had passed spontaneously during the past two years, these representing about one-third of the total number that he had passed at various times. The patient gave a history of five or six attacks of gonorrhea, for which he had treated himself. An examination in this case showed considerable prostatic hypertrophy. The case was interesting as illustrating how much traumatism the genitourinary organs might be subjected to in some patients without causing serious symptoms.

Dr. Pedersen also showed a calculus which he had removed from a Chinaman by external urethrotomy from behind a midpenile stricture. The operation was done without the aid of an anesthetic, and the man made a rapid recovery. The stone was apparently renal in origin, but the patient gave no history of renal colic.

Dr. Joseph Wiener said that last summer he saw a man seventy-one years old who gave a prostatic history and showed a small stone he had voided the day before he came under observation. Since that time he had been able to void scarcely any urine. A catheter which was introduced was obstructed about half an inch from the meatus, due to the presence of an impacted calculus. Upon removing this a second calculus was found higher up. This was also removed, and it was then possible to pass a catheter into the bladder. Upon subsequently opening the bladder, twenty additional stones were found, some in the bladder and some partly imbedded in the prostate.

Prostatic Calculus.—Dr. Antonio Fanoni reported this case and showed the specimen. The patient was an Italian, eighteen years old, who was sent to the Italian Hospital in December, 1908, suffering from frequent urination and slight hematuria. The searcher in the prostatic urethra elicited the presence of a stone, which was removed through a perineal incision. The stone was located in the prostatic urethra.

Dr. Hayden thought it was unusual to find such a large and rough stone in the prostatic region without giving rise to more pronounced symptoms. He inquired regarding the condition of the prostatic gland, and also that of the sexual functions; whether the latter had been affected as the result of carrying the stone?

The chairman, Dr. Ware, asked whether the stone was perceptible per rectum? Also, whether the stone was actually lodged in the prostatic region or in the substance of the gland?

Dr. Fanoni, in closing, said the prostate was completely atrophied, so that nothing remained but a shell. The stone could not be felt from the rectum, but its enucleation necessitated a prerectal incision. It was a large stone of the prostatic urethra, rather than of the prostate itself. It was a typical mulberry calculus, probably originating in the bladder.

Ureterectomy for a Calculus Embedded in a Dead Ureter.—By Dr. A. V. Moschowitz. The patient was a girl nineteen years old, who was admitted to the service of Dr. Arpad G. Gerster at the Mt. Sinai Hospital in February, 1908, with symptoms indicating the presence of a calculus in the urinary tract. An *x*-ray was taken, which showed a faint shadow along the course of the right ureter, about an inch from its vesical end. She was then cystoscoped, and a ureteral catheter was easily passed through the ureter which was supposed to be the seat of a stone. After further study of the case, Dr. Gerster exposed the ureter, but failed to find a calculus. The corresponding kidney was then exposed, but nothing was found to account for the patient's symptoms. Subsequent to this operation the patient developed a suppurative condition, with high temperature, and as a matter of necessity the kidney was removed. At the time of this operation a wax-tipped catheter was passed into the ureter from above, and upon its removal it showed distinct scratch-marks, giving evidence that it had come in contact with a calculus. The patient refused further operative interference until February, 1909. An *x*-ray was again taken, which showed a shadow in the exact location of that shown on the previous picture. The ureter was again exposed, and a calculus found embedded within it, about half an inch from the vesical outlet. Complete ureterectomy was performed. The patient made an uneventful recovery from the operation, and had been free from symptoms since that time.

Dr. Ware recalled an exactly parallel case, where a ureteral stone which was seen by the *x*-ray could not be found on operation. This was followed by a fistula, and several months later the corresponding kidney was exposed and drained in order to divert the urine. This was promptly followed by healing of the ureteral fistula. A year later the patient had a recurrence of his symptoms, and the stone was again located in identically the same spot as before by means of the *x*-ray. A second operation for its removal was undertaken, and this proved successful.

Ureterotomy for Supposed Ureteral Calculus; Nephrectomy.—By Dr. Moschowitz. The patient was a young man who came to the hospital about three years ago with vague and indefinite symptoms that led to an exploratory laparotomy. The incision was made rather high up, and there was removed at that time a chronically diseased appendix. Subsequent to this operation the patient still complained of indefinite pain localized in the right half of the abdomen. The urine showed blood under the microscope, and upon *x*-ray examination a peculiarly shaped shadow was observed in the lower ureter, opposite the spine of the ischium. A diagnosis of ureteral calculus was made and an operation advised. The ureter was exposed and thoroughly explored through the usual extraperitoneal incision, with negative results. A small incision was then made into the ureter, through which a bougie could be passed into the bladder. As the result of this operation a ureteral fistula developed, with subsequent involvement of the kidney, necessitating a nephrectomy. At the time of its removal the kidney presented the appearance of a large pus sac, with very little secreting tissue left. There was pus in the pelvis and parenchyma of the organ, and a nephrectomy seemed to be the wisest thing to do.

Calculi from Both Kidneys and Calculus from Ureter Removed at Two Different Operations.—Dr. Moschowitz showed the specimens and the *x*-ray pictures in this case. The patient complained of symptoms referable to the urinary tract, and an *x*-ray showed a calculus in the right kidney. After the removal of the stone the patient developed symptoms referred to the opposite kidney. An *x*-ray showed that these were due to stone in the left ureter. This was passed spontaneously. Subsequently, the patient returned and complained of pain again referable to the left kidney. A third *x*-ray picture showed an irregularly shaped calculus in the left kidney. This stone was removed about a month ago, and the patient made an uneventful recovery.

Loss of Sexual Power Following Operation for Rectal Fistula.—Dr. Forbes R. McCreery reported the case of a man, fifty-six years old, who was operated on about five months ago for a rectal fistula on the left side. Since that time he had suffered from incontinence of feces and a marked impairment of his sexual power. His

erections were very feeble and transitory, and the penis showed a tendency to curve towards the left. The incision that was made at the operation was evidently quite a deep one, and in addition to cutting the fistula, the cautery was employed.

Dr. Joseph Wiener said he was at a loss to understand why impairment of sexual power should have followed the operation for fistula in the case shown by Dr. McCreery, no matter how high up the incision was made. It was not an uncommon procedure to excise the rectum above the border of the coccyx, and even remove the coccyx itself, without resulting impotence.

Stone in Pelvis of Kidney.—Dr. Joseph Wiener reported this case and showed the specimen. The patient was a married woman, twenty-five years old, who was admitted to the Mount Sinai Hospital on March 13, 1907, with the history that a year prior to that time she had an attack of cramplike pain in the right side of the back, radiating to the right labium. Since then she had had several similar attacks, of growing intensity. She had never been jaundiced. The pain did not radiate to the shoulder. Following these attacks she would sometimes have hematuria. Two *x*-ray pictures were taken, one in October, 1906, and the second in March, 1907; both of these showed a stone in the pelvis of the right kidney. Operation, March 14, 1907. The right kidney was exposed through an oblique incision, and by manual compression a stone could be felt in the pelvis. A one-inch incision was then made through the cortex into the pelvis of the kidney and the stone removed. The kidney was sutured and the abdominal wound closed, leaving a small gauze drain down to the kidney. The patient left the hospital twenty days after the operation with a two-inch sinus, which soon healed.

Kidney and Calculi from Pyonephrosis.—Dr. Wiener showed these specimens, which were removed from a woman sixty-nine years old, who gave a history of continuous pyuria dating back twenty years, the urine being loaded with pus. The cystoscope showed an approximately normal bladder. Urine obtained from the left ureter contained about 50 per cent. pus. The right ureter could not be examined at the time. A diagnosis was made of left pyonephrosis, and an operation was advised, but refused. Six weeks later the patient had an attack of almost complete anuria, lasting twenty-four hours. She was removed to the hospital, and upon incision the left kidney was found to be enormously enlarged. Upon attempting to incise the kidney it was found very dense, with its pelvis and calyces filled with a hard, cement-like substance which it was almost impossible to remove. The kidney was thereupon removed. The anuria persisted, and the patient died twenty hours later. No post-mortem.

Treatment of Measles.—M. J. Hallé says that while measles is not a severe disease in the family where isolation is possible and hygiene can be carried out, it is a fatal disease where this is not possible. The important measures in its treatment are all hygienic; isolation in a moderately light room, with plenty of fresh air, daily spongings and changing of the clothes, washing of the eyes with a mild boracic acid lotion, and cleansing of the nose, throat, mouth, and vulva. Diet should be bland and purgatives avoided, since diarrhea is a frequent symptom. The cough should not be abolished, but softened by ammonia. The child should remain about ten days in bed. In complicated cases prompt treatment is needed. When there are symptoms of suffocation cold baths are useful. In the rare hemorrhagic cases tonics and strychnine are indicated. When there is hyperpyrexia warm baths may be substituted for cold, according to the reaction. In bronchopneumonia, or when it is threatened, warm baths or compresses should be used. In adynamic forms mustard baths are valuable. Diffusible stimulants are demanded and injections of camphorated oil are valuable. Laryngitis demands warm steam sprays in the room. Ear complications should be forestalled by warm instillations into the ears.—*La Presse Médicale.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Medical Examining Board of Virginia.

June 22, 23, 24, and 25, 1909.

ANATOMY AND EMBRYOLOGY.

1. Describe briefly the nasal cavity and the bones which enter into its formation.
2. Describe the sacrum and tell what passes through the openings in it.
3. (*a*) What membranes envelop the brain? (*b*) What processes are formed by the outer one?
4. Name the bones which form the foot, and give the articulation of each.
5. Give the course and relations of the ureter in the female pelvis.
6. What nerves supply the tongue?
7. Name the muscles attached to the scapula.
8. Describe the abdominal aorta. Name its branches and give their general distribution.
9. Give boundaries and contents of Scarpa's triangle.
10. Give the course and relations of the colon.

PHYSIOLOGY.

1. Describe the digestive processes which take place in the mouth and stomach.
2. What changes take place in the blood in its passage through the lungs? What is tidal air and residual air?
3. Which portion of the glandular structure of the kidney excretes the salts, and which the watery constituent of the urine? Describe normal urine.
4. What nerves form the solar plexus, and what organs (viscera) does it supply?
5. Give the origin, function, and distribution of the seventh cranial nerve.
6. Name the varieties and respective functions of the glands of the skin. Where is the breathing center located?

MATERIA MEDICA.

1. Name the preparations of manganese. Give dose and physiological action of each preparation.
2. Describe the physiological effects of emetine.
3. Compare the effects of hyoscyamus, belladonna, and stramonium.
4. Describe the toxic action of and give the antidotes to the salts of mercury.
5. What is ergot? What are its effects upon the parturient uterus? Give dose of the fluid extract.
6. Name the principal alkaloids of opium. Compare their effects and give the antagonists to opium poisoning.

CHEMISTRY.

1. Describe iodine. From what source is it chiefly obtained? What are its uses? Give a simple test for iodine.
2. What elements are known as the alkali-metals? Give some of their common properties.
3. Give formulæ of three official potassium salts, indicating the uses of each.
4. To what does potassium permanganate owe its disinfectant properties? Explain this reaction.
5. Give the formulæ of mercurous chloride and mercuric chloride. Describe the difference between them as regards their physical appearance and medicinal properties and uses.
6. Give formula of chloral hydrate. How is it prepared? Give uses.

TOXICOLOGY.

1. Give symptoms and treatment of acute arsenical poisoning.
2. Give symptoms and treatment of chronic arsenical poisoning.
3. What is trichiniasis? How produced, and how may it be recognized?

MEDICAL JURISPRUDENCE.

1. Give medicolegal definition of wound.
2. Describe following kinds of wounds: Incised, punctured, lacerated, contused. What is coma? Mention three causes of coma.

THERAPEUTICS.

1. What are the therapeutic uses of the silver preparations?
2. What are the indications for the use of strophanthus, of sparteine sulphate?
3. Give the methods of administering turpentine, the indications for its use, and the caution to be observed in its application.

4. Give therapeutic uses of salicylic acid.
5. Give the drugs applicable in the treatment of influenza and state how they should be used.
6. Give the general therapy of the preparations of ammonia.

PRACTICE, ETIOLOGY, AND DIAGNOSIS.

1. What is parotis? Give symptoms. State most usual complications and how managed.
2. Give cause and treatment of myxedema.
3. Give symptoms, appearance, and treatment of herpes zoster.
4. Give physical and clinical symptoms of chronic cardiac dilatation.
5. What inferences should be drawn from persistent scanty urination?
6. What are the two varieties of jaundice, and to what is each due?
7. How would you distinguish between ascites and other abdominal enlargements?
8. Give symptoms, dangers, and management of arteriosclerosis.
9. What are the earliest noticeable indications of tuberculous invasion?
10. In what condition is gastric lavage indicated, and when is it contraindicated?
11. Differentiate between tetanus and tetany.
12. In what condition do we find: (*a*) temporary, and (*b*) persistent, enlargement of the lymphatic glands.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

1. (*a*) How many cases of labor have you delivered? (*b*) How many have you seen delivered? (c) Describe the delivery of the most difficult case you have seen.
2. Inevitable abortion at the fourth month of pregnancy: (*a*) Diagnosis. (*b*) Management in detail.
3. Define the following: (*a*) hydatidiform mole; (*b*) Placenta succenturiata; (*c*) Caput succedaneum; (*d*) Vernix caseosa; (*e*) Melena.
4. Management of the third stage of labor.
5. Active treatment of (*a*) Sapremia; (*b*) Septic endometritis.
6. Necessity for and the technique of repairing second degree lacerations of the perineum following labor.
7. Cancer of breast: (*a*) Early diagnosis; (*b*) Indications for operation.
8. Radical operation for the cure of cancer of breast: (*a*) Technique; (*b*) What constitutes a permanent cure?
9. Pertussis: (*a*) diagnosis; (*b*) complications; (*c*) prognosis; (*d*) prophylaxis.
10. Acute rheumatic infection in children; (*a*) manifestations; (*b*) treatment.

SURGERY.

1. What is meant by physiological and pathological hypertrophy, physiological and pathological atrophy?
2. What is meant by infection, and mention chief sources of infection?
3. Mention the chief complications of gonorrhea.
4. Define asepsis, antisepsis, disinfectant, sterile deodorant.
5. Differentiate fracture near a joint from a dislocation.
6. What is Pott's fracture, and how should it be dressed?
7. After a clean abdominal section, what would lead you to suspect infection?
8. Give diagnosis of empyema and treatment for same.

PATHOLOGY.

1. Name the varieties of degeneration. Name the form of degeneration that tubercle undergoes in chronic cases of tuberculosis.
2. What is infection? How do bacteria gain entrance into the body? What is suppuration?
3. Give the etiology and pathology of acute endocarditis. What are its results if patient survives the acute attack?
4. What is endarteritis (endoarteritis)? What is endarteritis obliterans, and what are its ultimate results to the tissues supplied?
5. What is granulation tissue, and under what conditions is it formed?
6. Name the blood changes in leukemia. What is the condition of the spleen and lymphatic glands in this disease?

BACTERIOLOGY.

1. Explain the terms obligate aerobe and facultative anaerobe. Define the terms germicide, disinfectant, antiseptic, and aseptic.
2. Describe (tell all you know about) the tubercle bacillus.
3. Name a motile, pathogenic microorganism. To what is the power of motion in certain bacteria due? Classify the most common pyogenic microorganisms. Name a pathogenic diplococcus.

NEUROLOGY.

1. Define the terms neurasthenia, psychasthenia, tic, and tonic and clonic as applied to the character of spasms.
2. Give the symptomatology of acute anterior poliomyelitis (infantile paralysis).
3. Give the diagnosis and treatment of locomotor ataxia (tabes dorsalis).

HYGIENE.

1. Name the dangers attendant upon the use of spring and well water for drinking purposes. What precautions should be taken to protect the water from these sources?
2. Describe the hygienic treatment of pulmonary tuberculosis.
3. Name the diseases of animals that are communicable to man. Name the chief impurities of the air in large cities.

HISTOLOGY.

1. Give the histological structure of a nerve.
2. Give the histological structure of Peyer's patches and that of an artery.

LARYNGOLOGY.

1. What symptoms would cause you to suspect adenoids in children?
2. Define aphonia, and give its common causes.
3. What is the essential cause of diphtheria? What of pseudomembranous or true croup? Give the most important points in differential diagnosis between follicular tonsilitis and diphtheria.

RHINOLOGY.

1. State four local and four general causes of epistaxis.
2. What structures are involved in hypertrophic catarrh? Give symptoms and treatment. Give symptoms and treatment of chronic atrophic catarrh. What is it usually called, and why so called?

OPHTHALMOLOGY.

1. Define ptosis; strabismus; diplopia; myopia; hypermetropia; presbyopia; chalazion.
2. State etiology, symptoms, and treatment of acute conjunctivitis; also its common name when it becomes contagious.
3. Give etiology, symptoms, and treatment, both preventive and remedial, of ophthalmia neonatorum.

OTOLOGY.

1. Give three methods of removing foreign bodies or impacted wax from the ear.
2. Give etiology, symptoms, and treatment of acute mastoiditis; name three of its most common and serious results.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

MEDICAL EXAMINING BOARD OF VIRGINIA.

June 22, 23, 24, and 25, 1909.

ANATOMY AND EMBRYOLOGY.

1. The *nasal cavities* are two large, irregular shaped cavities, situated one on each side of the middle line of the face, extending from the base of the skull to the roof of the mouth, and separated from each other by a median septum. They open in front by the anterior nares, with the face; and behind, by the posterior nares, with the nasopharynx. They are wider below than above. *Bones entering into their formation* are: Frontal, sphenoid, ethmoid, lacrymal, nasal, palate, superior maxillary, vomer, and inferior turbinated.

2. For description of sacrum, see any text-book on anatomy. The sacral nerves pass through the foramina in the sacrum.

3. (*a*) *Membranes which envelop the brain:* Dura, arachnoid, and pia. (*b*) *The processes of the dura:* Falx cerebri, falx cerebelli, tentorium cerebelli, and diaphragma sellæ.

4. The *os calcis* articulates with the astragalus and cuboid; the astragalus with the tibia, fibula, os calcis, and navicular; cuboid with the os calcis, external cuneiform, fourth and fifth metatarsals; navicular with the astragalus and third cuneiform; internal cuneiform with the navicular, middle cuneiform, first and second metatarsals; middle cuneiform with the navicular, internal and external cuneiform, and second metatarsal; external cuneiform with the navicular, middle cuneiform, cuboid, and second, third, and

fourth metatarsal; the *metatarsals* articulate with the tarsal bones by one extremity, and by the other with the first row of phalanges; the number of tarsal bones with which each metatarsal articulates is one for the first, three for the second, one for the third, two for the fourth, and one for the fifth; the *phalanges* of the first row, with the metatarsal bones behind and second phalanges in front; the second row of the four outer toes, with the first and third phalanges; of the great toe, with the first phalanx; the third row of the four outer toes, with the second phalanges.

5. *The ureter, in the female pelvis,* runs downward in front of the sacroiliac synchondrosis, then upon the Obturator internus and its fascia, lying behind and below the Psoas; it then enters the uterovesical fold below the obliterated hypogastric artery. It passes down parallel with the cervix uteri and the upper part of the vagina, behind the uterine artery, through the uterine plexus of veins, and below the broad ligament; it crosses the upper third of the vagina to reach the vesicovaginal interspace, and enters the bladder opposite the center of the vagina.

6. *The nerves which supply the tongue* are: (1) The lingual branch of the inferior maxillary division of the trigeminus (sensation); (2) chorda tympani (taste); (3) lingual branch of the glossopharyngeal (taste and sensation); (4) hypoglossal (motor).

7. *The muscles attached to the scapula* are: Subscapularis, Supraspinatus, Infraspinatus, Trapezius, Deltoid, Omohyoid, Serratus magnus, Levator anguli scapulæ, Rhomboideus major and minor, Triceps, Teres major and minor, Biceps, Coracobrachialis, and Pectoralis minor.

8. The *abdominal aorta* begins at the aortic opening in the diaphragm and extends to left side of the fourth lumbar vertebra, where it divides into the two common iliacs. It lies to the left side of the inferior vena cava.

Its branches are: (1) *Phrenic,* to diaphragm. (2) *Celiac axis,* to stomach, liver, and spleen (also to esophagus, pancreas, and omentum). (3) *Superior mesenteric,* to small intestine, ascending and transverse colon. (4) *Inferior mesenteric,* to descending colon, sigmoid flexure, and rectum. (5) *Suprarenal,* to suprarenal body. (6) *Renal,* to kidney and ureter. (7) *Spermatic* or *ovarian,* to testes or ovaries, and round ligament. (8) *Lumbar,* to muscular wall and skin of abdominal cavity. (9) *Middle sacral.*

9. *Scarpa's triangle* is bounded *above* by Poupart's ligament, *externally* by the sartorius, and *internally* by the inner margin of the adductor longus; its *apex* is formed by the junction of the adductor longus and sartorius. The *floor* is formed, from without inward, by the iliacus, psoas, pectineus, adductor brevis, and adductor longus. *Contents:* The femoral vessels pass from about the center of the base to the apex, the artery being on the outer side of the vein; the artery gives off the superficial and profunda branches, and the vein receives the deep femoral and internal saphenous; the anterior crural nerve lies to the outer side of the femoral artery; the external cutaneous nerve is still further external, lying in the outer corner of the space; just to the outer side of the femoral artery, and in the sheath with it, is the crural branch of the genitocrural nerve. At the apex the vein (which at the base was internal to the artery) lies behind the artery. The triangle also contains fat and lymphatics.

10. The colon is divided into ascending, transverse descending, iliac, and pelvic.

The *ascending colon* extends from the cecum to the under surface of the liver to the right of the gall-bladder, where it turns to the left, forming the *hepatic flexure.* It lies in the right iliac and right hypochrondriac regions. The peritoneum covers the anterior and lateral surfaces. Length, 8 inches. *Relations.—In front:* The convolutions of the ileum; *behind:* Iliacus, quadratus lumborum, outer side of right kidney.

The *transverse colon* passes from right to left, from the gall-bladder to the spleen. It forms an arch, convex anteriorly and below: the *transverse arch of the colon.* It is entirely surrounded by peritoneum, which is attached posteriorly to the spine, forming the mesocolon. Length, 20 inches. *Relations.—Above:* Liver, gall-bladder, large curvature of stomach, lower end of spleen; *below:* small intestines; *anteriorly:* anterior layers of great omentum, anterior abdominal wall; *posteriorly:* right kidney, second part of duodenum, transverse mesocolon, pancreas, and small intestines.

The *descending colon* passes from the end of the transverse colon by a bend, *the splenic flexure.* Between the splenic flexure and the diaphragm, opposite the tenth left rib, is a fold of the peritoneum, the *costocolic ligament,* which slings up the spleen. The gut then passes downward to the iliac crest, ending in the iliac colon. The peritoneum invests its anterior and lateral surfaces. Length, 4 to 6 inches. *Relations.—Behind:* left crus, left kidney, quadratus lumborum, and psoas; in *front:* small intestines; *inner side:* outer border of left kidney.

The *iliac colon* is continuous with the descending colon at the left iliac crest, and ends at the inner border of the left psoas. Peritoneum invests its anterior and lateral surfaces; it has no mesentery. Length, 5 to 6 inches. *Relations.—In front:* Small intestines; when distended, the anterior abdominal wall; *behind:* left iliopsoas.

The *pelvic colon* extends from the inner border of the psoas to the level of the third sacral vertebra. Length, 16 or 17 inches; very variable. It has an extensive mesentery. *Relations.*—Passing over left brim of pelvis, it crosses the left external iliac vessels and left ureter, and passes to right margin of pelvis, resting on bladder in male and uterus in female; above lie coils of small intestine. It then turns back to midline on posterior wall of pelvis, and, forming a second bend, descends to end in the rectum. —(From *Aids to Anatomy.*)

PHYSIOLOGY.

1. *In the mouth:* The food is crushed, mixed with saliva, and reduced to a pulp; it is rendered slightly alkaline, and a small amount of starch is converted into maltose; the proteids and fats are unaltered. *In the stomach,* where the contents are rendered acid, conversion of starch into sugar ceases, connective tissue of fats is dissolved and fats are set free. Proteids are dissolved and peptones formed. The albuminous foods are dissolved for the most part, and a grumous mixture of peptones, liquid fats, and starches is formed, which is termed chyme, and is gradually passed through the pylorus into the intestine.

2. In its passage through the lungs, the blood (1) becomes cooled; (2) becomes a brighter red color; (3) gains oxygen (about 10 or 12 volumes); (4) loses carbon dioxide (about 7 volumes).

Tidal air is the air which is constantly passing in and out of the lungs during ordinary calm respiration. It measures about 30 cubic inches. *Residual air* is the air which still remains in the lungs after the deepest expirations. It measures about 100 cubic inches.

3. The salts and also the watery constituent of the urine are both excreted by the glomerulus of the kidney.

Urine is a yellowish liquid, acid in reaction, specific gravity from about 1015 to 1025. About fifty ounces are excreted in twenty-four hours. Its normal constituents are: Water, urea, uric acid, urates, hippuric acid, kreatinin, xanthin, hypoxanthin, sulphates, chlorides, and phosphates of sodium and potassium, phosphates of magnesium and calcium, nitrogen, and carbon dioxide.

4. The solar plexus is formed by the great, small, and least splanchnic nerves of both sides, and by the right pneumogastric nerve; the two semilunar ganglia, and other ganglia, also enter into its composition. It supplies all the viscera in the abdominal cavity.

5. The *seventh cranial or facial nerve* has its superficial origin in the upper end of the medulla oblongata, in the groove between the olivary and restiform bodies. It passes "forward and outward to enter the internal auditory meatus; it lies upon a groove on the auditory nerve, with portio intermedia of Wrisberg between, and at the bottom of the meatus it enters the aqueductus Fallopii, along which it runs first outward between cochlea and vestibule as far as hiatus Fallopii; then backward in internal wall of tympanum, just above fenestra ovalis, at the turn presenting a swelling, the *geniculate ganglion;* and finally it passes downward, to emerge from the bone at the stylomastoid foramen; it then passes outward and forward in the parotid, dividing behind the ramus of the jaw into *temporofacial* and *cervicofacial* branches, which further subdivide and intercommunicate, forming the *pes anserinus.*"—(*Aids to Anatomy.*)

Function: The facial nerve is the motor nerve of the muscles of expression, also of the platysma and the buccinator; it also supplies the muscles of the external ear, the stylohyoid, and the posterior belly of the digastric. Through the chorda tympani it is a nerve of taste and a vasodilator of the vessels of the submaxillary and sublingual glands.

6. The glands connected with the skin are the sweat glands and the sebaceous glands. The *sweat glands* secrete the sweat or perspiration, whose function is: (1) Excretion of water, carbon dioxide, and urea; (2) to cool the surface of the body; and (3) to regulate the body heat. The *sebaceous glands* secrete sebrum, whose function is: To lubricate the skin and keep it flexible; to prevent undue absorption, and to keep the skin from getting macerated.

The *respiratory center* is in the medulla, at the apex of the calamus scriptorius. (Subsidiary centers are also found in the spinal cord.)

MATERIA MEDICA.

1. *Preparations of manganese:* (1) Precipitated manganese dioxide; dose, gr. iv. It has an astringent action. (2) Manganese hypophosphite; dose, gr. iij. It has little or no physiological action. (3) Manganese sulphate; dose, gr. iv. Its action is first astringent, later emetic and purgative. (4) Potassium permanganate; dose, gr. j. It is a deodorant and disinfectant; also irritant.

2. *Emetine* is, in small doses, a gastric stimulant; it then acts on the vomiting center in the medulla, and is thus an indirect emetic; it produces but slight nausea and depression; it stimulates the bronchi to increased secretion, moderately depresses the circulation, is a slight diaphoretic, and acts on the liver as a direct cholagogue.

3. "The action of hyoscyamus is almost identical with that of belladonna and stramonium. The following are the chief points of difference: (1) Hyoscyamus contains in addition hyoscine in minute quantities. This is a powerful cerebral and spinal sedative, and therefore the excitation and delirium occasioned by the atropine in belladonna are not so evident when hyoscyamus is given; indeed, that may, owing to the hyoscine in it, distinctly depress the higher functions of the brain. The heart is not quite so powerfully affected by hyoscyamus as by belladonna, for hyoscine has a comparatively feeble cardiac influence. Still, it is, of course, affected by the hyoscyamine, which acts like atropine. (2) Hyoscyamus increases the peristaltic contractions of the intestines more powerfully than belladonna, and at the same time it is more efficient in relieving the griping of other purgatives. (3) Hyoscyamus has a more markedly sedative action on the urinary unstriped muscle than belladonna."—(White & Wilcox's *Materia Medica, etc.*)

4. The toxic action of the salts of mercury is indicated by: Pain in mouth and stomach, gastroenteritis, hematemesis, bloody stools, scanty and albuminous urine with casts, salivation.

Antidote: White of egg in moderate quantity, followed by an emetic.

5. *Ergot* is the sclerotium of the claviceps purpurea. It excites contractions in the parturient uterus. The dose of the fluid extract is thirty minims.

6. The *principal alkaloids of opium* are: Morphine, codeine, thebaine, narcotine, narceine, papaverine. In *soporific effects*, beginning with the most powerful, they rank: Narcotine, morphine, codeine; in *tetanizing action:* Thebaine, papaverine, narcotine, codeine, morphine; in *toxic action:* Thebaine, codeine, papaverine, narceine, morphine, narcotine.

Antagonists: Potassium permanganate, atropine, caffeine, and strychnine.

CHEMISTRY.

1. *Iodine* is a solid crystalline substance, having a blue-gray color and metallic luster; the vapor has a violet color and a peculiar odor, and is very irriating to the eyes and nose. It stains the skin, and is poisonous. It is only slightly soluble in water. It is obtained from seaweed.

Test for iodine: Add starch paste; in the presence of iodine it becomes blue.

2. The *alkali metals* are: Lithium, sodium, potassium, rubidium, cesium (and silver). They are all solids, univalent; their hydroxides are more or less alkaline and are basic; they form one chloride and one or more oxides.

3. Potassium iodide. KI. Potassium permanganate, $K_2Mn_2O_8$. Potassium chlorate, $KClO_3$. The first is used in the third stage of syphilis, gonorrheal rheumatism, aneurysm, pleurisy, asthma, pericarditis. The second is used as a disinfectant, deodorant, and antiseptic. The third is used in sore throat, tonsillitis, and stomatitis.

4. Potassium permanganate is a very active oxidizing agent, and its action as a disinfectant is due to the oxidation of the organic matter with which it comes in contact. The splitting up of potassium permanganate and the prompt liberation of the oxygen is shown in the following equation: $2K_2Mn_2O_8 + 2H_2O = 4MnO_2 + 4KHO + 3O_2$.

5. *Mercuric chloride*, $HgCl_2$, corrosive sublimate, is heavy, white, and crystalline; it has a strong, acrid, styptic taste and is soluble in water, in alcohol, and in ether; it is decomposed by exposure to light. It is used as a disinfectant, antiseptic, antiparasiticide, and as a cholagogue.

Mercurous chloride, Hg_2Cl_2, calomel, is a heavy, white powder, amorphous, tasteless, and odorless; it is insoluble in cold water and in alcohol, and very slightly soluble in boiling water; when exposed to the light it becomes discolored (first yellow, then gray) and partially decomposed; it sublimes without fusing; it is incompatible with the mineral acids, with the alkaline chlorides, bromides, and iodides. It is used as a laxative, purgative, diuretic; in cases of vomiting, liver congestion or cirrhosis, and as a dusting powder.

6. *Chloral hydrate.* Formula, $CCl_3CH(OH)_2$. It is prepared by adding a little water to chloral. It is used as a hypnotic and sedative; as a solvent for resins, starch, etc.; also in alcoholism, mania, high arterial tension, tetanus, and strychnine poisoning.

TOXICOLOGY.

1. The *symptoms of acute arsenical poisoning:* Nausea and faintness, severe burning pain in the stomach, persistent vomiting of matters, sometimes brown or gray, or streaked with blood, or green; purging, and cramps in the legs. *Treatment:* Induce vomiting, by zinc sulphate; use stomach tube. The chemical antidote is freshly prepared ferric hydroxide. The ferric hydroxide changes the arsenic into ferrous arsenate, which is nonpoisonous.

2. *Symptoms of chronic arsenical poisoning:* Inflammation of the conjunctivæ, with intolerance of light. Irritation of the skin, accompanied by an eruption (eczema arsenicale); local paralyses; great weakness and emaciation; exfoliation of the cuticle and falling out of the hair. *Treatment:* Remove the patient from the exposure and treat the symptoms as they arise; potassium iodide has been recommended.

3. *Trichiniasis* is the condition resulting from eating pork containing *Trichina spiralis.* It is characterized by gastrointestinal irritation, diarrhea, colicky pains, vomiting, fever, sweating, edema of the face and eyelids, great prostration, muscular soreness, emaciation, pronounced leucocytosis, especially increase of the eosinophiles. The trichina may be found in pieces of muscle excised for purposes of examination, or in the stools.

MEDICAL JURISPRUDENCE.

1. A *wound* (medicolegal) is any injury or lesion caused by mechanical or chemical means.

2. *Incised wounds* are made by sharp-cutting instruments; the hemorrhage is free, the wound gapes, there is no bruising of the margins. *Punctured wounds* are deep wounds with a small orifice; they are made by narrow instruments. *Lacerated* and *contused wounds* are made by blunt instruments and by crushing; the soft parts are torn, the edges are bruised and ragged, the deep parts are infiltrated with blood; there is little free bleeding.

Coma is a condition of profound insensibility, chiefly due to a changed condition of the brain. *Three causes of coma:* Apoplexy, opium, alcohol.

THERAPEUTICS.

1. *Therapeutic uses of silver preparations:* As a caustic; for septic processes, boils, and phlebitis; for gonorrhea; for bedsores; in gonorrheal ophthalmia; also as a prophylactic; in dysentery or diarrhea; for ulcers of mouth, stomach, or intestines.

2. *Indicotions for strophanthus:* As a cardiac stimulant; in mitral or aortic obstruction; in cardiac dilatation; palpitation; alcoholism; exophthalmic goiter; nephritis; when heart action is feeble but rapid, and accompanied by low arterial tension; in general, same as digitalis.

Indications for sparteine sulphate: As a diuretic, in cardiac or renal dropsy; also in uncompensated mitral or other cardiac lesions.

3. *Turpentine can be administered:* Locally, as a liniment, as a stupe, by enema, in emulsion, in capsules, on cut sugar, by inhalation, as a spray. *Indications:* As a rubefacient or counterirritant; sciatica, lumbago, neuralgia, chronic rheumatism, sprains, dysentery, hemorrhage of intestines; as a vermifuge against tapeworm; chronic bronchial affections and chronic affections of the genito-urinary tract. *Caution:* Too large doses may produce gastroenteritis, diarrhea, vomiting, suppression of urine, hematuria, strangury; it acts, in toxic doses, as a narcotic poison.

4. *Therapeutic uses of salicylic acid:* "Externally as antiseptic and stimulating applications and for the checking of abnormal perspiration; also in parasitic and other skin diseases. Internally, rheumatic fever (in which it seems to act as a specific); gout; migraine; sciatica; diabetes; cholelithiasis."—(Wilcox, *Materia Medica.*)

5. *For influenza:* The following (among many) have been recommended: Ammonium chloride, alkaline drinks, antipyrin, antiseptics, aperients, arsenic, bismuth, camphor, chloroform, Dover's powder, heroin, hydrocyanic acid, morphine, phenacetin, quinine, salicin, strychnine, aconite, sweet spirit of niter, alcohol, belladonna, bromides, cannalis indica, chloral or sulphonal, ergot.

6. AMMONIUM PREPARATIONS.—*Externally:* Rubefacient, vesicant, for bites of insects. *Internally:* As a gastric,

cardiac, or general stimulant; as an expectorant; hepatic disorders; muscular rheumatism; diaphoretic and diuretic.

PRACTICE, ETIOLOGY, AND DIAGNOSIS.

1. *Symptoms of parotitis:* Chilliness, malaise, moderate fever, pain and swelling of parotid gland, which becomes tender and elastic, but shows no fluctuation; deglutition and mastication are painful; both sides may be affected. *Complications:* Unilateral orchitis, which may be followed by atrophy of testicle; in the female, mastitis or edema of vulva or ovaritis. *Management:* Keep patient in bed; isolate him; salines, hot fomentations, and antiseptic mouth wash. The orchitis will need rest, suspension, and an application of guaiacol ointment or lead and laudanum; afterward mercury and belladonna ointment.

2. MYXEDEMA.—*Cause:* Loss of function of thyroid gland; heredity is supposed to have some influence; it is most common in women. *Treatment:* Keep patient warm, give nourishing food, and administration of sheep's thyroid.

3. HERPES ZOSTER.—*Symptoms and appearance:* Malaise, slight fever; vesicles, in cluster, and on inflammatory base, usually along the course of intercostal nerves, but may be in other locations; it occupies areas which represent the distribution of nerve fibers that enter a single posterior root ganglion; as a rule it is unilateral and accompanied with sharp neuralgic pain. *Treatment:* Zinc phosphide, morphine, and phenacetin have been given; locally, menthol or collodion may be applied.

4. In *cardiac dilatation:* "The symptoms are those of *failing circulation:* precordial anxiety, palpitation, headache, vertigo, syncope, pallor, cough, dyspnea, venous congestion, and dropsy. The cardiac *impulse* is feeble and diffused, and usually displaced to the left. The area of cardiac *percussion-dullness* is increased. The *first sound* is weakened in correspondence with the disproportion between the enlargement of the cardiac chambers and the thickness of their walls; the *second* is little changed. If the dilatation has been great enough to so enlarge the orifices or weaken the muscles that the valves are no longer competent to effect complete closure, regurgitant murmurs may be developed, even in the absence of structural alterations in the valves. Such murmurs are usually rather soft and may be inconstant. The *action* of the heart may be rapid and irregular. The *pulse* is small and soft."

5. Persistent, scanty urination may denote: Heart disease, with broken compensation; degeneration of cardiac muscle; parenchymatous nephritis; chronic diseases of the respiratory apparatus; chronic uterine or liver disease; mechanical obstructions, such as compression of the ureters by tumors, or an enlarged prostate gland.

6. The two varieties of jaundice are (1) obstructive and (2) nonobstructive, or toxemic.

Obstructive jaundice may be due to: Gastroduodenal catarrh; catarrh of the bile ducts; lodgment of gallstones or round worms in the common duct; pressure on or closure of the duct by tumor of the liver, stomach, kidney, omentum, and especially of the pancreas; and new growths or cicatricial tissue producing stricture or obliteration of the lumen of the duct. *Nonobstructive or toxemic jaundice* may be due to: "Influenza, malaria, pneumonia, typhoid, typhus, scarlet fever, yellow fever, pyemia, ulcerative endocarditis, acute yellow atrophy of the liver, Weil's disease, snake venom, antimony, arsenic, chloral hydrate, chloroform, ether, copper, mercury, phosphorus, and potassium chlorate."—(From Butler's *Diagnostics of Internal Medicine.*)

7. *Ascites is characterized by:* Enlargement of the abdomen, most marked in the flanks when the patient is lying on his back, and in the hypogastrium, when he is standing up; there are dilated superficial veins on the abdomen, and the skin is tense; the umbilicus is prominent; there are fluctuation and vibration on palpation; dullness is found on percussion over the fluid, while the center of the abdomen is resonant.

8. ARTERIOSCLEROSIS. *Symptoms:* "Increased tension in the pulse, causing a hardness, often feeling like 'pipestems.' Great hypertrophy of the cardiac muscle ensues. The coronary arteries may be involved, leading to fibroid degeneration, fatty degeneration, and the symptoms of angina pectoris, absence of compensation, dyspnea, scanty urine, and other symptoms. The cerebral arteries may be involved, and hence apoplexy is common. The kidneys may next suffer, giving rise to interstitial nephritis or contracted kidney." *Dangers:* Cardiac, renal or cerebral troubles. *Management:* "Seek diligently for any predisposing cause. Alcohol in any form should be absolutely interdicted. Attacks of gout and rheumatism should be prevented as far as possible by the restriction of animal foods, tea, and coffee. In these cases a vegetable diet is best. If due to heart disease, kidney disease, or syphilis, each will require its special line of treatment. The kidneys may be kept active by diuretics. At the same time the skin should be kept active by proper amount of exercise, hot baths, and thorough massage."—(Gould & Pyle's *Pocket Cyclopedia.*)

9. The early manifestations of pulmonary tuberculosis are: (1) *Physical signs:* Deficient chest expansion, the phthisical chest, slight dullness or impaired resonance over one apex, fine moist râles at end of inspiration, expiration prolonged or high pitched, breathing interrupted. (2) *Symptoms:* General weakness, lassitude, dyspnea on exertion, pallor, anorexia, loss of weight, slight fever, and night sweats, hemoptysis.

10. LAVAGE is said to be *indicated* in: Gastric dilatation and chronic gastritis. It is *contraindicated* in: "Marked prostration, continued fevers, or cachectic states; broken compensation of heart lesions; advanced fibrous or fatty degenerations of the heart, and angina pectoris; thoracic aneurysm and advanced general arteriosclerosis; last stages of pulmonary tuberculosis, emphysema, bronchitis, and recent hemoptysis; gastric ulcer with recent hematemesis or tarry stools; recent intracranial, renal, vesical, or rectal hemorrhages; and pregnancy and old age."—(Butler's *Diagnostics of Internal Medicine.*)

11. *Tetanus* is a condition of persistent tonic spasm of voluntary muscles; also a disease due to a specific bacillus. *Tetany* is a bilateral, tonic spasm of the extremities.

12. ENLARGED LYMPHATIC GLANDS. (*a*) *Temporary,* in: Diphtheria, tonsillitis, scarlet fever, measles, erysipelas, variola, suppurative ear disease, gonorrhea, chancroid. (*b*) *Persistent,* in: Leukemia, Hodgkin's disease, tuberculosis, syphilis, filaria, malignant disease.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

2. INEVITABLE ABORTION. (*a*) *Diagnosis:* Hemorrhage profuse and continuous, clotted and dark colored; pain cramp-like and severe; cervical canal dilated; uterus soft and enlarged, and the angle between the upper and lower uterine segments is effaced; the discharge consists of dark blood, clots, and portions of ovum; signs of pregnancy present, except amenorrhea.

(*b*) *Management:* "Two methods of treatment have been advised for these cases. The first is *the expectant plan:* Place the patient in bed, and if the bleeding is profuse, insert a tampon of iodoform gauze (one yard) well up against the cervix. If this fails to control the hemorrhage, reinforce it by another yard or two of gauze and a perineal pad and binder. Small doses (3½) of the fluid extract of ergot should now be given every two or three hours. At the end of from eight to twelve hours remove the tampon, when the ovum may be found extruded from the cervix; if not, a vaginal douche of mercuric chloride (1:4000) must be given, and another tampon introduced. If, upon the removal of this second tampon at the end of ten or twelve hours, the ovum is not discharged, then more vigorous methods to secure its expulsion must be adopted. *Active plan:* The physician's hands and instruments are sterilized; the patient is etherized and placed on an appropriate table; the genitalia are thoroughly cleansed and a vaginal douche of mercuric chloride (1:4000) is given; the anterior lip of the cervix is brought down to the vulvar orifice; the cervix is dilated if necessary; the placental forceps is introduced into the uterus, and as much as possible of the ovum is removed; the uterus is thoroughly curetted, and an intrauterine douche of sterile water is given. A light tampon of iodoform gauze is placed in the vagina; the patient is then returned to bed. A strip of gauze may be placed in the uterus in cases of sharp retroflexion, to secure free drainage, and occasionally an intrauterine tampon will be necessary when the uterus refuses to contract and hemorrhage persists after the use of the curette."—(Gould & Pyle's *Pocket Cyclopedia.*)

3. (*a*) *Hydatidiform mole* is a product of conception which has undergone degeneration, and in which the chorionic villi have proliferated so as to produce a mass of cysts somewhat resembling a cluster of grapes. (*b*) *Placenta succenturiata* is a subsidiary placenta, occasionally found, in addition to the ordinary placenta. (*c*) *Caput succedaneum* is a tumor formed during labor upon the presenting part of the fetus; it is due to the absence of pressure at that part. (*d*) *Vernix caseosa* is a greasy substance made up of sebum and desquamated epithelium; it is found on the skin of the fetus at birth. (*e*) *Melena* is the discharge of feces colored black by blood which has undergone changes in the stomach or intestines.

4. For the management of the third stage of labor, see any text-book on obstetrics.

5. (*a*) *Sapremia* is treated: Removal of the decompos-

ing matter by finger, curette, or douche; drainage and asepticizing the affected area; purgatives and diuretics are given; also diaphoretics and stimulants; saline by hypodermoclysis or infusion; food must be fluid concentrated, and nourishing; tonics are indicated; symptoms are treated as they arise. (*b*) *Septic endometritis* is treated: Disinfection of the genital canal, as far as possible; sterile water, saline solution, antiseptic fluids, and curette are all useful; tamponade may be advisable; general treatment as in sapremia.

6. All tears should be repaired as soon as possible (unless there are contraindications). A primary operation is best, because the edges are fresh and can be approximated; little (if any more) anesthetic is wanted; the woman has to lie in bed, and therefore only one absence from household work is requisite; infection is less likely. In any case, operation may prevent rectocele, cystocele, prolapse of uterus, and general weakness, malaise, and disability. For technique, see any text-book on obstetrics or gynecology.

7. Cancer of breast. *Early diagnosis:* Is only conjectural without microscopical examination of a piece of the growth; but a hard nodule, generally painless, steadily increasing in size and incorporated with the gland tissue, should lead one to suspect cancer. Later on the skin is dimpled and may ulcerate, the nipple may be retracted, pain is present, and the breast cannot be freely moved. *Indications for operation:* As soon as diagnosed, and the earlier and more thorough the better.

8. (*a*) For technique of radical operation, see any text-book on surgery. (b) The case is considered "cured" if there is no return within three years of the operation.

9. Pertussis. (*a*) *Diagnosis:* Paroxysms of short, spasmodic coughs followed by a long-drawn inspiration and a "whoop"; the paroxysm may cause puffiness of the face and end in vomiting; the eyes are suffused. (*b*) *Complications:* Convulsions, vomiting, bronchopneumonia, collapse of lung, emphysema, nasal or conjunctival hemorrhage, cancrum oris, paralysis of various kinds. (*c*) *Prognosis:* Guardedly favorable; when complications are present the prognosis is more grave; the character of the epidemic, the age of the child, the care it receives, the number and severity of the paroxysms are all factors to be noticed. (*d*) *Prophylaxis:* Isolation of patient, disinfection of all articles used by him, quarantine while the cough lasts.

10. *Rheumatic manifestations* in children: Fever, sour perspiration, scanty, high-colored urine, arthritis, cardiac lesions with murmur (soft, systolic), accentuation of second heart sound, anemia, night terrors, chorea, quickened pulse, tonsillitis, pericarditis, pleurisy, pneumonia. (*b*) *Treatment:* Rest in bed between flannels and blankets, milk diet; swollen joints should be wrapped in wool; calomel, sodium salicylate, "alkaline treatment" are the main indications.

SURGERY.

1. *Hypertrophy* is said to be *physiological* when it occurs as a phase of the normal life history of the body (such as enlargement of uterus during pregnancy, enlargement of female breast at puberty, and in connection with pregnancy and lactation). All other hypertrophies are *pathological*. *Atrophy* is said to be *physiological* when it occurs as a phase of the normal life history of the body (such as involution of the uterus after parturition; atrophy of the thymus in childhood). All other atrophies are *pathological*.

2. By *infection* is meant the invasion of the living tissues by bacteria, in such a manner as to produce local or general disease. *Chief sources of infection:* Dust, polluted food or water; wounds of all sorts; unclean implements, such as knives, spoons, cups, dental or surgical instruments; fomites; urine, feces, sputum; clothes, dressings; discharges.

3. The *chief complications of gonorrhea* may be: Cystitis, epididymitis, prostatis, vesiculitis, periurethritis, bubo, retention of urine, stricture, gonorrheal rheumatism, and arthritis.

In the *female:* Cystitis, labial abscess, vaginitis, endometritis, salpingitis, ovaritis, peritonitis, and sterility.

4. *Asepsis* is the absence of infection. *Antisepsis* is destruction or arrest of growth of infective germs. *Disinfectant* is an agent which restrains infectious diseases by destroying or removing their specific poisons. *Sterile* means having no living microorganisms. *Deodoronts* are substances which destroy the odorous products of putrefaction.

5.

FRACTURE.	DISLOCATION.
1. Crepitus may be present.	1. Crepitus never present.
2. Preternatural mobility.	2. Rigidity rather than mobility.
3. Easily reduced—but	3. Difficult to reduce—but
4. Deformity more liable to recur after reduction.	4. Deformity less liable to recur after reduction.
5. The head of the bone is in its proper place.	5. The head of the bone is not in its proper place.
6. The socket containing the head of the bone is not empty.	6. The socket which should contain the head of the bone is empty.
7. When rotated the bone does not move as one piece.	7. When rotated the bone moves as one piece.

6. *Pott's fracture* is a fracture of the lower end of the fibula, with outward displacement of the ankle. *Dressing:* After reducing the displacement by extension and manipulation, the limb should be placed in a fracture-box provided with a soft pillow, the foot should be secured to the footboard, and a pad of oakum or cotton should be placed under the tendo Achillis; before bringing up the sides of the box and securing them, two firm compresses of lint or oakum should be placed in contact with the leg and foot, one just above the inner malleolus, the other just below the outer malleolus. The sides of the box are next brought up and secured, and by the pressure of these compresses the foot is brought into an inverted position and the deformity is corrected. The after-dressing of this fracture consists in letting down the sides of the box, and in inspecting the parts to see that the foot is kept in the proper position, and care should be taken that undue pressure is not made upon the skin by the compresses, which might result in ulceration; this may be avoided by sponging the skin with alcohol and changing the positions of the compresses slightly at each dressing. At the expiration of ten days the fracture-box and compresses may be removed and the limb put up in a plaster-of-Paris dressing, including the foot and leg, up to the knee. The patient may then be allowed to go about on crutches, and at the end of five weeks all dressings may be dispensed with." —(Wharton's *Minor Surgery.*)

7. After clean abdominal section, infection may be suspected: If the body temperature is high, if there are chills, exhaustion, marked leucocytosis, night sweats, emaciation.

8. Empyema. *Symptoms:* Fever, sweats, chill, diminished breath sounds and vocal fremitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis. *Diagnosis* is made by respiration, showing the fluid to be pus. *Treatment:* Aspiration, drainage, irrigation, resection of ribs (Estlander's operation), or resection of chest wall (Schede's operation).

PATHOLOGY.

1. The *varieties of degeneration* are: Fatty, amyloid, mucoid, hyaline, cheesy or caseous, colloid, hydropic, and cloudy swelling. Tubercle, in chronic cases of tuberculosis, undergoes cheesy or caseous degeneration.

2. See above, Surgery, number 2. *Suppuration* is necrosis and liquefaction of living tissues; it is bacterial in origin, and usually begins as inflammation.

3. Acute endocarditis. *Etiology:* Microorganisms (chiefly *Staphylococcus pyogenes aureus, Streptococcus pyogenes, Diplococcus pneumoniæ,* gonococcus, and others); acute articular rheumatism, pneumonia, scarlet fever, puerperal sepsis, nephritis, etc., are said to be etiological factors. *Pathology:* The valves (mitral, aortic, and pulmonary), and endocardium of ventricles and left auricle are chiefly involved. The valves are affected on a line very near to the free edge; the chordæ tendineæ also suffer, and the endocardium of the left ventricle, near the septum. Opacity, roughness, nodular elevations, fibrous deposit, ulceration have all been observed. *Results:* Calcification, destruction of chordæ tendineæ or valve, myocarditis, pericarditis, embolism, infarcts or metastatic abscesses in spleen, brain, or kidneys.

4. *Endarteritis* is inflammation of the inner coat of an artery. *Endarteritis obliterans* is endarteritis in which the lumen of the affected vessel is almost obliterated. *Ultimate results to tissues:* The blood supply is cut off; in the brain, cerebral softening and paralysis result; neuralgia may occur; hemorrhage is prevented.

5. *Granulation tissue* is embryonic tissue consisting of loops of new formed capillaries covered by round cells, and sometimes also by giant cells. It is formed as a result of inflammation during the repair of wounds when apposition is not perfect.

6. In *leukemia*, the *blood* is light in color, specific gravity is lowered, coagulation is slow, the white corpuscles are much increased in number (there may be from 150,000 to 500,000 per c. mm., or even more); myelocytes are present in large numbers in the splenomedullary type; red cells may be moderately diminished, and some may be nucleated. The *spleen* and *lymphatic glands* are enlarged.

BACTERIOLOGY.

1. *Obligate aerobe* is a term applied to such bacteria as cannot exist without oxygen. *Facultative anaërobe* is a term applied to such bacteria as thrive better without oxygen, but still can manage to exist in oxygen. *Germicides* are agents which destroy bacteria and their germs. *Disinfectants* are agents which restrain infectious diseases by destroying or removing their specific poisons. *Antiseptics* are agents which destroy infection. *Aseptic* means absence of infection, or freedom from germs.

2. The tubercle bacillus is rod shaped, is from 1½ to 3½ mikrons in length, and about one-third to one half a mikron in breadth, is a strict parasite, is not motile, and has no flagella. It is slightly curved, does not form spores, is not liquefying, and nonchromogenic, is aërobic; it resists acids; it grows well on blood serum; stains well by Ehrlich's, Ziehl-Nielsen's, or Gabbett's method; it is Gram-positive.

3. *A motile* pathogenic microorganism: *Bacillus typhosus.* The power of motion is due to flagella. The most common pyogenic microorganisms: *Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus, Staphylococcus pyogenes citreus,* and *Streptococcus pyogenes* A pathogenic diplococcus: The gonococcus.

NEUROLOGY.

1. *Neurasthenia* is a condition in which nervous energy is diminished, and sensitiveness to external impressions is increased. *Psychasthenia* is mental fatigue. A *tic* is a spasmodic and involuntary contraction of the (facial) muscles; also a neurosis. In *tonic* spasms, the contractions are continuous. In *clonic* spasms, the contractions are intermittent.

2. *Symptoms of acute anterior poliomyelitis:* Some fever, chills, and convulsions may precede the paralysis, or the onset may be sudden; certain groups of muscles (generally in the extremities) are paralyzed; hemiplegia is rare; the reflexes are generally lost; the paralysis is irregular in its distribution, and tends to ameliorate, but the recovery is only partial; the affected muscles waste, and the limb is cold and livid.

3. Locomotor Ataxia. *Symptoms:* Loss of coordination; characteristic and unsteady gait; tendency to stagger when standing up with feet together and eyes closed; sharp and paroxysmal pain, called *crises;* girdle sensation; loss of knee-jerk and other reflexes; Argyll-Robertson pupil. The *diagnostic features* are: A slow onset; the loss of the patellar reflexes; Argyll-Robertson pupil; lightning pains; incoordination. *Treatment:* Rest, tonics (strychnine, arsenic, iron, and phosphorus); easily digestible food; hydrotherapy; massage; electricity; reeducation of muscles; avoidance of all excesses, cautery; anodynes.

HYGIENE.

1. *Dangers incident to drinking spring and well water:* Surface water, filth, sewage, and, indeed, anything *may be* conducted into these waters. Hence, the possibility of disease being caused by drinking this water. The wells and springs should be at a distance from dwelling houses, especially from outhouses, privies, etc.; they should be well protected and covered, so that no extraneous matter can enter them. All shallow wells should be protected with good coping stones and good masonry for several feet below the surface.

2. Hygienic precautions to be taken in treating a case of tuberculosis: "The patient's quarters should be free from dust, and admit of spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapped in a hammock or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spit-cups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practising lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. . . . The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel nightgown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed by daily sponge-baths of lukewarm alcohol and water."—(Thompson's *Practical Medicine.*)

3. *Diseases of animals communicable to man:* Glanders, anthrax, tuberculosis, rabies, aphtha, tapeworm and other intestinal parasites, ringworm, echinococcus, diphtheria.

Chief impurities of air in large cities: Mineral matters, as silica, calcium, iron; coal dust; spores of moulds and bacteria; organic matter; ammonia; fibers of cotton, wool, or silk; dust and fibers from industrial processes; gases, products of combustion.

HISTOLOGY.

1. A *nerve* consists of a bundle of fibers bound together by a sheath called the *epineurium;* it contains blood-vessels, lymphatics, connective tissue cells; each nerve bundle is surrounded also by a sheath called the *perineurium. Medullated fibers* consist of a neurilemma, medullary sheath, and axis cylinder. *Nonmedullated fibers* have an axis cylinder, but no sheath. *Nerve cells* have cell-body, nucleus, and one or more processes (axis cylinders and dendrites).

2. *Peyer's patches* are clumps of solitary glands covered with mucous membrane and surrounded by crypts of Lieberkühn. Each of these solitary glands is a lymph nodule consisting of retiform tissue, lymph corpuscles, and capillaries. They are situated in the mucous and submucous tissue of the small intestine, chiefly the ileum.

Arteries consist of three *coats:* (1) *Tunica intima,* consisting of fenestrated membrane of Henle, and a fine line of white fibrous tissue; (2) *Tunica media,* consisting of elastic fibers and involuntary muscles; (3) *Tunica adventitia,* consisting of white fibrous tissue and a few elastic fibers. The middle coat is the thickest.

LARYNGOLOGY.

1. *The symptoms of adenoids in children* are: Mouth-breathing; snoring; open-mouth; a vacant, dull expression of the face; modification of the voice. *Effects:* Otitis, coryza, mental deficiency, stunted growth, and various neuroses.

2. *Aphonia* is loss of voice, caused by: Laryngitis, edema or tumor of larynx, improper use of the voice, retropharyngeal abscess, paralysis, fixation of the vocal cords, by cicatricial contractions, ulceration of the vocal cords, foreign bodies in the larynx, and hysteria.

3. The essential cause of diphtheria is the Klebs-Loeffler bacillus. The essential cause of true croup is either the Klebs-Loeffler bacillus, or the *Streptococcus pyogenes.* In *diphtheria* the onset is more gradual; the temperature rises to about 101° to 103° F.; the tonsils are not much enlarged; there is an exudate of a thick grayish membrane which is very adherent, is removed only with difficulty, and leaves a bleeding surface; this membrane soon re-forms, and may be found on the fauces and pharynx as well as on the tonsil; in the exudate the Klebs-Loeffler bacilli may be found. In *follicular tonsillitis* the onset is more sudden; the temperature may be a little higher than that of diphtheria; there is no membrane, but the tonsils are red and swollen, and in the crypts are seen white cheesy spots or plugs, which consist of broken-down epithelium, and are easily brushed away; Klebs-Loeffler bacilli are never found.

RHINOLOGY.

1. *Local:* Trauma, caries of nasal bones, ulceration, new growths. *General:* Purpura hæmorrhagica, hemophilia, scurvy, pernicious anemia.

2. Mucosa of nasal cavity, especially of inferior turbinated bones. *Symptoms:* Increased secretion, obstruction, sneezing, loss of resonance of voice, impaired olfaction, bad breath. *Treatment:* Cleansing alkaline spray, astringent spray, cauterization, incision, or turbinectomy.

Chronic atrophic catarrh. *Symptoms:* Blocking of the nose with thick, offensive crusts; nasal fossæ dilated; anosmia. *Treatment:* A warm, alkaline, cleansing douche; the crusts must be removed; tampons with ichthyol, followed by an oil spray, have been recommended. It is usually called ozena, on account of the offensive fetid smell.

OPHTHALMOLOGY.

1. *Ptosis* is a drooping of the upper eyelid. *Strabismus* is a perceptible deviation of one of the eyes from the proper direction. *Diplopia* is the condition in which an object appears double. *Myopia* is a condition in which the parallel rays are focused in front of the retina. *Hypermetropia* is a condition in which the parallel rays are focused behind the retina. *Presbyopia* is a physiological change in which there is progressive loss of the accommodative power of the eye as age advances. *Chalazion* is a tumor in the eyelid, due to obstruction of the duct in a Meibomian gland.

2. *Etiology:* Irritation, a foreign body, cold, exposure to

strong light or heat, eyestrain. *Symptoms:* Hyperemia, lacrymation, epiphora, discharge, photophobia, sensation of sand in the eye. *Treatment:* Remove cause; use astringent and antiseptic washes; anoint the lids with vaseline. When it becomes contagious, its common name is "pink eye."

3. OPHTHALMIA NEONATORUM. *Causes:* The gonococcus or some other pyogenic microorganism; the secretions of the mother contain the infecting agent, and transmission may occur directly during parturition, or indirectly by the fingers of physician or nurse, cloths, instruments, etc. *Symptoms:* Swollen eyelids, with copious purulent discharge; ulceration of the cornea may ensue. *Prophylaxis:* Whenever there is the possibility of infection, or in every case, wash the eyelids of the newborn child with clean warm water, and drop on the cornea of each eye one drop of a 1 per cent. solution of nitrate of silver, immediately after birth. *Treatment:* Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a 2 per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

OTOLOGY.

1. (1) Insects, by warm water or chloroform oil; (2) by syringing; (3) wax may be removed by disintegrating it with hydrogen dioxide, followed by warm water irrigation.

2. *Etiology:* Infection from nasopharynx or ear, exanthemata, grippe. *Symptoms:* Tenderness, pain, swelling and redness over the mastoid; bulging of the superior and posterior parts of the auditory canal; temperature variable, from normal up to about 104° F. *Treatment:* Hot water, or cold water, or ice; leeches, purgatives; light diet; incision or mastoid operation. *Three common and serious results:* Meningitis, sinus phlebitis, abscess of the brain.

BULLETIN OF APPROACHING EXAMINATION.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. —
Arizona*	Ancil Martin, Phoenix	Phœnix	Jan. 3
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Nov. 9
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 7
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 4
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 9
Delaware	J. H. Wilson, Dover	Dover	Dec. 14
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	Jan. 11
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 10
Georgia	E. R. Anthony, Griffin	Atlanta	Apr. —
Idaho*	W. F. Howard, Pocatello		Apr. 5
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 11
Iowa	Louis A. Thomas, Des Moines	Des Moines	Dec. 7
Kansas	P. P. Hatfield, Olathe	Kansas City	
Kentucky	J. N. McCormack, Bowling Green	Louisville	Dec. —
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 17
Maine	F. W. Searle, Portland	Portland	Nov. 9
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 14
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov. 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 14
Minnesota	W. S. Fullerton, St. Paul	St. Paul	May 10
Mississippi	S. H. McLean, Jackson	Jackson	
Missouri	J. A. B. Adcock, Warrensburg	Jefferson City	Dec. 7
Montana*	Wm. C. Riddell, Helena	Helena	Apr. 5
Nebraska	C. A. Carr, Lincoln	Lincoln	Nov. 10
Nevada	S. L. Lee, Carson City	Carson City	May 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 4
New Jersey	H. G. Norton, Trenton	Trenton	June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jan. 10
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	Feb. 1
N. Carolina	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 4
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 14
Oklahoma*	F. P. Davis, Enid	Guthrie	Jan. 11
Oregon	B. E. Miller, Portland	Portland	Jan. 4
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	Dec. 14
Rhode Island*	G. T. Swarts, Providence	Providence	Jan. 6
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	Jan. 12
Tennessee	C. A. Abernathy, Pulaski	Memphis Nashville Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Greenville	Nov. 9
Utah	P. W. Fisher, Salt Lake City	Salt Lake City	Jan. 3
Vermont	W. Scott Nay, Underhill	Montoelier	Jan. 11
Virginia	R. S. Martin Stuart	Lynchburg	Dec. 15
Washington*	T. C. McPadden, Seattle	Spokane	Jan. 4
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg	Nov. 9
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 11
Wyoming	S. B. Miller, Laramie	Laramie	

* No reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of October 30, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	435	147
Diphtheria	262	29
Measles	115	6
Scarlet Fever	145	8
Smallpox	—	1
Varicella	56	—
Typhoid Fever	83	21
Whooping Cough	36	2
Cerebrospinal Meningitis	6	6
Malarial Fever	—	—
Totals	1,138	220

Modification of Neuromuscular Electric Excitability Caused by the X-Rays.—Diego Malcagni has found that the neuromuscular mechanisms show some changes in their excitability after the use of the *x*- rays. He sums up his observations thus: The effects occur immediately after the *x*-ray application; the electric excitability is diminished, contractions are weaker, and the secondary contraction is less. This condition persists for about fifteen minutes and then gradually diminishes. This action on the peripheral nervous system is not cumulative. It varies in different parts of the organism; at some applications the effect is only transitory, while at others it is more persistent. There is no regularity about this effect.—*Giornale di Elettricita Medica.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended October 29, 1909:

SMALLPOX—UNITED STATES.

		CASES	DEATHS
California, general	Aug. 1–31	..	2
Connecticut, Bridgeport	Sept. 26–Oct. 2	1	..
Georgia, Macon	Oct. 2–8	3	..
Illinois, Chicago	Oct. 7–16	1	..
Indiana, Allen County	Aug. 1–31	28	..
St. Joseph County	Aug. 1–31	1	..
Massachusetts, Boston	Oct. 9–16	1	..
Montana, Butte	Oct. 1–14	12	..
New York, Buffalo	Oct. 9	1	..
North Carolina, nine counties	Aug. 1–31	37	..
Ohio, Dayton	Oct. 10–16	1	..
Springfield	Oct. 9–16	9	..
Washington, Seattle	Aug. 1–31	6	.

SMALLPOX—FOREIGN

Austria, Bohemia	Sept. 26–Oct. 2	2	..
Brazil, Bahia	Aug. 28–Sept. 24	44	28
Egypt, Cairo	Sept. 10–16	1	2
France, Paris	Sept. 29–Oct. 2	1	..
Java, Batavia	Aug. 29–Sept. 11	5	..
Malta, Valetta	Sept. 12–18	1	..
Mexico, Mexico	Oct. 9	3	..
Portugal, Lisbon	Sept. 27–Oct. 2	5	..
Russia, Riga	Sept. 27–Oct. 2	3	..
St. Petersburg	Sept. 12–25	21	11
Spain, Almeira	June 1–30	..	3
Barcelona	Sept. 28–Oct. 4	..	3
Huelva	Aug. 1–31	..	8
Vigo	Sept. 26–Oct. 2	.	1

CHOLERA.

China, Amoy	Aug. 29–Sept. 4	..	17
Hankow	Sept. 5–11	3	..
Shanghai	Sept 5–11	Present among natives.	
Swatow	Aug. 28	3 2 on s.s	*Waising.*
India, Bombay	Sept. 15–21	..	1
Calcutta	Sept. 5–11	..	•
Rangoon	Sept. 5–11	..	3
Korea, Seoul	To Sept. 25	400	..
Manchuria, Dalny	Sept. 5–18	18	14
Netherlands, Lopik	Oct. 2	1	.
Hansweert	Oct. 2	1	.
Philippine Islands Manila	Sept. 5–11	20	13
Provinces	Sept 5–11	314	248
Sumatra, Djambi	Aug. 10–20	6	..

YELLOW FEVER

Brazil, Bahia	Aug. 28–Sept. 17	6	3

PLAGUE.

Brazil, Bahia	Aug. 29–Sept. 24	11	8
China, Amoy	Aug. 29–Sept. 4	..	47
India, general	Sept. 5–11	2,781	2,096
Madras	Sept. 11–17	..	2
Calcutta	Sept. 5–11	..	5
Rangoon	Sept. 5–11	..	10
Japan, Kobe	Sept. 18–25	2	2
Mauritius	Aug. 6–12	3	2

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Original Articles.

DIABETIC COMA: IS IT DUE TO ACIDOSIS?*

By HENRY S. STARK, A.M., M.D.,

NEW YORK.

JUDGED from the standpoint of recent physiological data, I believe the time is ripe to repudiate the prevailing theory that diabetic coma is due solely to an acidosis, and it is the purpose of the writer to prove that our views of the causation of this terminal phenomenon of diabetes are unsuited to present day conditions, and that they must be modernized to suit current conception. While I am aware that in making this radical departure from a tradition that has been embodied in successive texts without having been put to proof, I shall draw out much criticism, still I believe that we have allowed ourselves to fall into the strange error of attributing this phenomenon to the presence in the urine of fugitive acids whose pathological and clinical significance when first discovered must have been merely conjectural and whose properties even to this day lack experimental and physiological confirmation. Even the postulate upon which this theory was originally based, namely, that the acetone bodies were derived from proteins, is scouted to-day.

In speaking of diabetic coma, if such a distinct entity exists at all, reference is made solely to the coma described by Kussmaul and known by his name. It is the true, or specific, or dyspneic diabetic coma. It has never been possible to ascribe to it any definite lesion of the viscera, nevertheless it may be assumed that it depends essentially on the diabetic dyscrasia. There are, however, several accidental or pseudo-types of coma, not fundamentally diabetic, but are, correctly speaking, the fatal issue of an intercurrent affection. Such a pseudo-type is the cardiac coma due to collapse from a myocarditis, another is, in effect, a syncope following in the wake of a complicating nephritis. Inasmuch as the question of acidosis has no bearing on the pseudo-types, they will be considered as irrelevant to this paper.

Death from true diabetic coma does not occur as frequently as is commonly believed. Counting only well-defined cases, to the exclusion of the pseudo varieties, diabetes ends in coma in about 40 per cent. of all cases. The clinical differentiation between the true and false types of coma is often beset with difficulty, especially so when the urinary evidences are wanting or contradictory.

As a matter of history, the acidosis theory came into existence as a natural evolution of a mass of undeveloped chemical data, among which chemical formulæ and equations were juggled in a manner as to make it appear that an abnormal chemism of the members of the fatty acid series was responsible for the coma. Every known chemical process was invoked, with a view of constructing a theory of origin or of isolating a substance which could be clothed with the distinction of being the causal element of the coma. But even to this day it has been found impossible to produce a chemical agent that exactly fitted the clinical picture or combined all the attributes that resulted in the varied phenomena of coma.

When the discovery was made that a member of the fatty-acid series, namely β-oxybutyric acid was a not infrequent accompaniment of diabetes, this association was at once seized upon to account for the coma, although the physiological factors upon which this excretion depends, were never established. It was looked upon as an anabolic effect and inasmuch as it involved the fatty acids, the offending organ was presumed to be the liver. But whether the terminal coma was due to the behavior of this acid toward ferments, enzymes, or micro-organisms, or depended upon its quantity or quality, was never explained.

It is a physiological fact that during the metabolism of proteins and carbohydrates, as well, a number of clearage products of an acid nature are produced. Is it not as likely that one or other of these is liable to be responsible for coma, as it is claimed for β-oxybutyric acid? For instance, during the pancreatic digestion of proteins, various amino acids are formed which later are excreted in changed form in the urine. These acid-bodies likewise possess the same faculty of uniting with alkali bases and preventing the physiological absorption of carbon dioxide, and, therefore, capable of initiating pathological changes. In their effects on metabolic functions some of the cleavage products and the acetone bodies are closely analogous, and at various periods of investigation crotonic, lactic and the mineral acids were held responsible for the coma. The possibility that the amino acids may be the precursors of acetone bodies, is always to be reckoned with.

It has been clinically established that β-oxybutyric acid may be profusely and continuously excreted over long periods by diabetics without serious impairment of health. How is this comparative innocuousness explained? Sixty to 80 grams per day are not unusual. Bainbridge[1] said that "there were many facts which go to show that β-oxybutyric acid is a normal metabolic product." Spitzer[2] claims that in pancreatic diabetes no acidosis can be produced with β-oxybutyric acid. It seems probable that, not only in health, but even in the course of diabetes, this acid can be perfectly metabolized up to a certain point. Von Noorden[3] tells us that "It is not known whether the acetone bodies are really normal intermediate products of fat catabolism."

*Read at the May meeting of the Harlem Medical Society.

The question seems to hinge upon the toxicity of this acid. If it could be pathologically established that the acetone bodies possess definite toxic qualities, the nature of the coma would be explained. But experimental research upon man and animals to establish the toxicity of these acids have been signally fruitless. True there have been recorded, deaths in animals after intravenous injections of β-oxybutyric acid, but in these isolated instances objection could be reasonably raised as to their final value on the following score: Firstly, that the fatal phenomenon observed was not coma; secondly, that death was not caused by diminished blood alkalescence; and thirdly, that death was due to accidental causes other than those due to the acetone bodies. Further the value of animal experimentation can be overruled on the ground that in almost every instance the acid in the experiment was administered in one or two maximal doses, whereas in human diabetes, the acid, if at all toxic, is insidious and cumulative in its toxic effects. Coma as a fatal issue in dumb animals is often impossible of differentiation, while there are no post-mortem findings upon which to establish that death was due to an hyperacidosis.

As far as the toxicity of this acid is concerned, there are a number of elemental facts which must be reconciled before such a claim can be validated. As stated before, large quantities can be excreted for years without physiological disturbances ensuing. A daily excretion for years of 20 to 30 grams is not unusual. Külz[4] found as much as 100 to 200 grams in 24 hours. Von Noorden[5] often found 60 to 80 grams per day and states he knew of many diabetics who excreted 50 to 60 grams daily for six years and nevertheless enjoyed good health. Naunyn[6] refers to a case of diabetes in which there was for years an excretion of 100 grams of β-oxybutyric acid. Ewing[7] makes the statement that "When 40 grams of oxybutyric acid may be excreted in one day in a case of syringomelia, without symptoms of intoxication, it is difficult to maintain that this acid exerts any immediate toxic action."

According to different observers and to the same observers on different occasions, the quantity of acid excreted, immediately preceding coma, fluctuates within wide limits. This amount ranges on the first day of coma from eight grams to several hundreds. It is difficult under such circumstances to draw practical deductions as to the relative toxicity of the acid, or amount that may be considered decisive of coma. The gross disparity in amount of acid output at the onset of coma, together with the enormous amounts excreted for long periods without visable impairment of health, must be interpreted to mean that the acidosis theory alone cannot be sustained as proven for diabetes.

What has so far been established is that these pathological acids exert their injurious effects by virtue of their acidity and not by virtue of their toxicity. In other words, the acetone bodies may prove detrimental to health by reason of their affinity for the alkali bases of the blood and their indirect action of inhibiting the absorption of carbon dioxide. But I think it must be admitted that intrinsically, they are nontoxic. It is anomalous that an agency supposedly poisonous, which is produced for years in diseased organisms, should give rise suddenly to a fatal crisis without demonstrable lesions and without being preceded by marked organic prodromes, save a nausea or dyspnea of short duration. A number of times I have seen diabetics in fairly good health, who a few hours later were in the throes of a fatal coma, without apparent exciting cause.

Such an unheralded onset and fatal termination of a systemic intoxication it is difficult to duplicate in the whole gamut of chronic constitutional poisonings, whether by organic acids, metallic poisons, tobacco, alcohol, urea, gases, ptomaines, or toxins. As a species of intoxicant, β-oxybutyric acid, in this respect, is without a prototype. If we argue that coma was due to acetonemia, on the mere finding of pathological acids in the urine of diabetics, one might claim with equal propriety that coma was caused by other pathological constituents of the urine, such as urea, ammonia, ammonium salts, glucose itself, or one of the urinary products of intestinal putrefaction, or of hepatic insufficiency. It is easy to conceive how such products may be excreted in quantities large enough to provoke a state of coma. And how in such an event the clinical picture would be radically no different from the coma of supposed acid origin. There are no characteristic features by which diabetic coma can be differentiated objectively, save by the presence of urinary glucose, nor can the group of symptoms be accounted for solely on the basis of an acid-intoxication. Lépine[8] says that acidosis does not explain the pulse and dyspnea of diabetic coma, but believes a toxin would fit the case exactly.

In a previous communication[9] I made the statement that the theory of origin which more completely harmonizes with the clinical picture and the physiological data, is one based on the recognition of an enterogenous toxin, developed in the small intestines, through the vitalizing influence of either several species of bacteria or of one specific organism upon some one ingredient of the digestive secretions, probably of the pancreas. Such a toxin would find its way into the general circulation, thence to the respiratory center. The probability of such a toxin is enhanced by the fact that gastrointestinal phenomena often precede the onset of coma and that coma is often a casualty of surgical operations upon diabetics. Up to date such a substance has not been isolated in pure state, but it would seem that the discovery of certain toxins resulting from intestinal putrefaction of proteins through the intermediary of bacterial life, namely, the indol group, produced by the *bacillus coli*, suggests that a counterpart may result due to the disordered metabolism of carbohydrates, in other words arising from the decomposition of sugar and starches. This would mean that the toxin of coma is a decomposition product due to intestinal putrefactive bacteria, not necessarily giving rise to abnormal constituents in the urine, and not always sufficiently virulent to cause marked constitutional poisoning. The degree of coma would correspond to the intensity of the intoxication, varying from a transient unconsciousness to a profound somnolence. It is this property of the toxic element, namely its degree of virulence, which serves to explain those recoveries from diabetic coma which it has been erroneously claimed were due to the alkali therapy. A more plausible interpretation of these cures is found in the capacity of the economy to adjust itself to a moderate toxicosis, but eventually to succumb to an overflooding of it.

In this connection it is worthy of comment that most investigations of the origin of this coma have been made along chemical lines almost to the entire

exclusion of biological possibilities, and yet, taking into consideration the sequence of events and their fatal termination, the inference is almost forced upon us that the toxic agency is biological in nature, in the genesis of which an enzyme, a ferment or bacterial life, is the activating medium. Looking at the matter, clinically, the symptoms associated with coma, together with their mode of onset, cannot be acounted for on the basis of an acid-intoxication, for the obvious reason that diabetic acidosis does not set up a lesion of any organ. Pathology has not been able to create, so to speak, an acidosis entity in diabetes. Efforts to establish a lesion for certain other clinical types of acidosis have been more successful. Thus a fatty degeneration of the liver has been proven in connection with pernicious vomiting of pregnancy, in cyclic vomiting of children, in delayed poisoning following anesthetics, in eclampsia, and in acute yellow atrophy. But as far as diabetic acidosis is concerned, pathological anatomy has been a closed book, except that we sometimes meet with a nephritis toward the end of the disease which bears no relation to the acidosis.

From the viewpoint of physiology the theory of acidosis is overshadowed by the essential fact that a free acid cannot exist in the blood. As Osler says, "in any event an acid reaction of the blood can be only a terminal phenomenon."[10] The very term "acidosis" is ambiguous and a misnomer. Strictly speaking, what is meant is a decreased alkalinity of the blood. In the case of diabetics, nature provides an efficient factor of safety against such a contingency as an over-production of abnormal acids and consequently a defense against a subalkalinity. Firstly, in the greatly increased excretion of ammonia which compensates for the acids, and, secondly, in the alkali bases of the blood which neutralizes them.

An acidosis, however severe, cannot be regarded as an anatomical entity. It is, in reality, one phase of a disturbed metabolism accompanied by certain cleavage products of an acid nature, which experience has shown appear to have no toxic properties in man or animals. An acidosis does not develop into an acid intoxication without being reinforced by a toxic agent. Under such circumstances alone these acid bodies or other abnormal cleavage products may culminate in diseased states. In the present state of our knowledge of the pathogenesis of diabetes we cannot differentiate diabetic acidosis from that found in health on a starch-free diet. In point of fact it is argued that the former is but an expression of sugar-starvation.

Now, if acidosis means an increase in the economy of substances endowed with acid properties, the organs, tissues, cells, and the normal acid secretions ought all give evidence confirming this acid-saturation, while the latter would manifest itself in a characteristic clinical picture. We would expect to find respiratory disturbances such as dyspnea and cyanosis, due to the following changes in the blood, the abstraction by the acid bodies of the fixed alkalis, the decrease of the carbon dioxide content, and the deficiency of oxygen. But clinical experience has abundantly shown that this symptom-complex does not always follow in the wake of an acidosis. Often a severe acidosis in diabetes does not even cause appreciable metabolic disturbances, and save for the urinary findings would actually escape detection. We have, thus, no well-defined subjective symptoms pathognomonic of an acidosis save when the disease has nearly run its course.

In order to determine logically and scientifically what influence acidosis has in the causation of coma, it is incumbent upon ourselves to determine quantitatively the alkali index of the blood. This would serve to define the point where physiological alkalinity ends and pathological alkalinity begins. But this is not an easy matter. The methods available for the determination of blood alkalinity are conflicting in their results, too technical to be clinically useful, and are subject to disturbing physiological influences, such as sex, diet, period of digestion, physical eruditions, and state of the functions. The degree of alkalinity is not a fixed quantity, but varies in different subjects and in the same subject at different times. There are daily oscillations even in the healthy state. The term alkalinity is consequently a relative and empirical one, employed without reference to a constant or definite standard. In the same way the term acidosis is used relatively and without any consideration of the degree, extent, or distribution of the acid radicals. Experience has shown that a certain degree of subalkalinity is physiological, and that a marked degree occurs in a number of diseases, such as severe anemias, certain toxemias, some of the infectious diseases, and malignant disease. Yet in spite of the occurrence of a subalkalinity in these diseases, the conception of a typical coma as a terminal incident in connection therewith has received scant attention. Investigations to determine the blood alkalescence of diabetics in coma or to determine the toxicity of diabetic blood during coma, would carry great weight, but unfortunately such studies are so scarce that definite deductions relative to the pathologic significance of a subalkalinity are not permissible. Experimental proof along such lines, if it could be furnished, would be a vindication of the acidosis theory. As long as the degree of acidosis cannot be directly determined, but must be estimated in terms of ammonia, a method which is open to serious objection and encompassed by numerous difficulties, we are not in a position to judge what effect the acid bodies have on the vital functions. Then again, it is to be borne in mind that it is not the urinary acetone bodies which would induce disturbances in health, but rather the acetone bodies that would be retained in tissue and cell. What relation the excreted acid bodies bear to the retained acid bodies is purely conjectural. Were we assured of this ratio, the question how far the acidosis or the subalkalinity was involved in coma would be past dispute. But here again experimental work has been of little value. Relatively little is known of the quantitative relation that exists between the normal acid and alkaline secretions of the body. There probably does exist an acid equilibrium and an alkaline equilibrium for the economy analogous in its operations to the nitrogen equilibrium, and like the former, too, the latter are subject to deflections from the normal, manifesting themselves clinically. It has been established in health that there exists a constant correlation[11] between the gastric acidity and the urinary acidity, and that in disease this reciprocal relationship announces itself in well-recognized acidity curves. Osler[10] tells us that in hyperacidity of the stomach the urine acidity decreases proportionately with the increase of acidity of the gastric juice. Some time ago, becoming impressed with the idea that if diabetic coma was caused by an acidosis, the latter would disclose itself in an appreciable increase in the quantitative acidity of the normal acid secretions of the body, notably of

the urine and gastric juice, the following experiment designed to establish the merits of this deduction was instituted: the urine and gastric juice of two adult patients who were known to have an acetonuria of long standing and who were dying of diabetic coma, were obtained and submitted to the following tests, the quantitative acidity of the gastric juice and of its free hydrochloric acid, and of the native urine were estimated. The figures showed a slightly increased acidity of both secretions and of free acid, but the increase was not sufficient to warrant the belief that it was attributable to the acidosis. This result was disappointing, for it was but natural to suppose that if acidosis meant anything at all it would signify that the tissues, blood, and cells were so overrun with acids that a vent for this acid tide would be found in the physiological acid secretions of the body, even though a decided drop in the output of the acid elements often precedes the onset of coma.

Opposed to the assumption that the coma is due to acidosis, there is a mass of clinical evidence which it is difficult to contradict. Firstly, a decided acetonuria occurs in the course of numerous diseases of widely different characters, *e.g.* gastrointestinal disorders of childhood (cyclic vomiting), acute yellow atrophy of the liver, eclampsia, pernicious vomiting of pregnancy, intoxications from metals and anesthetics, etc., etc.

Secondly, acidosis may occur in health on a continuous sugar-free diet, also during physiologic starvation, and during inanition from wasting disorders, such as carcinoma and tuberculosis.

Thirdly, adyspneic coma, not unlike true diabetic coma, is met with in other diseases than diabetes, such as measles, scarlet fever, and typhoid fever. Save for the presence of dextrose in the urine, these comas could not be clinically differentiated.

Fourthly, diabetic coma may occur without acidosis, but with a large ammonia excretion. There are quite a number of such cases recorded in literature, and they have an important bearing on the question of the origin of coma.

Fifthly, alkali therapy has been notoriously a failure, either as a prophylactic or as a curative measure. In connection with the claim that alkali therapy has arrested or cured diabetic coma, exception is made on the following score that the coma in question was a type of pseudodiabetic coma, or that the improvement observed to follow the intravenous injection of an alkaline solution was not directly attributable to the alkaline nature of the fluid injected, but rather was due to the very act of injecting a volume of fluid into the circulation. The failure of alkali medication, either to abort or to tide the patient over, an attack, seals the fate of the acidosis theory.

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1309 MADISON AVENUE.

THE TREATMENT OF AMEBIC DYSENTERY.*

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ON the 12th of December, 1908, one of the authors published in the MEDICAL RECORD a preliminary note on the treatment of amebic dysentery as conducted on the Isthmus of Panama. We wish now to present an analysis of 211 cases, some of which were treated by the method therein indicated and the rest by other means generally recommended by the profession.

From January 1, 1905, to July 1, 1909, the charts of 358 patients appeared in the files of the hospital which had been diagnosed as amebic dysentery. From these charts 211 were selected as those characteristic of the affection, the remaining 147 were rejected because no dysenteric symptoms were present while they were in the hospital, though amebæ were found in the stools during the routine examinations which were made.

There is no attempt in this paper to discuss the biological characters of the ameba which is responsible for the well-known and characteristic disease, nor of the pathological changes occasioned thereby, but merely to discuss the best and simplest means of dealing with this at-oft-times formidable affection.

The observations of Musgrave and Clegg that the specific ameba can only be grown in a medium which contains microorganisms is interesting and throws a great deal of light on its pathological processes and the treatment.

Whether there be a pathogenic and a non-pathogenic variety or varieties, with characteristic morphologies, or whether the apparently different morphological characters are due to symbiotic environment and nutrition of a single variety, the writers are not prepared to say, as no special attention has been directed to the differential characters. The presence of large motile amebæ containing red cells with the associated dysenteric symptoms being sufficient to make the diagnosis. One thing, however, is certain and has been repeatedly demonstrated here, that the pathogenic variety can and does remain over long periods of time in the intestinal tract without producing pathological symptoms. But when some intercurrent acute affection, such as tuberculosis or pneumonia, lowers the vitality sufficiently, the dysentric symptoms then manifest themselves and are responsible frequently for the lethal termination which post-mortem examinations demonstrated. We have also seen here a more or less severe attack of amebic dysentery supervene on the injection of some irritating substance like silver nitrate solutions and quinine solutions into the bowel in patients in whom the amebæ had been accidentally discovered in the course of routine examination, and when no dysenteric symptoms previously existed.

The symptoms upon which the diagnosis of amebic dysentery are based here are frequent dysenteric stools with or without tenesmus, a coated furred tongue, more or less irregular fever, prostration, and distress, with the presence of large motile amebæ, blood, pus, epithelium, and mucus in the

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stool. In addition, there is abdominal tenderness over the large bowel in some part of its course, but most frequently over the cecum and sigmoid flexure.

Another symptom which is present in almost every case, in a more or less marked degree, is the loss of elasticity of the skin. It is more marked over the abdomen than other parts. It has a peculiar doughy or putty-like feel, and when stretched slowly crawls back to its normal position in a worm-like manner. As a rule, the more marked this condition the graver the affection. This same condition of the skin, however, is found in other severe affections involving the abdominal viscera, as intestinal tuberculosis, severe nephritis and hepatitis, severe typhoid, and very grave diseases associated with inanition, and is therefore not peculiar to, though characteristic of, severe amebic dysentery.

Amebic dysentery is liable to be confounded with severe colitis from any cause, bacillary or secondary to nephritis, liver cirrhosis, or intestinal tuberculosis. Careful examination of the other organs with the presence or not of amebæ in the stools is sufficient to clear up the diagnosis.

The comparative occurrence during the time above mentioned for months and years is as follows, with the percentages of fatal terminations:

	1905	1906	1907	1908	1909
January	1	2	5	5	5
February	1	2	9	1	3
March	0	3	12	4	7
April	2	3	14	1	5
May	0	0	10	1	7
June	1	2	11	3	4
July	1	8	6	3	
August	0	9	5	3	
September	0	6	6	2	
October	1	5	5	0	
November	2	6	3	2	
December	1	9	2	2	
Totals	10	55	88	27	31
Deaths	3	20	26	5	2
Deaths, per cent	30	36	29	18	6.5

The number of cases increased especially during the latter half of 1906 and the first half of 1907, when the maximum admission occurred, decreasing markedly in 1908, but again increasing this year. The number of deaths increase correspondingly but the percentage death rate declined since 1907.

As regards nationalities, the Americans show a high rate of infection and indicates that the ameba flourishes on the Isthmus and is not necessarily introduced by other nationalities, though the Panamans themselves do not show infection in very large numbers, upholding the idea that the native may have a special resistance to the disease. From Jamaica there were 44 cases; Barbados, 43; United States, 34; Guadeloupe, 11; Colombia, 9; France, 9; Spain, 7; Martinique, 9; Panama, 5; Antigua, 5; Grenada, 4; Italy, 2; Canada, 2; England, 2; Venezuela, 2; Sweden, 2; Montserrat, 2; St. Lucia, 2; Hayti, 1; Trinidad, 2; West Indies, 1; St. Kitts, 1; Cuba, 1; St. Thomas, 1; Germany, 1; Fortune Island, 1; Dominica, 1; St. Vincent, 1; India, 1; Mexico, 1; Ireland, 1; Greece, 1; unknown, 2. Total, 211. These are practically in direct ratio to the nationalities here. Of these, 3 French, 1 Italian, 1 English, 2 Canadians, and 5 Americans had previously been in the tropics.

There were 205 males and 6 females (U. S. 3, St. Thomas 1, Jamaica 2). The United States females had never been in the tropics previously; one a school teacher 4 months on the Isthmus, one a housewife 7 months on the Isthmus, the third, time unknown.

Occurrence and deaths during the different decades of life is shown by the following table:

Ages	Cases	Deaths
10–20 years	22	4
20–30 "	87	19
30–40 "	61	18
40–50 "	21	8
50–60 "	12	5
60–70 "	3	0
70–80 "	1	1
Unknown	4	1
	211	56

In the later decades of life the mortality was higher.

Every village on the Isthmus contributed one or more cases, the places of a greater population having a correspondingly larger number of cases, Panama, heading the list, though so few Panamans were admitted, showing again a resistance of the native or a decreased resistance of the foreigner. It also shows that there was no endemic center from which it spread, as there were from Panama, 34 cases; Empire, 19; Ancon, 16; Paraiso, 14; Las Cascadas, 13; Pedro Miguel, 11; Culebra, 12; Gorgona, 10; Balboa, 10; Rio Grande, 8; Tabernilla, 7; Cunette, 6; Bas Obispo, 7; Corozal, 5; Bohio, 5; San Pablo, 5; Gatun, 5; Matachin, 4; Miraflores, 3; Chagres, 2; Colon, 2; Gold Hill, 1; Lirio, 1; Frijoles, 1; Caledonia, 1; Cerro, 1; Mamei, 1; Cucaracha, 1; Tivoli, 1; unknown, 1. The cases occurred in proportion to the population in the various towns.

But 7 cases have a record of second attack among this series, though some of the patients stated that they had had previous dysenteries which, except by presumption, could not be diagnosed as amebic. A number of the charts which were not accepted indicated that the patients complained of a tenderness or slight pain in the abdomen alone, of a slight increase of stools for one or two days, yet in examining cases for a period covering more than four years so few reappear with a typical attack the inference would undoubtedly be true that the attacks are not nearly so frequent as is generally supposed, and that when proper treatment is given recurrences are rare.

Of those who had more than one attack there was 1 from the United States who had been 8 months on the Isthmus, 1 from the United States who had been 14 months on the Isthmus, 1 from the United States who had been 18 months on the Isthmus, 1 from Jamaica who had been 21 months on the Isthmus, 1 from the United States who had been 2 years on the Isthmus, 1 from the United States who had been 2½ years on the Isthmus, and 1 from France who had been 3 years on the Isthmus. These cases all occurred before July, 1907. With one exception they were all among whites.

The time of habitation on the Isthmus before admission to the hospital with positive symptoms varies. The greater number were admitted after a residence of 3 to 9 months, though a number as early as one month after arrival. Under one month: 2 from the United States, 1 from Grenada, 1 from Dominica, 1 from Jamaica, 1 from Spain, 1 from Colombia, 1 from Trinidad, 1 from Sweden, 1 from Guadeloupe. Total 10. One to two months: 4 from Jamaica, 3 from Guadeloupe, 1 from St. Lucia, 1 from Barbados, 1 from Grenada, 1 from Colombia, 1 from Antigua, 1 from the United States. Total 13. Two to three months: 5 from Barbados, 2 from Guadeloupe, 2 from France, 1 from Montserrat, 1 from Grenada, 1 from Jamaica,

1 from the United States. Total 13. Three to six months: 12 from Barbados, 4 from the United States, 3 from Guadeloupe, 3 from Jamaica, 1 from Antigua, 1 from Venezuela, 1 from Spain, 1 from West Indies, 1 from Fortune Island, 1 from Martinique, 1 from St. Vincent. Total 29. Six to nine months: 8 from Barbados, 5 from the United States, 4 from Jamaica, 2 from Spain, 1 from France, 1 from St. Thomas, 1 from Colombia, 1 from Antigua, 1 from Ireland, 1 from St. Lucia, 1 from Canada. Total 26. Nine to twelve months: 5 from Jamaica, 4 from Barbados, 2 from the United States, 1 from Trinidad, 1 from Cuba, 1 from England, 1 from Martinique. Total 15. One year to eighteen months: 7 from the United States, 2 from France, 2 from Spain, 3 from Barbados, 1 from Greece, 1 from Canada, 1 from Italy, 1 from Venezuela, 1 from Jamaica, 1 from Grenada, 1 from Hayti. Total 21. Eighteenth months to two years: 7 from Jamaica, 5 from the United States, 5 from Barbados, 1 from Antigua, 1 from Colombia, 1 from Guadeloupe. Total 20. Two to three years: 4 from Jamaica, 3 from the United States, 2 from France, 3 from Martinique, 5 from Barbados, 1 from Antigua, 1 from St. Kitts. Total 19. Three to five years: 2 from the United States, 2 from Jamaica, 1 from Mexico. Total 5. Five to ten years: 2 from Colombia, 1 from Martinique, 1 from Jamaica. Total 4. Ten to twenty years: 3 from Jamaica, 2 from Colombia, 1 from France. Total 6. Twenty years and over: 6 from Jamaica, 1 from the United States, 1 from Italy. Total 8. Life: 5 from Panama. Total 5. Unknown: 17. Total 211.

When comparing the mortality and severity of the cases under early and late treatment it can be seen that though many presented or acquired severe complications even when admitted early after the onset, yet a greater number of those admitted late in the course of their attack and necessarily obtaining late treatment developed severe complications and proved fatal.

Ill When Admitted	Number Admitted	Deaths	
1 day	3	0	
2 days	17	0	
3 "	11	2	(1 having parotitis, liver abscess, ulcerated colon, cecostomy).
4 "	19	2	(1 with lobar pneumonia and multiple abscess of liver—1 with malaria tertian).
5 "	18	3	(1 had a cecostomy operation, ulcer of the appendix and peritonitis—1 malarial double tertian.)
6 "	12	2	(2 had ulceration of the colon and appendix).
7 "	17	3	(1 perforation of the sigmoid, peritonitis estivo-autumnal malaria—1 ulceration of the colon and appendix and peritonitis—1 malaria tertian and purulent sinusitis).
8 "	13	9	(1 malaria estivoautumnal—1 abscess of the liver, parotitis, malaria tertian, ulcer of the colon—1 sinusitis—2 ulcers of the colon and appendix—1 syphilis—1 ulceration of the colon, ulceration of the appendix, acute peritonitis, and multiple abscess of liver).
9 "	3	1	
10 "	10	3	(1 perforation and uncinaria—1 abscess of the liver, uncinaria and chronic nephritis).
11 "	2	1	(purulent pleuritis and sinusitis).
12 "	2	2	(1 perforation of the cecum and abscess of the liver—1 ulcer of the colon and purulent peritonitis).
14 "	11	7	(1 peritonitis—1 perforation and colitis—1 abscess of the liver and peritonitis—1 ulcer of the colon—1 abscess of the liver and ulcer of the colon—1 abscess of liver, ulcer of the colon and uncinariasis).
21 "	20	5	(1 ulcer of the colon and appendix—1 sinusitis).
24 "	1	1	(multiple abscess of the liver and retrocecal abscess).
1 month	12	5	(1 abscess of the liver and lung—1 ulceration of the colon and abscess of the liver).
5 weeks	2	1	(abscess of the liver).
6 "	2	1	(Uncinaria and malarial fever estivo autumnal).
2 months	5	1	
9 weeks	2	1	
3 months	4	2	(1 liver abscess and ulcer of the appendix).
4 "	1	1	(multiple liver abscess, perforation of the colon and peritonitis).
Unkn'wn	20	3	(1 general peritonitis).

In all 56 deaths, of whom 37 had complications severe enough to cause death by themselves.

Hence among the deaths there were from: Abscess liver, 13; ulcertation colon, 13; peritonitis, 9; ulceration appendix, 8; perforation, 5; sinusitis, 4; cecostomy, 4; parotitis, 2; lobar pneumonia, 1; empyema, 1; abscess of lung, 1; retrocecal abscess, 1; syphilis, 1; chronic nephritis, 1; uncinariasis, 4; uncomplicated, 19.

Complications among those who recovered were: Malarial fever estivoautumnal, 15; malarial fever tertian, 6; uncinariasis, 5; lobar pneumonia, 2; abscess of liver, 1; cecostomy, 1; phlebitis, 1; chronic nephritis, 2; acute nephritis, 3.

Four uncomplicated cases died under the method recommended, with an average period in the hospital of 5½ days, showing the acute condition on admission. Eleven uncomplicated cases died by other methods of treatment, with an average of 22 days in hospital.

Leucocyte counts were not generally made. In cases complicated with liver abscess they were 39,000, 17,200, 15,000, 10,800, 30,000, and 14,800.

The polynuclear count varied from 73 per cent. to 90 per cent.; when complicated with lobar pneumonia 18,800 and 32,000. In two, when ulceration of the colon alone was present 4,800 and 3,200, thus simulating typhoid fever. In other apparently uncomplicated cases which recovered 34,000, 22,000, 21,800, 13,200, 10,600, 9,600, 8,000, 7,600, 7,000, and 5,500 were made.

In regard to the treatment, a variety of methods have been tried in this hospital with varying success. They resolve themselves into oral medications and local treatment in the form of irrigations. Among the former may be mentioned castor oil, magnesium sulphate, opiates, ipecac, and bismuth, with combination particularly of bismuth and opium. Among the latter, quinine irrigations in varying strengths, but usually 1 in 500, thymol irrigations 1 in 2,000 or 3,000, combinations of both, silver nitrate ¼ per cent. boric acid, starch, starch and laudanum, tannic acid, copper sulphate, normal salt, and plain water, warm and cold.

Of all the different methods used, one stands out preeminently, that is, bismuth by the mouth and simple irrigations, either normal saline or plain water per rectum. The method is simple, harmless, and physiological, and as our statistics show, more than justifiable. Of 129 cases treated by this method, there were 24 deaths, or 18 per cent., with an average time in the hospital of 21 days. By the other methods, there were 82 cases, with a mortality of 32, or 39 per cent., and an average time in the hospital of 28 days.

The treatment herein recommended may be termed the rest-supportive treatment. Absolute rest is enjoined, an absolute milk diet, of which there should be an abundance, saline or water irrigations, and bismuth subnitrate in heroic doses. We do not object at the beginning if tenesmus and distress be very severe to an occasional hypodermic of morphine and atropine, but as a routine measure it is not considered good treatment.

If we consider the conditions present in a severe amebic dysentery, we find first a lowered vitality; second, local lesions, confined chiefly to the large bowel and consisting mainly of undermined sloughing ulcers with ragged, more or less necrotic mucous membrane associated with irritating discharge. In the borders of the undermined ulcers encroaching on sound tissue and thoroughly protected from in-

testinal contents are the amebæ exercising their cytolytic action on healthy cells. From these ulcers numerous amebæ are thrown off in the discharges and these alone can we hope to destroy by any amebicidal agent.

With these pathological conditions present how can we best attempt to relieve the patient? In some respects amebic dysentery acts like malaria. An individual may have latent malaria for months and years and enjoy perfect health because of the natural resistance and immunity established, but granted an operation, shock, overexertion, fatigue, an anesthetic, or anything to happen by which his resistance is temporarily lowered, immediately the malarial organisms reassert themselves. As we often see here, it is almost impossible to cure a malaria during a typhoid fever attack until the convalescence from the latter is established and his resistance reaches a point to be able to cope with it.

The modern methods of dealing with tuberculosis are not by endeavoring to destroy the tubercle in the tissues, but are directed altogether to increase the patient's natural resistance, and amebic dysentery should be treated in the same way.

How can we hope to recover the natural resistance of the body and overcome the pathological amebic process? It is evident from the pathological character of the lesions and also the situation whence the amebæ extend their destructive processes that local amebicidal irrigations are futile, except in so far as they may destroy those amebæ that are liberated and are free in the lumen of the bowel. It is impossible to reach the living, active, deep-seated ones that are invading sound tissue in the walls of undermining ulcers. These ulcers have comparatively small openings in the early stages, so small that solutions could not gain access. Moreover, solutions which irritate the bowel only favor the invasion of fresh areas. For these reasons we prefer normal saline solutions or plain water because it lavages the mucous membrane of the bowel, removing the irritation and toxic discharges. From two to four times daily this is recommended.

The next point for consideration is the diet. An absolute milk diet is recommended because (a) it is a perfect food; (b), because intestinal putrefaction is less marked in this than any other diet. In order to appreciate this latter point certain physiological points on digestion are of prime consideration when taken in conjunction with the observations of Musgrave, Clegg, and others, that amebæ only flourish when associated with microorganisms.

Changes in food stuffs after entering the alimentary canal are subjected to two main classes of fermentation, the unorganized or enzyme ferments and the organized ferments, or that due to fermentative or putrefactive bacteria. In the first group we have ptyalin, pepsin, rennin, trypsin, amylopsin, steapsin, and invertin. In the latter group a great number of microorganisms which have a physiological importance in converting excess of food stuffs into products which can be assimilated or elminated, as gases, complex organic compounds, or insoluble excreta. In the stomach and small intestine the organized ferments act chiefly on the carbohydrates, but in the cecum and large intestine the putrefactive bacteria play their great rôle on the proteins and their partially converted products. The large intestine has three chief functions: (1) that of being the chief receptacle where putrefactive and fermentative bacteria exercise their functions; (2) an organ of absorption where the liquid products of digestion are finally absorbed, and (3) where the non-assimilable products along with mucoid secretions are formed into feces.

In amebic dysentery with its ulcerative bowel lesions in the large intestine it is therefore necessary to limit bacterial action as much as possible as it favors the development of the amebic processes.

It is because milk is the least prone to this fermentation and that it is practically all absorbed before it reaches the large intestine that it is the ideal diet in amebic dysentery. Eggs for these reasons are contraindicated.

The digestive processes in amebic dysentery are interfered with as they are in typhoid or any febrile process. The gastric, intestinal, and visceral secretions are lessened or absent, so that enzyme digestion is much enfeebled and bacterial fermentation is accelerated. An excess of protein is always taken care of in the large bowel by the putrefactive bacteria. When, as in amebic dysentery, the enzyme digestion is largely in abeyance any increase of the protein over a physiological diet merely furnishes so much more pabulum for the bacteria in the large intestine which in turn favor the growth of amebæ. For these reasons during convalescence when a pure milk diet can be departed from, the carbohydrates and hydrocarbons are added to the dietary before the protein.

We now come to a consideration of the oral medication. A preliminary dose of castor oil is given to free the bowel of all products of fermentation. It is more thorough and less irritating than magnesium sulphate. In doubtful cases the administration of a dose of the latter is good because it favors the appearance of amebæ in the stools. If the ulceration be far down in the rectum, producing a great deal of tenesmus and distress, an occasional hypodermic of morphine and atropine is administered. We do not favor the routine administration of opium for two reasons: (a) because it interferes with production of enzymes and enzyme digestion, and (b) because it lessens the peristaltic action of the bowel, thus favoring the retention of toxic products which are harmful in sound mucous membrane and whose elimination is indicated.

The only other medication used here is the subnitrate of bismuth in heroic doses. We give a drachm or a drachm and a half by measurement (three drachms by weight), stirred in a glass of water every three hours till there is a general improvement, which is from three to ten or at most fifteen days.

How does bismuth act? (1) As it is largely insoluble it passes through the bowel coating over the mucous membrane as acting as a mechanical sedative and astringent. (2) Theodore Kocher, in 1883, demonstrated that insoluble preparations of bismuth were actively antiseptic. To this feature I attach the great value of the subnitrate salt in the treatment of amebic dysentery. It thus destroys or inhibits bacterial fermentative and putrefactive processes which favor the growth of amebæ while not interfering with enzyme digestion throughout the alimentary tract. We have never seen here the toxic effects ascribed to bismuth subnitrate when administered in large doses.

The course of the disease under the above-mentioned methods of treatment varies with the severity and chronicity. In the milder cases convalescence begins on the third or fourth day, but usually toward the end of the first week. In the severer cases ten days or a fortnight may pass before the stools

begin to lessen, and the tongue clean. The patients must be carefully watched and if the well-known symptoms suggesting toxicity arise as manifested in the pulse, tongue, and general condition, surgical interference must immediately be sought and a wide-open cecostomy be performed after the method pursued here by Dr. Herrick. When convalescence is established the main point then is to adopt every measure to increase the natural resistance of the patient. The more this is attained the less prone are we to relapses.

One chronic case that had contracted the disease in October, 1897, and had consulted with a great many physicians in different cities in the United States, and was advised as many different methods of medication, and with one of whom he spent a year taking special treatments of irrigations and internal medication without benefit, reported here for treatment on June 16 of last year. He informed me that during this period of almost eleven years he had formed movements during a period of 6 days only and was a constant sufferer from weakness, pain in the legs, and tenesmus. He averaged about eight movements a day and generally with blood and mucus. On his admission the stools were characteristic and contained many large active amebæ. He was put on the treatment above recommended, viz., rest in bed, a milk diet, bismuth subnitrate, a teaspoonful every three hours, and saline irrigations. Before he left the hospital his stools were formed. At his own request he was discharged on June 28, twelve days after admission, feeling very much stronger and practically well. He continued to take bismuth, however, off and on for two months and adhered to a diet largely free from protein. During this time he remained actively at work. I saw him professionally about a month ago with an attack of malaria, when he informed me that he had been perfectly well of his dysentery since August one year ago. I might mention a number of other cases with similar happy results, two of which contracted their trouble in the Philippines and one in Brazil. They were very chronic cases.

On looking carefully over our charts we find not a single case of relapse since this method of treatment has been adopted. On the other hand, in 1905, 1906, and the early part of 1907, recurrences took place when the quinine thymol irrigations and other methods were in vogue and opiates were freely administered.

Of the complications mentioned above, one stands out preeminently, viz., abscess of the liver. It may develop without dysenteric symptoms and even when they have been in abeyance for years. On the other hand, it frequently occurs when the dysenteric process is acute, obscuring the symptoms, and causing a rapid fatal termination. It has been frequently overlooked here because of the preeminence of the dysenteric affection. It is in these conditions of acute dysentery that the multiple abscesses occur. Resistance is at a low ebb and a perfect shower of amebæ enter the portal circulation forming miliary necroses and subsequent abscesses. We hope later on to discuss the symptomatology of liver abscess more in detail.

Of the other complications mentioned above, little need be said. As one can readily see, they occur more frequently and are more fatal the longer active treatment is delayed. The sooner the dysenteric symptoms are recognized the greater hope we have of a favorable issue and a perfect cure.

We think that the statistics above shown are ample justification of the method here pursued, particularly when we consider that of the 31 cases treated this year the mortality is but 6.5 per cent., and it is only during this period that the method has been rigidly adhered to and the heroic doses of bismuth subnitrate administered. The treatment is merely a plea to aid nature to reassert itself by physiological means, by rest, nutritive support, and the simple harmless medicaments above mentioned.

Summary: (a) No race or nationality is immune to the disease. (b) There is no endemic local center. (c) The frequency of cases usually run in successive months, but not at the same periods of the year, and the number varies greatly in successive years. (d) Complications are numerous, but the most common is abscess of the liver. (e) The longer treatment is delayed the more grave is the prognosis. (f) The rest-supportive treatment, consisting of rest in bed, a milk diet, the use of mild irrigations, and bismuth subnitrate in heroic doses, has given here by far the most satisfactory results. (g) Surgical interference is indicated if improvement does not rapidly follow the above-mentioned method.

THE SURGICAL TREATMENT OF VERY SEVERE AND LATE CASES OF AMEBIC DYSENTERY.*

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The surgical treatment of dysentery was first suggested by Hale White in 1895, who recommended an artificial anus on the right side to give the colon rest and afford an opportunity for local treatment in cases of intractable ulcerative colitis. This operation was never greatly used on account of the disagreeableness of the artificial anus to the patient and the uncertainty of the ultimate closure, as well as the dangers attending the operation itself.

Accordingly it was modified by Gibson, who adopted the Kader method of valve formation, thus producing a valvular cecostomy through which local treatment could be given. In 1902 another operation was advised by Weir of New York, by utilizing the appendix in the treatment of this condition. This operation—known as appendicostomy—is now generally accepted in the literature to be the best surgical treatment of intractable dysentery.

Thus we see that the tendency of the past has been to go from cecostomy to appendicostomy, though it must be remembered that the cecostomy operation advocated by the earlier writers was, as a rule, for the purposes of irrigation only, and that the cecostomy as usually performed, accomplished only the same result that was obtained by the operation of appendicostomy.

Cases of dysentery as turned over to the surgeon by the clinicians come under the following classifications:

First: Those that have become chronic and remain in this condition under the best medical treatment. The great majority of the cases in the literature come in this class and most excellent results have been obtained by means of appendicostomy with the subsequent treatment attained by its aid. In this hospital I have had practically no cases in this class, as they have reacted so favorably to the medical treatment employed that surgical intervention was unnecessary.

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Second: The second class comprises those cases of acute, fulminating type, which represent a severe form of the disease, and in which from the very onset the extreme toxicity of the process is so marked that in the near future the clinician will advise combined surgical and medical treatment from the start. This is a class of cases whose members will increase with the acumen of the clinician in his diagnosis and prognosis of the individual cases.

Third: The third class includes those of a severe, acute type which are resistant to medical treatment, and at the end of one or two weeks no improvement is found, or the patient is failing—and in this class would fall practically all the cases which have been turned over to the surgical side in this hospital.

In the treatment of these severe forms of dysentery, I believe that three things are necessary: (1) Supportive treatment of the patient which would include the various hygienic and medical measures usually employed; (2) local treatment of the large bowel, which is partially obtained by rectal irrigation through the appendix or valvular cecostomy according to the Kader method, and (3) a complete rest of the large bowel from all irritation of food particles or decomposition products thereof passing over its surface. The significance of this third point can be readily understood if we consider the value of an artificial anus in cases of ulcerative proctitis or cancer of rectum and the marked improvement in these cases after the irritation of the bowel contents is removed.

This raises a question as to the way in which the dysenteric toxin is elaborated and absorbed into the system. Is it a process which takes place in the wall of the bowel only, or does it occur on the surface of the bowel also, or, still further, is there an elaboration in the bowel cavity with an interrelation with the various bacteria acting on the food products, thereby producing unusual ptomains and decomposition products which might play a roll in the clinical manifestations of dysentery? That these different elements enter into the diseased process will be proved, I believe, by a study of a large series of cases treated by surgical methods. For in cases of dysentery treated early by irrigation through an appendicostomy or cecostomy at a stage when the diseased process is still mainly on the surface layers of the bowel, it will be found that there is a marked amelioration in all the symptoms and toxicity of the disease, but in cases delayed until the process has reached the deeper layers of the bowel, there will be much less improvement and far more reliance will have to be placed upon supportive measures.

Accordingly in the severe forms of dysentery, the rôle that these three methods of treatment play should be carefully borne in mind, because only by a proper adjusting of all three can we do the utmost for the patient. The first two of these is readily accomplished by the operation of appendicostomy and is well shown by Curl's report from Colon Hospital of eleven cases of severe dysentery in which he performed this operation, upon admission of patients to hospital, or shortly afterward, with only three deaths. To obtain the third requisite, that is, the complete rest of the large bowel, necessary in the most severe forms of dysentery, a larger opening is required and one sufficient to allow the contents of the cecum to be evacuated at that point.

The operation of cecostomy as performed here is very simple, consumes very little if any more time, and often can be done quicker, than the corresponding operation of appendicostomy. An incision three inches long is made directly into the abdominal cavity over the region of the cecum. The cecum is grasped and drawn into the wound and two of its longitudinal bands are attached to the parietal peritoneum, one on either side of the incision by a running catgut suture, thus shutting off the general peritoneal cavity and leaving a large pouch of the cecum protruding through the wound. A few interrupted catgut sutures anchor this pouch to the skin, iodoform packing being introduced between for the sake of drainage and to shut off contamination of the muscle layers. The cecal pouch is opened at once, the contents sponged out, and irrigations can be started immediately. In my earlier operations I fastened a large tube in the ileum, but I found later that the cecum with its mucous membrane would evert itself, thus allowing the ileum to discharge its contents practically outside the wound. I always open the cecal pouch at the time of the original operation, and, although this is considered a hazardous proceeding, I have had no bad results arise therefrom in my series of cases. The operation can be performed either under local or general anesthesia. Both methods have been used here, but in these very severe cases my preference is for a local anesthetic.

With the exception of one of the earlier cases, all of this series were transferred to the surgical side as being in a most critical condition, and some of them practically moribund. In four of the cases the operation was practically bloodless, the patient's vitality being so low that the operation could have been performed with a knife, scissors, and thread. The series comprises eleven cases, four of whom recovered. In four of the cases there were liver abscesses in the multiple form, mainly of the small terminal variety, which of course would be hopeless under any form of treatment. Another case was complicated with pulmonary tuberculosis and died one month after the operation with marked tuberculous lesions of the lung, a dysenteric process still persisting in the bowel. Two other cases resulted fatally, one operated on the twenty-first day died six days later; the other operated on the twenty-ninth day died three days later; each of these complicated by a bronchopneumonia. In these two cases, the operation was performed under cocaine anesthesia.

In the four cases that recovered, three of them represent a very severe type of the disease, and the charts show the marked amelioration beginning immediately after the operation. The fourth case is one who had chronic dysentery for five months, then developed an acute exacerbation and was operated on ten days later, and in this case it was four months before the cecostomy was closed. He was seen again seven months later and there was no return of the process.

The objections that have been hitherto raised to this operation are: (1) The difficulty of performance; (2) the disagreeableness to the patient of the artificial anus; (3) the starvation of the patient on account of insufficient nourishment due to the absorbing surface of the large bowel cut off; (4) the difficulty of closure.

As to the difficulty of performance, I believe there is very little difference between this method of cecostomy and appendicostomy. As to the disagreeableness to the patient of the artificial anus, I do not think that should be considered, for these cases were practically moribund. As to the starvation of the patient, we know that there is a marked

diminution in the nutritive absorbing powers of the colon when a large part of its surface is diseased: also, with an artificial anus we do not have to exercise the same care in dieting of our patients and can give them a far more liberal diet, only taking care that the food is easily digested and absorbed. These patients all became well and strong even with the large bowel sidetracked by means of the cecostomy.

The closure of the cecostomy, when performed by the method above described, is very simple. The mucous membrane of the incision is united and this turned in by an interrupted suture approximating the serosa. The wound is then closed, layer by layer. In spite of the large opening the abdomen was strong in these four cases at the time of discharge, and two of them have been examined since, after being at hard work, and the closure found perfectly strong.

These cases are too few to draw any conclusions from, but they serve to show that many of the acute and rapidly fatal cases of dysentery could be saved by early surgical intervention. From a study of these cases, I believe that a case of severe fulminating or acute, intractable, ulcerative colitis should be given the additional chance afforded by the sidetracking of the large bowel even though he has hippocratic facies and is in a moribund condition, although, of course, better results could be obtained if this operation was performed earlier. This operation, however, will be of no service in cases where other complications have set in, such as the terminal multiple abscesses of the liver.

PATHOGENESIS OF TABETIC ARTHROPATHIES BASED UPON AN ANATOMO-CLINICAL STUDY OF TWO CASES.*

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Diseases of joints in the skeleton occurring in the course of tabes and due partly or totally to the after-effects of the tabetic process are well known. Since Charcot's first clinical and anatomatical description of the condition in 1868, a number of observations followed and arthropathies have been observed not only in the large joints of the lower extremities, but also in those of the upper extremities and their small joints (carpal, metacarpal, tarsal, metatarsal, phalangeal), finally in the joints of the skeleton of the face. In 1884 G. Kroenig (*Zeitschrift für klin. Medicin*, 1884) also called attention to arthropathies of the vertebræ in tabes. J. Abadie, in 1900 (Nouvelle Iconographie de la Salpêtrière) described a large number of cases of the latter condition. Almost every articulation of the skeleton therefore may become involved in tabes. Of course, some joints are more frequently involved than others. The knee and ankle present the largest number of cases. The tarsus is next in frequency. The hip is oftener affected than the shoulder. The small joints of the limbs and the vertebræ are rarely involved.

The anatomical condition of such joints has been well studied by various writers and among recent descriptions that of Idelsohn's may be particularly mentioned, as it gives a detailed and minute account of the joint itself, also of the surrounding tissues. In spite of this large accumulated material the cause and the exact pathogenesis of the morbid process remained unknown.

Attempts have been made from time to time by very competent observers to find a causal relation between the diseases of the joints and various histological elements affected by the tabetic degenerative process. Charcot and his followers incriminated the cells of the anterior cornua in the spinal cord. They thought that these cells contain neurotrophic centers for bones and articulations. They reported some cases in which the gray matter of the anterior cornua was found deformed, atrophied, diseased, but at the same time they wisely cautioned against the final acceptance of this view before a sufficiently large number of cases has accumulated showing the constancy of such findings. After the publication of four positive cases by Charcot, Pierret, Lionville, Joffroy and Condoléon, soon seventeen cases appeared in the literature with diametrically opposite findings. They are those of Bourceret and Coyne (1 case), Raymond (2), Pitres and Vaillard (6), Oppenheim and Siemerling (3), Paulidis (1), Marinesco (1), Bouglé (2), Pitres and Carrière (1 case) (see collection of Pitres and Carrière, Archives Cliniques de Bordeaux, 1896). The records of subsequent writers also show a great diversity of findings, some directly opposite to others. Besides, in some of the cases in which atrophy of cells in the anterior cornua was found, the segment of the cord involved did not correspond to the joint affected.

The theory of a center for nutrition of bones or joints is certainly an attractive one and one is apt *a priori* to ascribe the lesion to a trophic center in the cord, but direct evidences for its existence have never been brought forward. All these reasons, I believe, amply justify a complete abandonment of the spinal theory of the arthropathies. For the same reason Buzzard's theory as to the existence of an articulation-center in the medulla cannot hold ground.

The next question in the history of joint-lesions of tabes was the state of the nerve trunks which supply the articulation with nerve fibers. Much attention has been given this subject. It is a well-known fact that the peripheral nerves are frequently affected in tabes. In view of this frequency a suggestion was made that there are trophic fibers in peripheral nerves and that the diseases of the joints are due to the degenerative state of those trophic nerves. A careful search in the literature fails to reveal any histological of physiological evidence as to the existence of such nerves for bones and joints. Sherrington distinctly says that there is no proof of nerves with a specific trophic influence and that every nerve center that can influence the proper and specific activity of a tissue possesses in so far a trophic influence on that tissue (Schäffer's Physiology). It is not at all necessary to appeal to imaginary trophic fibers. The mere existence of a degenerative state of peripheral nerves the majority of which is composed of motor and sensory fibers is sufficient to explain the dystrophy of the joints. That the sensory nerves are affected, is evident from the defective perception of pain in the skin and in the affected joints. A Charcot joint can be moved in various directions without provoking much pain or any pain at all. It is evident that the deep sensory fibers are involved. There are a great many observations on record in which the nerves entering the affected joints were found diseased.

On the basis of the "sensory nerve theory" Mari-

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nesco (*Revue Neurologique*, 1894) advanced the following proposition. The normal nutrition of tissue provokes in the sensory terminations excitations which are transmitted to the vasomotor centers of the cord. The latter in their turn provoke a reflex influence at the periphery and thus maintains a normal tonus necessary for the nutrition. If for any reason the sensory nerves of the joints are altered, an insufficiency of vasomotor reactions is created and trophic disturbances follow. Mouchat and Coronat also admit that when an insufficiency of sensory stimulation exists, the arthropathy is of a trophic type; the hypertrophic type is the result of the compensatory process of those sensory fibers which remained intact and consequently they over stimulate the vasomotor centers of the cord. Tabetic arthropathy consequently is readily explained by the diseased state of the sensory nerves which are so frequently found to be degenerated in tabes. This view is simply based on the common observation, viz., that the nutrition of a tissue depends on the vital state of a nerve distributed in that tissue.

So simple and clear as it may appear, the neuritic pathogenesis of the tabetic arthropathies cannot be accepted as the sole factor. There are on record cases in which the most thorough examination failed to find any track of degeneration in the peripheral nerves. Such are the cases of Chipault, Damaschino, Bellangé and more recently of Henderson (*Journal of Pathology and Bacteriology*, 1905). It is true that in the largest majority of tabetic cases the peripheral nerves are involved, but the fact that in some cases, even if they are very few, no lesion was found, weakens somewhat the exclusive incrimination of the peripheral and articular nerves in causation of joint lesions. Moreover, what is well established, is the fact that the terminal nerves are equally affected in tabes on the side of the arthropathy as well as on the side without a joint lesion. Besides, the number of cases with arthropathies in tabes is comparatively very small, and according to Gowers only 10 per cent. The latter fact militates strongly against the neuritic theory, as it is surprising that in view of the great frequency of nerve changes in tabes the number of arthropathies are not equally frequent.

En résumé we can say that in spite of the simplicity of the view that the peripheral nerves are the direct cause of tabetic arthropathies this view cannot be accepted in its entirety because of (1) absence of nerve lesions in some cases, (2) presence of nerve lesions in the affected and non-affected joints, (3) the very small percentage of arthropathies in tabes. Should then the influence of diseased nerves be abandoned in considering the pathogenesis of arthropathies?

When a tissue or an organ is found in a pathological state and the nerves distributed in it are found diseased, the rôle the latter played in the causation of the former cannot and should not be ignored. As in the tabetic arthropathies the influence of the nerves alone cannot be admitted, an additional element must be sought for.

Volkmann advanced a view that trauma is the direct cause of the condition. Indeed if we consider the marked deficiency in the general sensibility, the diminished sense of pain in the skin and in the joints, the loss of reflexes, the hypotonia of muscles and ligaments leading to their abnormal display, the enormous strain of the limbs, joints and ligaments during and because of the ataxia, for all these reasons we must admit that trauma of a joint is an easy occurrence in tabes. Regnard, according to Henderson, reports a case in which tossing in bed and a brusque incoordinate movement of a limb while in bed ended in an arthropathy. Consequently without an apparently direct and gross injury, a joint may undergo an undue stretching, twisting or a slight unobservable trauma and commence a pathological process which rapidly or slowly will lead to a typical tabetic arthropathy. These traumata may occur not only in the ataxic period and because of the incoordination, but also in the preataxic stage. In the latter case the loss of pain-sense and of reflexes are sufficient causes for traumata. The latter may for the same reason pass unnoticed. A trauma consequently is an important factor in the etiology of tabetic arthropathies. When a trauma occurs in a joint, the nerve supply of which is undergoing degeneration, the pathological condition of the former is easily conceivable.

Not only recent but also old traumata may become the point of departure for tabetic arthropathies. H. Claude reports such a case in the *Revue Neurologique*, 1907. A mason, 38 years of age, dislocated his hip at 14; had a contusion of the right foot at 18 and a sprain of the left knee at 30. He contracted syphilis at 28. At the age of 34 the first symptoms of tabes made their appearance. Since then the disease progressed and at 38 he presented a complete picture of the most typical form of tabes. He presented also arthropathies of the hypertrophic form in the right hip, left knee and right foot. They were confined precisely to the parts which were the seats of the old traumatic distrubances which had occurred 24, 20 and 4 years prior to the onset of tabes. That the traumata of old date contributed here to the ultimate development of the arthropathies cannot be denied.

The following two cases which I am about to report are exceedingly important, I believe, from the standpoint of a traumatic origin of arthropathies in two tabetics, whose peripheral and articular nerves have been in a state of degeneration. A most careful anatomical and histological study has been made. The most minute nerve branches around and in the articulation have been dissected with the utmost care. The corresponding blood-vessels, large and small, were equally removed and prepared for examination. For the purpose of control an identical number of nerves and blood-vessels were dissected, removed, and examined on the unaffected sides. Two knees with large portions of the constituting bones, also two feet with their ankle-joints were totally removed and carefully dissected and anatomically examined. The spinal cords and medullas were very carefully examined as to the tabetic tracts also for cells in the cornua and the anterior and posterior roots. No nervous element has therefore been neglected. A very large number of specimens has been prepared and repeatedly examined.

Case I.—Frederick S., tailor, 39 years of age, contracted syphilis at the age of 20. Seven years later began to suffer from vague pains in the lower extremities which he attributed to rheumatism. A year later he noticed that occasionally he would see double. The former vague pains became more definite: they became lancinating and very sharp. Two years later ataxia appeared in the lower limbs. The condition gradually grew worse until three years ago when he first came under my observation. He then presented the following picture: marked ataxia of the legs, loss of patellar and

Achilles' tendon reflexes, Romberg's sign, Argyll-Robertson pupils, optic atrophy, palsy of the left internal rectus, difficulty of micturition, sexual impotence, hypesthesia to touch and pain in the four extremities, and marked hypotonia of the lower limbs.

Apart from the usual hygienic, dietetic, and iodide treatment, the patient was advised to take up a course of systematic exercises. During four months the latter was kept up and the improvement of the ataxia was remarkable. He was able to walk without assistance. One afternoon while exercising in his room for turning around with closed eyes, his right knee received a sudden twist. He immediately felt pain. At the end of ten days the latter has considerably subsided, but he was no more able to use his right leg as previously. A slight swelling was soon noticeable on the inner side of the knee which kept on increasing. While some pain persisted, passive manipulations were not only possible but even caused very little discomfort. Soon a decided enlargement of the entire knee began to be visible. No external applications or rest could arrest the progressive increase in size. At the end of eighteen months the joint was very large. The bony structures surrounding the joint were much enlarged; there was some effusion in the joint. The skin around it was thick and presented a peculiar firm edema. The patient contracted pneumonia five months later and died.

At autopsy the affected joint presented stretched ligaments and capsule, thickened synovial, a moderate amount of fluid, considerable enlargement of both condyles and head of the tibia, a velvety appearance of the cartilage which in a few places was absent and the bone was then exposed. The following parts were removed for a microscopical examination: the cord with portions of its roots, the medulla, some peripheral nerves and blood-vessels (see later). The medulla was found normal. A cervical, thoracic and lumbar segment of the cord were examined very carefully. The cells of the cornua were stained with thionin and ammonia-carmin. Repeated examinations of a large number of sections revealed nothing abnormal in the cells; the latter were normal in their aspect, dimensions and form. Slight alterations were found in the posterior cornua; some cells were missing. The posterior columns showed the usual degeneration and sclerosis characteristic of tabes. The posterior roots also presented distinct degenerated areas although the destruction was not complete.

Great care and considerable time were spent on dissection of portions of the following nerves which were subsequently examined with the methods of both Marchi and Weigert: (1) In the popliteal space the tibial nerve (internal popliteal), the superior and inferior internal articular and the azygos articular, a branch that is given off from the nerve to the popliteus muscle, and which goes to the knee and the superior tibiofibular joint; (2) below the popliteal space a branch that arises from the tibial to pass into the joint through the internal lateral ligament; (3) from the external popliteal n. two articular branches, upper and lower, also a recurrent articular nerve which goes around the neck of the fibula to the knee-joint and tibiofibular joint; (4) a portion of the external popliteal at the apex of the popliteal space, also of the same nerve before it breaks up into its three terminal branches (recurrent articular, musculocutaneous, and anterior tibial).

All the articular branches were cut off with portions of the nerves from which they arise. For the purpose of control the knee-joint of the unaffected side was also removed, equally careful dissection was made for the above enumerated nerves and stained with both methods.

The microscope revealed alongside of normal fibers also degenerated areas in all the large and small nerves of both joints with this exception, however, that there were more normal fibers in the internal popliteal nerve (in the popliteal space) on the normal side than on the affected. This quantative difference is negligible, as all other nerves were equally affected on both sides. The difference could be discerned only with the Marchi method, but not with the Weigert.

The following blood-vessels have been dissected and examined microscopically. A portion of the popliteal artery, superior internal articular arteries, azygos articular, inferior external and internal articular arteries; an upper portion of anterior tibial artery, the recurrent tibial posterior, a branch to the superior tibiofibular joint. Similarly to the nerves they were also removed from both knees. The stain employed was ammonium-carmin or hemalum.

A large number of specimens was examined and with very few exceptions they were found normal. Some thickening of the intima and narrowing of the lumen was found in the anterior tibial and popliteal arteries, but no changes in any of the articular branches. The condition was identical in the normal and in the affected knee.

Case II.—John C., coachman, aged 44, contracted syphilis at 29. Twelve years later a tingling sensation made its appearance in the soles of his feet; he then began to complain also of a numbness in his feet and of a sense of softness on the hard ground. Soon sharp pain developed in the legs. This was followed by double vision, difficulty of micturition complicated by imperative micturition, ataxia in the lower limbs. At the end of six months a complete picture of tabes was present. At the time of my examination in addition to the above symptoms there were also loss of patellar and Achilles' tendon reflexes, double optic atrophy, objective sensory disturbances in the lower extremities (hypesthesia to touch, pain and temperature), hypotonia, and some ataxia in the upper extremities. He also presented gastric crises of an unusual severity which could be controlled only by opiates. The usual medicinal treatment was instituted, also systematic exercises for his limbs were kept up for several months with a great degree of success.

About twenty months ago, while walking on an icy pavement without support, he slipped and fell. The left foot turned under him. He managed to get up without assistance and walked a distance of five blocks. There was a slight pain in the ankle, but the discomfort in raising or extending the foot was greater. Since that time he found himself unable to walk without a crutch. He soon noticed a swelling and thickness of the ankle. Passive manipulations of the joint were possible and caused very little pain. The joint kept on growing in size, the bones surrounding it began to get enlarged so that at the end of a year he presented a typical arthropathic ankle, as described originally by Charcot. The general condition of the patient grew progressively worse. He soon developed gastrointestinal trouble with profuse diarrhœa. Hemorrhoids, from which the patient has been a sufferer for years, bled profusely. The patient died in the midst of uncontrollable diarrhea, gastric crises, sleepless

nights and incontinence of urine. The medulla, spinal cord with its anterior and posterior roots, a number of peripheral nerves and blood-vessels (see below), also both feet with their ankle-joints were removed for an anatomical study.

The diseased articulation was globular, and distended; it contained a certain amount of fluid. The skin over it was thickened. The lower end of the tibia and the internal malleolus were markedly enlarged. Similar thickening and enlargement was also noticeable in the astragalus and to a lesser extent in the scaphoid and cuboid bones and in the external malleolus. The ligaments connecting the astragalus with the internal and external malleoli, also with the calcaneum and the cuboid and scaphoid bones of the tarsus were much stretched. The cartilages were destroyed in some areas and exposed the bony tissue. The ankle-joint of the opposite lower extremity was absolutely normal. The spinal cord on microscopical examination presented the usual degeneration of the posterior columns through the entire cord extending into the medulla. The posterior roots were equally involved, although it contained some healthy fibers. The anterior roots were normal.

Special care was taken in staining the cells of the cornua of the cord. This was done with thionin. A very large number of sections were examined and the cells were found totally normal in the anterior cornua as to their size and form. In the posterior cornua some of the cells presented a state of chromatolysis, the majority, however, were found to be intact.

The following peripheral nerves were carefully dissected and removed for a microscopical study: A portion of the tibial n. immediately before it divides at the level of the inner tubercle of os calcis into two terminal branches; the part of the sural nerve (cutaneous branch of the internal popliteal n.) that goes to the outer side of the foot; a part of the interosseous crural nerve (muscular branch of the internal popliteus) that goes to the inferior tibiofibular joint; the medial calcaneal (branch of the lower part of the internal popliteal nerve) which pierces the internal lateral ligament and is distributed to the integument of the inner side and under surface of the heel; the articular branches coming from the medial plantar nerve and distributed to the astragaloscaphoid and scaphoidocuneiform joints; the articular branches coming from the lateral plantar nerve and supplying the calcaneocuboid, the intertarsal and tarsometatarsal joints; a portion of the anterior tibial immediately before its division at the level of the ankle into its terminal branches; the lateral calcaneal branches (cutaneous branch of the common peroneal nerve) which are distributed to the integument of the outer side of the heel. All these nerves were removed from both ankle-joints and were examined with great thoroughness, a very large number of specimens being used.

The stains used were those of Marchi and of Weigert. The microscope showed considerable degeneration in all those nerves mentioned and almost equally on both sides, viz., in the affected and non-affected joints. What is most remarkable is the fact that the articular branches of the astragaloscaphoid and scaphoidocuneiform joints were more involved on the normal side than they were on the diseased side.

As in the first case, I also examined the blood vessels of both ankle-joints. The following arteries were carefully dissected and removed. The malleolar arteries (internal and external), which supply the ankle-joint; the tarsal artery, branch of dorsalis pedis, which supplies the articulations of the tarsus. The stains used were ammonium-carmin and hemalum. The arteries were found normal in a very large number of specimens.

The two cases just described are very conclusive as to the direct influence of trauma upon the development of arthropathies. But a question arises: Would the disease of the joints have developed had the nerves and the blood-vessels distributed in those joints been normal?

It was important, therefore, to find out if there are cases on record of tabes without degenerative changes in the nerves and blood-vessels, but in which a trauma was followed by progressive arthropathies. A careful search in the literature at my disposal failed to reveal such observations. On the other hand cases of trauma reported have all presented changes in the nerves of the joint. It seems, therefore, that degeneration of the peripheral nerves is a sine quo non in the genesis of tabetic arthropathies, but at the same time trauma is also an indispensable element. We have seen above the strong objections in accepting the neuritis as the only cause of the condition. The histological state of the peripheral nervous system and the gross trauma in my two cases are the best illustration of this contention. My two patients presented sensory disturbances and hypotonia long before the traumata occurred. Their peripheral nerves have undoubtedly been diseased long before the trauma. Moreover, their nerves were found altered on the affected as well as on the unaffected side and until the trauma occurred no evident changes were present in the joint.

Objections may be raised in considering trauma as an important cause of arthropathies in view of the fact that in a number of observations reported trauma has not been mentioned. The latter, in my judgment, does not militate against the above view. The absence of gross and evident traumata does not exclude the possibility of slight or very insignificant injuries to joints which may occur in the course of tabes by virtue of the loss of reflexes, of the hypotonia and of marked diminution of the pain-sense. Claude's case (*loc. cit.*) shows also that old and apparently healed up injuries are apt to become the point of departure for a new morbid process which finds there its locus minoris resistentiæ and therefore attacks it.

The blood-vessels probably also play a certain rôle in the state of nutrition of tissues composing the articulation. Arteriosclerosis is a frequent cause of diseases of joints in general. Not infrequently involvement of blood-vessels, thickening of their walls and narrowness of their lumen have been found in tabetic joints. In the first of my two cases some alteration of the blood-vessels was noticed, but in the second case no changes were found. It is, therefore, evident that while the state of the blood-vessels may contribute to or hasten the pathological process, changes of the latter are not absolutely essential in the causation of tabetic arthropathies. The conclusion to which my two anatomical cases lead, is that the origin of joint lesion in tabes lies mainly in the state of the peripheral nerves, but a provoking cause such as trauma (in its broadest sense) is essential. The blood-vessels play a certain contributory part in its causation, but their changes are not indispensable in the etiology of tabetic arthropathies.

A CLINICAL STUDY OF SIX HUNDRED CASES OF HEART DISEASE.*

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I OFFER you to-night a clinical study of 600 cases of heart disease which I have seen in the past seven years, the data all coming from my private records. For the collection and analysis of the records I am indebted to my assistant, Dr. T. R. Love. Every case history and every examination was my own personal work. The errors as to exact diagnosis are doubtless considerable in such a series. In order to minimize them and to allow each reader to form a just estimate as to the probable correctness or otherwise of the diagnoses, I give below a synopsis of what I believe to be requisite for a diagnosis of each of the valvular diseases.

The 600 cases came to me chiefly from the State of Colorado, but a considerable number from Wyoming, Kansas, Nebraska, and other nearby States.

Of the whole number 293 were males, 307 females—a surprisingly even distribution between the sexes. In the first decade there were 16 males and 29 females, in the second 36 males and 52 females, and in the third 52 males and 59 females, in the fourth 56 males and 59 females, in the fifth 44 males and 40 females, in the sixth 47 males and 36 females, in the seventh 31 males and 28 females, in the eighth and ninth 11 males and 4 females. The females preponderated in every decade up to the end of the fourth, and the males thereafter.

It must be noted that, as in many cases there was more than one lesion, our totals overlap in many directions. There were 18 cases of aortic aneurysm; pericarditis occurred 27 times, one of these being purulent; 83 cases were regarded as functional disease. There were 14 instances of angina pectoris, 3 of tachycardia, 3 of bradycardia, 2 of Stokes-Adams syndrome; 4 cases were regarded as acute endocarditis, although no murmurs were found.

Of the 600 cases, we classify 444 as organic valvular disease. There are 92 cases classified as myocarditis, many of these having also mitral leakage or other valvular lesions. Of course, a great number of the cases of valvular disease were instances of endocarditis more or less active, but when murmurs were present the cases were placed under the valvular diseases. There were 10 cases of septic endocarditis.

One case was that of an unborn babe in which a systolic murmur was detected by Dr. H. G. Wetherill, and confirmed by myself and several other physicians. I have reported a similar instance previously. Four fatal cases are classified as dilatation from vagus paralysis, 3 of these from diphtheria and 1 from arsenical neuritis. There were 3 instances of Pick's disease. In 2 cases of transposition of the viscera, mitral leakage was regarded as of congenital origin, the murmur being systolic in time, loudest at the apex and transmitted toward the right, with accentuation of the pulmonic second sound in the usual place of the aortic valve. Both patients are still living.

A statement should be made as to the signs and symptoms which have led to the diagnosis of each of the valvular diseases mentioned. Aortic stenosis has been diagnosed only when a systolic murmur, to the right of the sternum, at the second space and upward, has presented an exceedingly harsh character and has been transmitted into the vessels of the neck, ordinarily accompanied by a systolic thrill. The aortic second sound is often weakened. Moderate hypertrophy on the left side of the heart should be present. The great majority of systolic murmurs here have been regarded as hemic or as due to roughening without material obstruction.

Aortic insufficiency has been diagnosed in cases presenting a diastolic murmur, generally blowing in character, heard at the aortic area and transmitted downward, and occasionally accompanied by a thrill. The direction and extent of transmission vary so greatly that less stress is laid on these features than upon the origin, time, and character of the murmur. The heart is usually enlarged. The aortic second sound is frequently absent. If the murmur originates at the center of the sternum or even to the left it has been regarded as of aortic origin if accompanied by Corrigan pulse, capillary pulse, or other clinical features of aortic regurgitation. Indisputable examples of relative leakage are given below.

Pulmonic stenosis has been regarded as present in the occasional cases which have presented rough systolic murmur and thrill to the left of the sternum, at the second interspace, the murmur transmitted to the midscapular region, sometimes more to one side than the other, presumably from predominating constriction in the branch of the pulmonic artery supplying that lung. The presence of pulmonary tuberculosis may be looked upon as a confirmatory sign, as in one case given, and marked lack of development is also commonly present.

Pulmonic regurgitation is certainly not a rare phenomenon if we seek for it carefully in those cases presenting great resistance in the lesser circulation. It has been diagnosed when a blowing diastolic murmur was present to the left of the sternum, transmitted downward, accompanied by dyspnea on exertion, and by enlargement of the right side of the heart, if signs of aortic leakage were absent. We should ask as confirmatory evidence the presence of some definite reason why we might expect this valve to leak, such as a history pointing toward congenital origin of the trouble, septicemia, as in one of my cases, or especially obstruction to the pulmonic circulation from fibroid disease of the lung or from advanced mitral stenosis, the latter being probably the most frequent cause. I believe that a dozen cases of relative leakage from the latter two causes may be found for every one of organic origin.

For the diagnosis of mitral stenosis we have sought for enlargement of the heart, especially transversely, the characteristic presystolic or diastolic murmur, often absent in time of broken compensation, presystolic thrill in many cases, accentuation of the pulmonic second sound, and frequently splitting of the basic second sounds. Dyspnea and pulmonary hemorrhage are often confirmatory. Extreme care has been taken as to this diagnosis when aortic regurgitation existed, and Flint's murmur has most often been diagnosed in these cases. In two instances, both lesions were confidently diagnosed, and in one of these the autopsy proved the diagnosis correct. The other patient was still living at last accounts.

Mitral regurgitation has been diagnosed when a blowing, occasionally musical, systolic or late sys-

*Read before the Denver County Medical Society, May, 1909.

tolic murmur has been found at the apex, transmitted to some extent to the left or upward, even toward the pulmonic valves in a few cases, occasionally accompanied by systolic thrill (probably only in cases of gross structural damage to the valves), with pulmonic accentuation, increase of heart area transversely, and oftentimes dyspnea, edema of the feet, dilated venules, and other commonly recognized signs of this disease.

In the present series I have not included scores of cases presenting transitorily such a murmur in the course of acute fever, after exertion, during the use of anesthetics, etc. Many clinicians formerly regarded murmurs of this type as hemic in character, and I formerly so believed and taught. Further study and experience lead us all, I believe, to regard this temporary relative mitral leakage to be one of the most frequent phenomena of disease, and undoubtedly of muscular origin. I doubt if such an apical systolic murmur is ever hemic. (See paper "The Cause of the Inconstancy of Mitral Regurgitant Murmurs," *Journal of the American Medical Association*, July 23, 1898.)

For the diagnosis of tricuspid stenosis a characteristic presystolic murmur should be heard at or near the fifth space to the right of the sternum, and, as the anatomical evidence tends to show, generally accompanied by, but distinct from, the signs of mitral stenosis. Presystolic thrill and marked cyanosis may be noted.

I have regarded tricuspid leakage as being present when a systolic murmur was heard at the tricuspid area, distinguishable from the murmur of mitral regurgitation, which is usually present, by its location, and generally by its softer character, and confirmed by systolic pulsation in the veins of the neck or in the liver. I regard the pulsation mentioned as much more reliable evidence than the murmur, the latter being, I believe, wholly unnecessary to the diagnosis in case the pulsation is characteristic.

The mitral valve was affected 385 times, the aortic valve 54 times, the tricuspid valve 13 times, and the pulmonic valve 16 times. Mitral regurgitation was found alone in 248 cases, mitral stenosis alone in 35 cases, aortic regurgitation alone in 11 cases. Aortic stenosis, tricuspid regurgitation, pulmonic regurgitation, and pulmonic stenosis were each found alone in one case. Tricuspid stenosis was not found in this series of cases, although I saw during this time one instance diagnosed by Dr. Henry Sewall, and proven post mortem. It was accompanied by mitral stenosis. The most frequent combination of two clinical lesions was that of mitral regurgitation and stenosis, of which there were 44 cases. Next to this came regurgitation at the mitral and aortic orifices, 31 cases. Mitral regurgitation and tricuspid regurgitation were noted in 8 cases. Mitral stenosis was associated with pulmonic leakage in 3 instances; mitral regurgitation and pulmonic stenosis were diagnosed in 3 cases; mitral regurgitation and aortic stenosis were found in 2 cases; aortic regurgitation with aortic stenosis was diagnosed in 1 case, although a systolic murmur was present in many cases without other signs of obstruction. Double mitral murmurs were found in association with tricuspid leakage in 2 cases; double mitral disease with aortic stenosis 1 case; double mitral disease with pulmonic regurgitation in 1 case; double aortic lesions with mitral leakage in 3 cases; in 1 case leakage was diagnosed at the aortic, mitral, and pulmonary orifices, and in 3 cases at the aortic, mitral, and tricuspid orifices.

In one case I regarded the trouble as being a mitral regurgitation with a double murmur at the pulmonic valve, apparently congenital, and probably organic. I have seen in a hospital case a double murmur at the aortic orifice, the same at the mitral, with tricuspid leakage, but in no case in this series were more than 3 murmurs fond in association. In 9 instances the murmur of mitral leakage was of the late systolic variety.

I found 7 cases of Flint's murmur. There were 5 instances of definitely musical murmurs, all mitral systolic in character. Palpable thrill was determined in 22 cases of mitral stenosis; in 11 cases of mitral regurgitation; in 4 cases of aortic stenosis; in 2 cases of pulmonic stenosis; in 2 cases of aortic regurgitation, and in 1 case of tricuspid regurgitation.

In the causation of valvular diseases we found that acute rheumatism is the predominating factor, as is generally believed, and that slightly more females than males were affected; 132 cases of mitral disease were of rheumatic origin; 17 of these cases of mitral were in conjunction with aortic disease, and 5 cases of aortic regurgitation were definitely rheumatic in origin.

Chorea was the cause of 20 cases of mitral disease, and 3 of mitral and aortic trouble. In addition, chorea occurred in 9 of the rheumatic cases given, and was associated once with tonsilitis, and once with scarlet fever, as the cause of valvular disease.

Scarlet fever was the cause of 22 cases of valvular disease, in 12 cases causing mitral regurgitation; in 2 cases mitral stenosis, and in one case double mitral disease. Mitral regurgitation and aortic regurgitation occurred twie; mitral regurgitation with tricuspid regurgitation occurred once; others unrecorded.

Pneumonia seemed the probable cause of valvular disease in 14 cases, in 9 of which the mitral valve was affected, in 1 the tricuspid being also affected; others not recorded. Myocarditis occurred twice; bradycardia once, and pericarditis was recorded twice as a sequel. It is certainly much more frequent during acute pneumonia than these figures would indicate.

In 11 cases of nephritis with valvular disease and without any other obvious cause, the vascular changes of this desease were regarded as responsible for the valvular trouble. Mitral regurgitation occurred 4 times; mitral and aortic regurgitation occurred once; aortic regurgitation with Flint's murmur once, while the remainder were apparently instances of relative mitral insufficiency. In 10 cases asthma was given as the cause, in only 4 of which was the trouble regarded as true mitral regurgitation. Asthma was present with an otherwise unexplained myocarditis 5 times, and 1 case was accompanied by angina pectoris.

Tonsillitis was the cause of 9 cases of valvular disease, in 6 of which mitral regurgitation was present, 2 of these being septic; aortic and mitral regurgitation occurred once; pericarditis with effusion occurred once, and adherent pericardium once. In 7 cases no cause could be found but a previous attack of typhoid. In 7 instances the general arteriosclerosis was looked upon as the responsible factor; 4 of these presenting apex systolic murmur apparently indicating mitral leakage. Six cases of valvu-

lar disease were evidently congenital; 5 cases originated in physical overexertion, 2 being in general athletes, 2 in wheel racers, and 1 in a long-distance runner. Diphtheria was the cause in 5 cases; measles in 2 cases. In 4 cases syphilis was followed by valvular disease, presumably through atheromatous changes. In 4 cases tuberculosis was named as the cause in the absence, upon careful inquiry, of any other.

The following diseases caused valvular lesions as indicated: gonorrhea, 1; erysipelas, 1; alcoholism, 3; sepsis, 2; infection following appendicitis, 2; diabetes, 2; empyema, 1; pertussis, 1; miner's phthisis, 1; mediastinitis, 1.

As causes of functional disease we find tobacco given in 36 cases; of these 4 were in females, 2 smoking, 1 chewing, and 1 using snuff. Tea or coffee was the obvious cause in 23 cases. A neurasthenic basis existed in 4 cases, while obesity apparently caused 6 cases, metrorrhagia 1, acetanilid habit 1, and oliguria 1.

A blood pressure exceeding 200 mm. (Riva Rocci) existed in 17 cases, 3 of these being respectively 300, 315 and 360 mm., all cases of nephritis, and the 2 latter dying within a few days from cerebral hemorrhage. In 6 of this list of cases the apparent cause was arteriosclerosis. Angina pectoris was present in several of the cases, as noted elsewhere.

Dropsy was noted as being of myocarditic origin in 53 cases and of valvular origin in 144 cases.

Hemoptysis was noted in 24 cases: it occurred 7 times among the 44 cases of double mitral disease—a proportion of 16 per cent. Among the 35 cases of mitral stenosis it occurred 5 times or 14.3 per cent, while among the 248 cases of mitral regurgitation it occurred 9 times or 3.6 per cent, and aortic regurgitation, myocarditis and asthma each caused hemoptysis once.

Hemiplegia occurred in 4 cases from cerebral thrombosis, 3 of these being right sided. From cerebral embolism there were 5 cases of hemiplegia, 3 being right sided and 2 left. Embolism also occurred at the bifurcation of the aorta once in a case of mitral disease, in the right leg once, in the right foot once, finger tip once, and in the pulmonary artery twice.

Albuminuria was noted in 54 cases, but doubtless occurred in many more at some stage of the disease.

In 20 cases of valvular disease in children, decided lack of growth was noted. In many of these cases the disease causing the valvular trouble had occurred during early childhood, and adherent pericarditis was a frequent cause of the loss of compensation and lack of proper growth. In 3 cases of septic endocarditis rupture of an aortic cusp was diagnosed and proven by autopsy in 2 of them. The diagnosis usually admits of no doubt. In 3 cases of myocarditis with extreme arteriosclerosis, intermittent limping was a prominent symptom.

Five cases of mitral stenosis, and one of mitral regurgitation, with hemoptysis were sent West upon a false diagnosis of tuberculosis; 1 case of mitral stenosis was sent West for asthma, and a case of aortic aneurysm was sent from New York City as one of asthma, the patient dying just after arrival.

Three cases of mitral disease from rheumatism were found in one family of five children, and the father had it also. One woman with valvular disease had lost her mother and grandmother from a similar cause. Certainly heredity is of some considerable importance, many instances of 2 cases occurring in the same family.

Although we have laid much stress upon the diagnosis of valvular lesions, we should emphasize the importance of the careful estimation of the muscular capacity of the heart, for this, and not the murmurs present, must be our guide in therapy as in prognosis.

In conclusion, I would state that I see no essential differences in the manifestations of cardiac disease here from those at sea level, excepting that compensation is more easily broken from a series of causes which I have considered at length in another paper entitled, "Cardiac Dangers in High Altitudes," in the *American Journal of the Medical Sciences*, March, 1909.

REPORT OF TWENTY CASES OF PULMONARY TUBERCULOSIS WITHOUT BACILLI IN THE BLOOD.

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At the suggestion of Dr. G. A. Fried, one of the attending physicians at the Montefiore Home Country Sanitarium, we undertook a number of blood examinations after the manner of Dr. Randall C. Rosenberger, in the hope of discovering, if possible, whether tubercle bacilli exist in the blood of individuals suffering from tuberculosis of the lungs. The investigations were made with the blood of twenty patients, in all but one of which the residue was inoculated into a guinea-pig. As a preliminary, Dr. Fried visited Dr. Rosenberger at his laboratory in Philadelphia and carefully familiarized himself with the various steps in the technique, which was faithfully followed by us in all our experiments.

To favor the chances of success as much as possible, we selected only such cases as had indubitable tuberculosis, with abundant bacilli in the sputum; four were in the so-called first stage, ten in the second, and six in the third.

In the smear from the blood of the fourth case examined organisms apparently identical with the tubercle bacillus were found, the slide being seen by four members of the staff. The pig inoculated with this blood was killed eight weeks afterwards and found perfectly normal, and careful examination of its blood failed to show anything resembling a tubercle bacillus. It should be mentioned, however, that this pig lost in weight in the last two weeks of life; this was also true of all the other inoculated animals, although they were allowed to live usually from ten to twelve weeks. No autopsy changes were found that could account for this loss of weight, and we are inclined to view it as a result of faulty care at this period, the man ordinarily in charge of this work being ill and the duty having been taken up by an inexperienced patient.

In one other case were acid-fast bacilli, or what looked like them, discovered in the blood of a patient. This was an acute case with stormy and rapidly fatal course, the blood being obtained just ante mortem. Unfortunately so little could be withdrawn that not enough remained for an animal inoculation; it was impossible to secure any blood post-mortem, so that this method of control failed us.

In some of the cases—nine to be precise—there were some slight changes found at autopsy of the

animals, mostly of a pigmentary nature; in all of these, smears from the viscera showing such changes were made, in addition to the regular blood smears, and were likewise found negative.

With the exceptions mentioned, no bacilli or other organisms were found, either in the patient's blood or in the blood of the guinea pigs, nor in smears made from the viscera of the latter.

Our investigations thus utterly fail to substantiate the contention of the originator of this method that tuberculosis is a bacteriemia. Our work was carried out with absolute fidelity to the instructions received, and, moreover, our subjects were all frankly infected with tuberculosis. The possibility of the contamination of the distilled water used in the making of the slides, very recently pointed out by the painstaking work of Walter V. Brem, offers a very plausible theory as to the origin and nature of the bacilli found in those cases in which the results were apparently positive.

A WRIST SUPPORT FOR SPHYGMOGRAPHIC TRACING.

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ALL those who work with sphygmographs, or similar apparatus for the registration of the pulse, will agree that the most difficult part is the proper adjustment and fixation of the instrument. Once applied in the correct manner, it frequently happens that a slight movement on the part of the patient destroys the entire adjustment, and again requires prolonged manipulation to reattain it. Thus valuable time is lost, and this drawback is the chief factor causing the neglect of this mode of investigation in cardiac diseases, the more to be regretted, since within recent years simple and accurate instruments have been invented for clinical purposes.

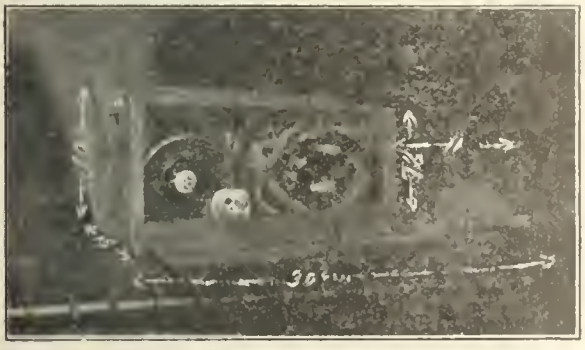

FIG. 1.—Showing apparatus, with door of compartment open, and cardiograph, tubing, etc. visible.

To obviate this difficulty and to facilitate the rapid obtaining of a sphygmogram, I have devised an appliance as illustrated herewith. It is made of wood, is compact, easily fashioned, inexpensive, and can be carried in a satchel. The base is 30 cm. in length, at one end of which a brass handle is placed; 11 cm. from this edge an upright is placed, the exact shape and measurements of which can be seen in Fig. 1. At the back is a second larger similar upright. The two are joined by side walls, one of which is hinged so as to form a door. In the compartment thus formed the various accessory paraphernalia for polygraphic records are stored. The apparatus is completed by two narrow slats, nailed across the two uprights, and forms the support for the forearm. At first I employed straps to hold the forearm in place, but found they were unnecessary, the forearm resting comfortably and permanently when the fingers grasp the handle (Fig. 2).

To operate, first get radial pulse (best to mark it with a pencil just above a little hollow, felt in front

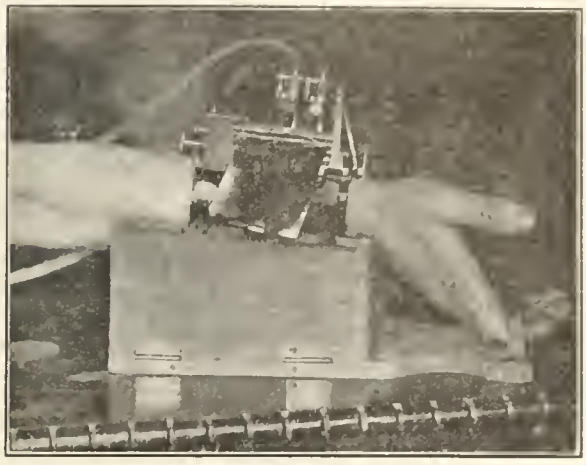

FIG. 2.—Showing apparatus in use.

of the styloid process of the radius), then apply the sphygmograph, and a little adjustment may be necessary in arranging the proper pressure. When once obtained, it remains.

With this hand rest the largest excursion of the lever and a uniform position are obtained. It saves time, is comfortable, and can be used for children also. It is light, cheap, and can be made even by a novice in carpentry.

ONE HUNDRED AND THIRTY-FIRST STREET AND BROADWAY.

The Nutrition of Typhoid Fever Cases by Way of Stomach and Rectum.—G. Franchini and F. Scordo have made very careful estimations of the results of metabolism in two patients subject to typhoid. One of them was affected with obstinate vomiting and was nourished by rectum to keep her alive. The other was an ordinary case of typhoid fever, and was fed by mouth. In the case fed by rectum there was a marked diminution in excretion of all the elements introduced by rectum. At the same time the enemata were not given very high, and were not well retained. There was deficiency of nitrogen, of fat, and of phosphorus, substances which are not absorbed by the large intestine. The vomiting and meteorismus diminished as well as the abdominal pain, and the mind of the patient became clear. It is evident that absorption is less by way of the rectum than by stomach, and hence we should feed our typhoid patients as far as possible by the stomach.—*Rivista Critica di Clinica Medica.*

Treatment of Diphtheria by Massive Injections of Antitoxin.—Delearde, Minet, and Bocquet advocate the use of much larger doses than are generally used of antitoxin, not only in severe cases of diphtheria, but in every case, no matter how mild. They believe that only thus shall we be able to forestall all the complications of the disease, heart failure and paralysis include. In every suspected case they would inject doses of 50 to 100 c.c. of the Roux serum. According to the condition of the patient as to temperature, albuminuria, circulatory or laryngeal complications is indicated the increase of the dose and its repetition. These doses are absolutely without danger to the patient, and cause no more erythema than the smaller doses usually given. Local treatment should be undertaken with a view to destroying the bacteria in the pharynx and keeping the upper respiratory passages antiseptic. The diet should be poor in chlorides, so as not to overburden the kidneys and to permit them to aid in removing the poisons. The most excellent results have been obtained by this method at the Hospital of Saint-Sauveur, at Lille. They seldom lose a case, and then only when brought under treatment after several days of sickness, and complications are unknown.—*Revue Française de Médecine et de Chirurgie.*

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FOOTBALL AND THE MAN.

EACH year, at this season, from all quarters of the country, there appear in the editorial and correspondence columns of the daily press innumerable discussions of the game of football as played in our schools and colleges. These articles may well be divided into two distinct types: on the one hand the semihysterical, vituperative outpourings instigated by the latest injury or death on the athletic field, and on the other the defensive replies of the athlete, the coach, or the enthusiast. The one class insists that the game, as well as being dangerous to life and limb, is brutal and morally degenerating in its tendencies, and that it should be frowned upon by civilized society and prohibited by law, even as the prize fight and the bull fight are proscribed. A perusal of these articles, if they be taken seriously, must leave the impression that the American youth, if not maimed or killed outright, is in a fair way of being hardened, toughened, and made into a brute or a bully, with the one idea in life to attain his end by physical force, be the means fair or be they foul. Those taking the opposite view, and the technical knowledge displayed in their articles suggests that this class more frequently includes those who are personally familiar with the game, claim that it is no more dangerous than any other athletic sport. They call attention to the fact that the number of deaths is very small as compared to those from mountain climbing, from which eighty-four fatalities were reported in Switzerland during the past season, from yachting, swimming, riding, automobiling, or hunting. They further state that the game is necessary for the development of the best characters in the boy and the transformation into the highest type of man—that it brings out courage, dash, determination, and, above all things, cooperation, the characteristic which prevents a man exhibiting his own individual prowess and teaches him to work in unison with his fellows, each bearing his share of the labor that, by the concerted action of the whole, the best results may be attained.

The recent tragic death of Cadet Byrne and the crippling of Midshipman Wilson may be expected to result in long and serious discussions of the game at the next session of Congress. It is greatly to be hoped these discussions will be carried on in a quiet, impartial, and not a hysterical manner, and that, whatever be the decision, it will be arrived at as the result of calm, judicial weighings of the pros and the cons of the question. If football is good for the country and for the type of its manhood, it must remain; if it is injurious, it must either be so modified as to remove its objectionable features or it must go. The question to be decided is which of the elements, those tending toward good or those leading to evil, predominate. Such a question cannot be settled by expressions of individual opinion, but its solution must be based upon facts and figures, upon careful study of the remote results of the sport.

As it is but rarely played after graduation from college, and the players are scattered in all walks of life and to all parts of the country, statistics in regard to the results of university football are practically unattainable. We have, however, two institutions in which the game is played, and played exceptionally fiercely, the graduates of which are under constant surveillance to the days of their death, the United States military and naval academies. The records of the alumni of these two schools are very complete, and refer to physical efficiency, courage, mental qualities, and moral characters. It would seem that a careful analysis of the records of the officers of our army and navy might elucidate some facts of exceptional value in deciding as to the advantages and disadvantages of football. It would show whether the percentage of players later receiving recommendations for bravery or efficiency was above or below the average. It would give information as to the mental attainments of the football player as compared to the less athletic officer. By the behavior of the commander to his subalterns or his men some clue might be obtained as to the justice of the accusation that the game develops bullies and brutes. The records of reprimands, courts martial, and official inquiries might tell whether it tends more toward making the man into an animal or a gentleman, and last, but far from least, the records of the hospital corps would show whether or not the game tends to increase the officer's physical efficiency as a man and a soldier. We hear rumors of "football knees" giving out during forced marches, of tuberculous joints developing at the site of an old accident, and even of men being retired for general incompetency as the result of a previous injury to the head obtained on the gridiron. If such sequelæ of football do occur, the fact should be known, and if such ill effects are found to be numerous, it should argue strongly against the continuance of the game. As a simple question of national economy the government should not squander its thousands of dollars in making a man into an officer and then allow him, during the process of the making, wittingly to expose himself to an influence tending to render him useless for the purpose for which he is being prepared.

Such an analysis of army men should apply equally well to civilians. If the game makes better officers, it makes better men; if it incapacitates a cadet for his duties as a soldier, it may be expected to injure the student for his fight in the world of business. In such an investigation, however, it

must be borne in mind that it is quite possible that good or bad qualities developing in a man in later life may have been present or latent long before he took up the game, may even have been the factors which made him successful in it. The characteristic may have made the player, rather than the game the characteristic.

TECHINESS ON THE YELLOW FEVER QUESTION.

A VERY healthy state of sensitiveness has developed in these latter days, in regions where yellow fever once prevailed with more or less continuousness, to insinuations that the disease may still exist there, actually or potentially. Only a few years ago Havana would no more have resented the statement that yellow fever was endemic there than would or could New York that pneumonia prevails here, but to-day it repels any such insinuation with more than tropical heat. A few months ago it was said in these columns that there was a belief that some cases of yellow fever had occurred in Cuba recently. The statement was founded on the report of a trustworthy correspondent and was partially supported by a report made by a committee of the Louisiana Board of Health, the committee giving as their belief that a suspicious case at Caibarien was actually one of yellow fever. The statement, however, was the occasion of some vigorous language in the Havana press and was also vehemently denied by the health officials, whose indignation was quite comprehensible and under the circumstances justifiable.

Now one of these same officials has been made the subject of some far from complimentary resolutions by the Louisiana Board of Health. In an interesting paper read before the International Congress at Budapest and published in the MEDICAL RECORD of September 4, Agramonte described the methods employed by the Cuban officials in dealing with any suspicious or declared case of yellow fever, methods which, if carried out, give assurance that the disease can never again establish itself on the island. Unfortunately in closing his article, the author indulged in some comparisons, which are proverbially odious if not odorous, reflecting upon present conditions in New Orleans. In that city, he said, the authorities had failed to maintain the necessary screening of the water cisterns, with the result that "mosquitos are to-day nearly as plentiful as before the dreadful epidemic of 1905." The Cubans, by the way, attribute the reappearance of yellow fever in their island, after its extirpation by Gorgas, to importation from New Orleans. These remarks of Agramonte were brought up at a meeting of the Louisiana Board of Health on October 15, and made the subject of some uncomplimentary comment, and a resolution was passed to the effect that the objectionable statement was, "as a whole, entirely false and acrimonious as it related to conditions in the State of Louisiana and the city of New Orleans." We quote from the *Picayune's* account of the meeting of the State Board.

The sensitiveness betrayed by both Havana and New Orleans is somewhat amusing. It is also reassuring in its proof of a self-consciousness in regard to health matters which gives promise of continued vigilance. So long as such techiness continues outsiders may feel a reasonable sense of security that yellow fever will not be allowed to gain a foothold again either in Havana or in New Orleans. We wish we had as good reason to congratulate ourselves in regard to the Mexican coast towns and certain other cities of our Southern littoral.

THE EARLY DIAGNOSIS OF MEASLES.

THOUGH there is a well-grounded belief among the laity that measles is of little more importance than a common cold, that every child must have it sooner or later, and that the grandmother is the best authority on the treatment, to the physicians in charge of children's hospitals and especially those hospitals in which there are many cases of latent tuberculosis the prospect of an epidemic of this disease is a cause of no small alarm. It is in such institutions that the fatal sequelæ of this mild malady are most frequently seen, and it is there that any means of diagnosing the disease before it has reached the stage of contagiousness would be of inestimable value, for as a rule by the time a child in such an institution has developed the rash it has infected every other inmate of the ward.

The discovery by Koplik of the spots in the mouth, one, two, or even three days before the appearance of the eruption, was hailed with enthusiasm, and has resulted, in innumerable instances, in the correct diagnosis and the segregation of the patients many hours or even days earlier than would otherwise have been possible. The discovery of the spots is, however, a test of but comparative value in the prevention of an epidemic of measles, as, even if they are seen within a few hours of their appearance, the child has probably already had sufficient time to infect its neighbors. In the face of the great contagiousness of the disease among children the diagnostic sign which is needed is one appearing early in the prodromal period before the patient has become dangerous to his fellows. In the *Münchener medizinische Wochenschrift* for October 12, 1909, Hecker presents a report of the blood changes in the early stages of measles which he believes in certain instances may be of value in giving information of the approach of the attack. He has found that several days prior to the appearance of the Koplik spots, the blood begins to show a distinct reduction of the total number of leucocytes, an absolute leucopenia, occasionally varied by a transient leucocytosis, marked rapid changes occurring from day to day in the leucocyte count. Especially constant is the appearance of a reduction of the lymphocytes from three to five days before the Koplik spots show themselves. The lymphopenia is absolute, being due to an actual reduction of the lymphocytes and not to a leucocytosis. This premonitory leucopenia and lymphopenia, the author believes, may prove of value in the foretelling of approaching measles, and in enabling early and adequate quarantine precautions.

The application of a test of this kind must from its

very nature be extremely limited, and still occasions may easily be imagined in an institution in which there is a suspicion of recent exposure to measles, when systematic blood examinations of the suspects would be eminently worth while, if thereby the infected children might be isolated sufficiently early to prevent a widespread epidemic of the disease.

Intrauterine Child Culture.

Child culture is the fashion to-day, and it is well that it should be so. We have no right to let the child grow up as best he can. After he has been brought into this world, without any volition of his own, it is our duty to give him a fair chance to grow up a strong, healthy, well-balanced individual. But do we give him such a chance if he comes into this world crippled for life by lack of strength, or the possession of some diathesis that will hamper him through life? Child culture, then, must begin before the birth of the child, while he is *in utero*, must even begin with the parent before the conception of the child. This is, of course, an argument for the regulation of marriage, so that the partners for life will be well matched physically, and will not transmit an hereditary taint to their offspring. In the *Journal de Médecine de Paris*, for September 11, 1909, Professor Oui of the Lille Faculté, directs our attention to the best methods of intrauterine puericulture. There are many parents, he says, who have no knowledge of anything that concerns the perpetuation of the species, and their responsibilities to their children, and he believes that we should discard all false modesty, and have the physiology and anatomy of the functions of reproduction taught in every school, rather than leave children to the garbled knowledge which they may obtain from their companions. The pregnant woman, whether married or not, should be cared for by the State, so that she is given a fair chance to bring forth a healthy child. At present the unmarried mother is left to the deepest poverty. The State should care for her, and should place her under the care of a physician or midwife, if she be too poorly placed to care for herself. Rest is necessary during the last months of pregnancy to give the child full development. In a small municipality in France, Villiers, where the mayor happens to be a physician, between the years 1894 and 1903 but one still-born infant was registered, while the nearby towns have registered three times as many. Insufficient feeding of the pregnant woman has much to do with the interruptions of gestation in the poor. The most unfavorable influence that exists during late pregnancy is the necessity of working in a standing position, as must be done by the poor woman who must work to support her family. For the last two months she should have comparative rest. The remedy for these evils, Oui maintains, is the care of pregnant women by the State, and the establishment of refuges where the unmarried may be cared for properly, thus preventing crime and illness, and lessening the number of weak, undeveloped children who are brought into the world.

Rectal Injections of Salt Solution in Pylorospasm.

A few weeks ago attention was called to the work of Engel of Düsseldorf upon the physiology of the so-called congenital pyloric stenosis or pylorospasm of infants, by which he was able to show that, in certain of the cases at least, the etiological factor of the disease was a marked hyperacidity or hypersecretion of gastric juice, possibly secondary to a congenital neurosis. It was further pointed out that an early diagnosis of the condition might possibly be obtained by an examination of the gastric contents of the vomiting infant for hyperacidity, and that a rational therapeusis based upon a knowledge of the hyperchlorhydria might offer hopes for better results in the treatment of this too commonly fatal disease. In the *Deutsche medizinische Wochenschrift* for October 14, 1909, Rosenhaupt offers a suggestion as to the method of reducing the acidity in such cases. Referring to the recent work of Benczur on dogs, by which the latter found that the injection into the rectum of a considerable quantity of a four per cent. sodium chloride solution caused a marked decrease in the amount of secretion of gastric juice, the writer offers the suggestion that the same procedure be used upon infants who suffer from pylorospasm. He further states that it has long been his custom in all of his cases of pylorospasm, in order to keep up the body fluids, to give salt solution per rectum, and he now believes that his remarkably good results with the disease, he having had but one fatality, are due to the specific action of the rectal saline in reducing the gastric secretion. The suggestion would seem at least to be based on a physiological foundation and, in the light of Rosenhaupt's results, upon clinical experience.

Serum Therapy of Typhoid Fever.

Competent workers have gradually come to the conclusion that no antitoxin comparable to that used in diphtheria can ever be made for typhoid fever. The excitant of the latter disease causes a septicemia soon after onset, produces no soluble poison, and leads to local lesion only in the later stages of the affection. However, many men have attempted to produce curative sera by using the dead bodies of the bacilli themselves, believing that the contained endotoxins may give rise to immune bodies in inoculated animals. In the *Wiener klinische Wochenschrift* for October 14, 1909, Drs. Kraus and Stenitzer report the results from the use of such a serum in an epidemic of typhoid fever among soldiers. Thirty-three cases were treated, only five of them being clinically of light character. The four deaths in the series, while apparently making the mortality very high, were caused by such complications as perforation, aspiration pneumonia, empyema, and septic nephritis, rather than by the toxemia of the typhoid fever itself. The effect of the serum, on the other hand, was very apparent. Given at a time when the temperature was gradually rising, it led to a drop in the fever, occurring very soon or in a few days after its administration. This therapy led to marked shortening of the febrile course of the disease and to great improvement in the subjective symptoms. In no case were any untoward symptoms noticed beyond harmless exanthemata so frequently seen in serum therapy. Experimentally, it was shown that the serum used in these cases could neutralize typhoid endotoxins introduced into the bodies of susceptible animals. These results are, of course, very modest; yet they show that the situation is not as hopeless as other workers in the field have tried to make it out. Specific therapy in typhoid fever is a possibility, though its results are far below those obtained with sera in some other infectious diseases.

News of the Week.

Model Tenements for Tuberculosis.—Plans have been filed at the office of the Building Superintendent of New York for the construction of four fireproof model tenements to be built on Avenue A, between Sixty-seventh and Sixty-eighth streets, for the occupancy of families in which one or more members is a sufferer from tuberculosis. The project is a philanthropic enterprise of Mrs. W. K. Vanderbilt, the plans being carried out under the supervision of Dr. Henry L. Shively of the Presbyterian Hospital. Each building will have sixteen suites for small families on each floor of two, three, four, and five rooms to the suite, offered at moderate rents and arranged to accommodate from 350 to 375 families. They will be only a short distance from the site of the new Presbyterian Hospital. The novel feature will be the series of open staircases leading from the central open courts, giving to the occupants facilities of entering the separate apartments directly from out of doors. Each building will have four of these staircases, and they are designed as a special protection against the spread of the disease. There will be no common hallways, no dark corridors, and no place for dirt and dust to accumulate. A second novelty of construction will be the open air wards on the roofs, after the manner of some of the city hospitals, corresponding to what are now called day camps for open air treatment of tuberculosis. There will be small roof gardens, steamer chairs, and separate toilet chambers for men, women, and children, the idea of the owners and architect being to encourage to the fullest extent outdoor living for the tenants. The third new departure from the ordinary type of model tenement will be the series of balconies on each house so that the tenants may eat and sleep in the open air. The windows opening upon these balconies will be in three sections, capable of opening from floor and ceiling, and thus making the balconies actually part of the regular sleeping quarters. The buildings are to cost $650,000 exclusive of the sites.

Tuberculosis Hospital for Montreal.—At a recent meeting of the Finance Committee of Montreal it was voted to construct a new civic hospital for tuberculosis, and plans were ordered to be prepared. It is estimated that the new hospital will cost $150,000.

Private Tuberculosis Sanatorium for Catholic Sisters.—A private sanatorium for the treatment of tuberculosis is to be established at Mt. St. Michael's Seminary, Hyde Park, two miles north of Reading, Pa., on a tract of fifty-two acres of rich, cultivated farm land at an elevation of 600 feet above sea-level. The institution will be devoted exclusively to the treatment of tuberculosis in sisters teaching in the Catholic parochial schools of the State of Pennsylvania.

Red Cross Stamps.—The American Red Cross Society has just made the announcement that the Red Cross Christmas Stamp is soon to be placed on sale in all parts of the Union. The stamp is of an attractive design selected from 1,200 submitted in competition. The Society has already ordered 30,000,000, but it is expected that 50,000,000 will be sold by Christmas. These stamps will be used as "stickers" on gifts, packages, and letters during the holiday season. Mr. Ernest P. Bicknell, Director of the American National Red Cross, states "that in 1908 the Red Cross Christmas stamps were sold in thirty-five States and Territories, and $135,000 to be devoted solely to forwarding antituberculosis work was the result."

New Antitoxin Rules in Chicago.—The Chief Medical Inspector announces new arrangements for the distribution of diphtheria antitoxin, as follows: Antitoxin for the treatment of diphtheria is now furnished by the State of Illinois free to any physician who will apply at any of the new distributing stations established in Chicago by the State Board of Health. To procure free antitoxin the doctor must apply in person at the distributing station and sign a receipt for the amount furnished, or he may write a prescription for the amount required and send a messenger for it. A clinical report must be filled out and signed by the doctor when the case of diphtheria is terminated. This clinical report must be mailed to the laboratory of the State Board of Health, Springfield, Ill. The city has ceased buying antitoxin and has discontinued furnishing it through the police stations. Culture outfits, however, will be kept in the police stations as heretofore.

The Beneficent Effects of Diphtheria-Antitoxin.—From the report of the Pennsylvania State Department of Health it appears that free antitoxin was distributed among the poor in 15,428 cases of diphtheria from October, 1905, to January, 1909, with 14,080 recoveries, or 91.26 per cent. In addition 10,253 persons were given immunizing doses of antitoxin. All but 161 of these were protected, and of those that contracted the disease 10 died. The State Department of Health has 650 distributing stations throughout the State where at all times physicians can secure free antitoxin for indigent persons.

Freed from Leper Colony.—The assertions of several medical experts who have recently visited the Molokai leper colony, near Honolulu, that many of the unfortunates are not lepers were proven when fifty out of the first hundred patients to be examined by a special commission of physicians were found free from all taint of the disease. There are 875 lepers on the island and all will be examined under the recent law passed by the Legislature. All the examinations are bacteriological and very thorough. All who do not show plainly the ravages of leprosy will be submitted to examination.

The Beaumont (Texas) Chamber of Commerce has formed a civic improvement committee which is turning its attention to public hygiene to the extent of publishing and distributing a series of small pamphlets on this subject.

Plague in Sacramento.—A case of bubonic plague was reported in Sacramento on November 6. This is the third case in the city within three months.

"Pediatrics" Changes Hands.—The appearance of the October number of *Pediatrics* marks a change in the administration of this journal. Dr. William Edward Fitch, formerly editor of *Gaillard's Southern Medicine*, has become editor, and with him are associated as editorial council, Drs. Abram Jacobi, Louis Fischer, Charles De M. Sajous, and Alfred Cleaveland Cotton, and thirty-one collaborators.

State Board of Medical Examiners of New Jersey.—At a meeting of the State Board of Medical Examiners of New Jersey, held at Newark, November 3, Dr. E. L. B. Godfrey resigned from the sec-

retaryship of the board, on account of continued ill health, and Dr. Horace G. Norton of Trenton was elected to fill the unexpired term.

The New York Department of Health was served with a writ of dispossession on November 6, 1909, ordering it to vacate its present headquarters at Sixth avenue and Fifty-fifth street. The cause was a failure to accede to an increase in rent from $20,000 to $30,000 a year demanded by the owners.

New Health Department Building.—The corner stone for a new building for the Department of Health in Brooklyn was laid recently by Mayor McClellan. Dr. Darlington and Dr. Joshua M. Van Cott spoke. The cost of the building will be about $350,000. It is of white marble, and according to the present outlook it will be ready for occupancy by January 1.

Pellagra Commission.—The Acting Secretary of the Treasury has announced the appointment of the following commission to study and report on official action necessary to arrest the progress of the disease pellagra now prevalent in the South: Passed Assistant Surgeon John S. Anderson, director of the hygienic laboratory, chairman; Surgeon M. J. Rosenau of the Marine Hospital Service, Dr. Reed Hunt, chief of the division of pharmacology, hygienic laboratory; Passed Assistant Surgeon Charles H. Lavinder, secretary of the commission; Dr. William A. White, superintendent of the Government Hospital for the Insane; Dr. Nicholas Achuccaro, specialist in nervous pathology Government Hospital for the Insane, and Passed Assistant Surgeon J. D. Long.

Charitable Bequests.—By the will of the late John Stewart Kennedy the Presbyterian Hospital of New York City is to receive the sum of $2,500,000. Other medical institutions to benefit by the bequests of Mr. Kennedy are the New York Infirmary for Women and Children, $25,000; the New York Orthopedic Dispensary, the Home for Incurables at Fordham, the Manhattan Eye and Ear Hospital, the New York Society for the Relief of the Ruptured and Crippled, $10,000 each, and the Bar Harbor Medical and Surgical Hospital, $5,000. It is further provided that if any of the private benficiaries die without issue the sums left to them shall be divided between the Presbyterian Hospital and three other institutions.

Dr. Samuel H. Gilliland of Marietta, Pa., has been appointed by the Governor of Pennsylvania State Veterinarian in succession to the late Dr. Leonard Pearson. He will also be chosen Secretary and Legislative Officer of the State Live Stock Sanitary Board and be in charge of the meat-inspection service. He was graduated from the Veterinary Department of the University of Pennsylvania in the class of 1901 and from the Medical Department in the class of 1904. Subsequently he made extensive studies abroad, especially in comparative pathology. He was for eight years Assistant Bacteriologist to the State Live Stock Board.

The International American Congress of Medicine and Hygiene will be held in Buenos Aires in 1910, the opening session occurring on May 24. The president of the congress is Dr. Eliseo Cantón, the treasurer, Dr. Eduardo Fidanza, and the general secretaries, Drs. Luis Agote and Pedro Lacavera. In connection with the congress will be held an exhibition of hygiene to which all nations are invited to contribute. Information in regard to this should be addressed to the general secretaries of the Congress.

A Pure Drug Show will be held under the auspices of the National Druggists' Exhibition Company at Madison Square Garden during the week of November 15-20. Besides an antituberculosis exhibit there will be shown the staple drugs manufactured in this country and abroad. The process of manufacture will form a conspicuous feature of the show.

Medical Women Incorporated.—The incorporation of the Women's Medical Association of New York was approved by Supreme Court Justice Truax recently, its objects being to bring into closer relation the Alumnæ of the Woman's Medical College of the New York Infirmary, as well as other women physicians holding degrees. The incorporating physicians are Drs. Mary B. Jewett, Josephine Hemenway, Eleanor Parry, Alma Vedin, Annie S. Daniels, Martha Wollstein, and Anna Williams. The annual meeting will be held in May.

The American Association of Clinical Research was organized at a meeting held in Boston on October 27, 1909. The association is composed of physicians and surgeons from both the regular and the homeopathic schools, and is organized to institute clinical research and to establish an American journal of clinical research, in which the work of members of the association and of others doing clinical research work in a scientific manner shall be published. The officers elected were: *President*, Dr. Charles H. Bangs of Lynn, Mass.; *Vice-Presidents*, Dr. W. T. Hamilton of Montreal and Dr. Stillman Bailey of Chicago; *General Secretary*, Dr. James Krauss of Boston; *Corresponding Secretary*, Dr. Francis X. Cobb of Boston; *Treasurer*, Dr. Walter Wesselhoeft of Cambridge; *Registrar*, Dr. DeWitt G. Wilcox of Boston.

The Connecticut State Medical Association, at its semi-annual meeting held at Waterbury, on October 28, 1909, elected the following officers: *President*, Dr. F. N. Loomis of Derby; *Vice-President*, Dr. Nelson A. Pomroy of Waterbury; *Member of Executive Committee* for two years, Dr. M. C. O'Connor of New Haven.

The Iowa State Health Officers' Association elected the following officers for the ensuing year: *President*, Dr. A. J. Sweney of Decorah; *Vice-President*, Dr. Fred Albert of Mason City, and *Secretary-Treasurer*, Dr. W. G. Carhart of Marion.

The East Side Physicians' Association will hold its next meeting at Scheffel Hall, 194 Third avenue, New York, on Thursday evening, November 18, 1909, at 8.30 o'clock.

Oswego Academy of Medicine.—The opening meeting of the 1909-10 biweekly session of the Oswego Academy of Medicine was held Thursday evening, October 28, with twenty members present. The subject of discussion was anterior poliomyelitis.

Obituary Notes.—Dr. Charles Henry Cobb of Boston died on November 1, 1909, aged 65 years. He was a graduate of the Harvard Medical School and professor of materia medica and therapeutics for sixteen years, and since 1901 Dean of the College of Physicians and Surgeons. He was a member of the Massachusetts Medical Society and American Medical Association.

Dr. Nicholas L. Hornsby of St. Louis, Mo., died on his farm at Carondelet, October 26, 1909.

aged 87 years. Dr. Hornsby was a graduate of the Transylvania University in 1842, and had practised in St. Louis and Carondelet since 1844.

Dr. William Coburn of Oshawa, Ontario, died at his home, October 28, 1909, after having been paralyzed for a year. Dr. Coburn was a graduate of the Medical Department of Victoria College in 1864.

Dr. Charles H. Ott of Sayre, Pa., died on November 1 at the age of 48 years. He was graduated from Jefferson Medical College in the class of 1883, and was superintendent of the Robert Packer Hospital. He was a member of the Bradford County Medical Society, the Medical Society of the State of Pennsylvania, and the American Medical Association.

Dr. James P. Booth of Los Angeles, Cal., died October 21, at his home, aged 62 years. He was a graduate of the Texas Medical College at Galveston in 1871, and was a member of the Los Angeles County Medical Society, the Medical Society of the State of California, and the American Medical Association. Dr. Booth was well known in Southern California as an editor as well as a physician.

Dr. Anderson W. Jones of Lexington, Ky., died at his home, October 22, 1909, aged 43 years. Dr. Jones was a graduate of the Jefferson Medical College in 1890.

Dr. George R. Harris of Norwich, Conn., died at his home October 27, 1909, as the result of a cerebral hemorrhage, aged 44 years. He was a graduate of the College of Physicians and Surgeons of New York, in 1885, and a member of the New London County Medical Association and the Connecticut Medical Society.

Dr. John Meader Goldsmith of Atlanta, Ga., died October 26, 1909, aged 32 years. He was a graduate of the Jefferson Medical College, in 1900, and was a member of the Fulton County Medical Society, the Medical Association of Georgia, and the American Medical Association.

Dr. Samuel S. Kahn of San Francisco died at Coronado, on October 18, 1909, aged 54 years. After graduating from the College of Physicians and Surgeons in New York, in 1877, Dr. Kahn entered the army as surgeon. He resigned, however, the next year to go to California, where he became prominent as a physician. He was a member of the San Francisco Medical Society, the Medical Society of the State of California, and the American Medical Association.

Dr. Edward P. Marston of Monmouth, Me., died, October 24, 1909, aged 47 years. He was a graduate of the Dartmouth Medical School in 1884, and was a member of the Kennebec County Medical Society, the Maine Medical Association, and the American Medical Association.

Dr. Griffith W. Patterson of Atlanta, Ga. died at his home, October 23, 1909, aged 72 years. He was a graduate of the Georgia College of Eclectic Medicine and Surgery, and a veteran of the Civil War.

Dr. William E. Scobey of Kankakee, Ill., died at his home, October 25, 1909, aged 77 years. He was a graduate of the Medical College of Ohio in 1866.

Dr. William Thompson of Little Rock, Ark., died at his home, October 27, 1909, aged 70 years. He was a graduate of the University of Tennessee, in 1856, and was a member of the Pulaski County Medical Society and the Arkansas Medical Society

Dr. Frank C. Bruce of Easthampton, Mass., died October 31, 1909, aged 49 years. He was a graduate of the University of Vermont, in 1881, and was a member of his County and State Medical Society and the American Medical Association. Dr. Bruce was much interested in educational matters, having for many years held the position of chairman of the Easthampton school board.

Dr. Charles H. Burnham of Jefferson, N. H., died at his home, November 4, 1909, aged 66 years. Dr. Burnham was a graduate of the Medical School of Maine, in 1866, and had practised in Jefferson for over forty years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HARVEIAN ORATION—PROFESSOR OSLER AT THE LONDON HOSPITAL—SHORTCOMINGS OF THE UNIVERSITY—DR. WEST'S ADDRESS ON TEACHING IN THE WARDS—DISCUSSION AT THERAPEUTIC SECTION ON SAME—RED CROSS SOCIETY AND HOSPITAL FUNDS—OBITUARY.

London, October 22, 1909.

The Harveian Oration at the Royal College of Physicians was delivered on Monday by Dr. G. H. Savage. He began by remarking that it might be taken for granted that medical men knew all about Harvey, yet he found himself profoundly ignorant of the real man and his life work when he began to formulate his ideas on the subject. That Harvey lived in the disturbed times of Charles I., Cromwell, and Charles II., and that he first recognized the truth about the circulation, was well known, and there was little more to add to the story. He had himself nothing new and so would consider the man in relation to his times before other matters which might represent his injunction to seek for truth by unbiased research. He would not attempt to trace the evolution of Harvey's great discovery, as his predecessors had done. The time was ripe for that discovery, and many had nearly reached the goal. But no one had established the facts, no one had brought the power of examination to justify his belief. Comparing Harvey with some of his contemporaries who had not his special gifts, showed how different he was from his surroundings, making him come so unexpectedly as to resemble, as it were, a comet, unlike any other star in the firmament. In Harvey's time belief in witchcraft was strong and both he and Sir Thomas Browne were concerned in trials of witches, Harvey taking the more lenient view of the matter. The Herbalists at that time taught botany and materia medica and few things were more interesting than their quaint writings. Human anatomy was taught, but the credulity of writers on natural history was seen in their descriptions of animals. Harvey's guiding principle was observation as the base on which to build for the discovery of truth. Nature was, he held, the best interpreter of her own secrets. The orator then passed to his own specialty, remarking that Harvey had been more attracted to the material side of anatomy than to philosophy and mental disease, although he must have been brought into contact with the insane, for Bedlam was near his house, and his work at St. Bartholomew's. Psychology was not much in his line, and even now the seniors of the profession hardly regard it as offering a reward for a life's devotion to it. Yet the fact that already mathematical formulæ were being applied to experiments on the senses indicated that movement was taking place in that direction. The investigation of hypnotism, Dr. Savage thought, should not be ignored in England while other nations were carefully studying the physiology and therapeutic value of this influence. After the oration the president, Sir D. Powell, presented the several medals of the college to those to whom they had been awarded.

Professor Osler opened on the 15th inst. the three new laboratories of the London Hospital College for physiology, chemistry, and physics, respectively. They have cost about £8,000 and have accommodation for 120 students. There are no endowments of this college, but it is hoped that an appeal now being made for £100,000 will have a satisfactory response. Prof. Osler said it was a nice thing to see such a beau-

tiful group of laboratories in connection with a hospital, for they were the foundation stones on which its work rested. Many thought students might stay too long in the laboratories. He said they could not; they ought at least to stay long enough to get laboratory methods thoroughly engrained into their medical constitutions and carry them through life. He advised every student to take up a small piece of research work. To any who said that won't help in examinations he said take no thought for them. Besides, nowadays they were getting a group of very intelligent examiners. The students laughed heartily and the professor went on to denounce the scandalous injustice that the London University, so-called, does not give the London student the chance of obtaining a good, honest, ordinary M.D., and he advised the students to organize and agitate. The university, he said, had failed, so had the conjoint board. Now have a combination of London students, he said, and you will soon have what you need. The principal is here, the Vice-Chancellor is here, he continued, and I would not let them go if I were you until they have promised you shall be able to get a good M.D. At the conclusion of Prof. Osler's speech the Vice-Chancellor rose and said he would take courage and consider this matter, though he could not admit that the university had failed. Still he fully agreed there was something rotten in the State of Denmark, but no definite proposals had been sent to the Senate and perhaps that was where the blame lay. He agreed that they must organize.

Prof. Osler afterwards delivered his first "Schorstein" Lecture, which, as I told you, has been established in memory of the late Dr. Schorstein. The subject on this occasion was "Syphilis and Aneurysm from a Clinical Point of View."

Dr. Samuel West is president of the Medical Society of London this year and he opened the session with a very practical address, in which he protested against the cramming of students which at present prevails. To-day the student was largely spoon-fed, but predigested food was injurious to an animal's vigor; in rushing from one subject to another he had no time for digesting, and if it were not for his splendid powers of forgetting, which he shared with other men, the curriculum would ruin his constitution. So much time was spent in preliminaries none was left for the real practical work. Every one of the preliminary subjects must be pruned and the nonessential parts ruthlessly cut away. Pathology might be studied in the wards as well as in the laboratory. The theories of the pathologist based on the study of animals could not be applied to man until tested in the wards. To call treatment based on laboratory experiments rational and that based on clinical experience empirical implied a difference which did not exist. Treatment of symptoms was often disparaged, but if a disease could not be cured the patient might often be relieved. Symptoms were disorders of function caused by disease. Recently the bacteriologists had brought forward antitoxic sera and vaccines and their value was sometimes most striking, but at other times they failed. It was often said they could do no harm. It would indeed be strange if remedies so powerful for good could never do any harm. It would be unwise to let the enthusiastic bacteriologist run loose in the wards without the control of the clinician; it would, he held, be risky to science and to the patient also.

It is interesting to connote with the foregoing a discussion at the Therapeutic Section of the Royal on teaching in the wards. Sir Clifford Allbutt opened this by saying medical men must be pioneers; they could not afford to wait for the pharmacologists, but might advantageously watch them. Much of our knowledge was empirical, the knowledge of experience. He gave three examples of treatment originally derived from folklore, but which stood the test of modern research. They were digitalis, vaccination, which had wonderfully expanded in unanticipated directions, and poultices, which Bier had shown to be fundamentally reasonable, after they had been for a long time neglected and even regarded contemptously. The student ought to be taught that, quite apart from pharmacological evidence, there was a large amount of empirical knowledge of no little service; he should be told of remedies proved to be useful by clinical experience, whether they could be scientifically explained or not. He must also be told that he would have to do with living beings. He must be no skeptic or he would endanger his own resourcefulness; he should be given a clear idea of the vis medicatrix natural, warned against the overuse of drugs, and shown how dependent therapeutics is on prognosis.

Prof. Osler described the methods at Johns Hopkins University. Dr. Sainsbury advised teaching the history of therapeutics. Dr. Calvert deplored the neglect of incompatability and the simpler practical methods adopted in the wards. Dr. R. Hutchinson was for teaching diagnosis rather than pharmacology and the main lines of treatment which were generally employed in well-known diseases. Prof. Dixon dwelt on the importance of pharmacology and of accuracy in employing alkaloids and other potent remedies. Dr. Beddard said therapeutics could not be taught completely in the wards. Sir Dyce Duckworth urged the necessity of giving some practical instruction in the wards as to many duties often left to nurses. Dr. Hackney thought students might be taught how to manage a general practice.

Yesterday a meeting was held at the Mansion House to promote interest in the League of Mercy. It was explained that the objects of the organization were to provide a means whereby the poor might contribute small sums to the hospitals. Some, through their employers, gave a penny a month, but two-thirds of the population gave nothing. Still, during the ten years of its existence, the league had raised a sum of £120,000. In 1908 it gave £19,000 to King Edward's Hospital Fund. One of the speakers at the meeting expressed the hope the poorer citizens would contribute half a million shillings to help.

King Edward's Hospital Fund has come into a sum of £4,775 from the proceeds of the Franco-British Exhibition, now closed.

Hospital Saturday Fund was observed for the thirty-sixth year in succession last Saturday.

The British Red Cross Society has decided to form a London branch in connection with the Territorial County Associations and its scheme for voluntary aid for the sick and wounded and the St. John's Ambulance Association.

Sir Arthur Mitchell, K.C.B., died on the 12th inst. in his eighty-fourth year. He devoted his life to questions concerning lunacy. On the passing of the Lunacy Act of 1857 he was appointed a Deputy Commissioner and in 1870 was made full Commissioner. Ever since he has been concerned with all legislation as to the insane and received many honors, including the presidency of the Scottish Metereological Society, professorship at the Academy, the Hon. LL.D. of Edinburgh, Hon. F.R.C.P. Dublin. He had a great reputation as an antiquarian and as an archeologist, and wrote and lectured on those subjects as well as those relating to lunacy.

Dr. Rob. Lindsay, late A.M.D., died on the 15th inst. He entered the service in 1858 and retired in 1874. He was M.A., M.D. Aberd. and F.R.C.S. Ed. and wrote on malaria, etc.

Dr. Jas. Irvine Menzies died on the 17th inst., aged seventy-five. A Bart's man, he qualified in 1859 and had been retired for some time.

Dr. John Herbert Wells died on the 16th in his thirtieth year.

CONSUMPTION CURES.

To the Editor of the Medical Record:

Sir:—There appears to be a characteristic and almost unfailing connection between illiteracy and quackery. Some time ago I received a letter from a medical gentleman who claimed to have solved the tuberculosis problem, saying that he had received a letter of inquiry from one of my patients concerning his special methods of treatment, and asking whether it would not be profitable for me to apply the remedies according to the "inter-venious method." Polite reply was returned that, being wholly unfamiliar with the method indicated, I should have to decline the service.

A reputable man of large experience who had abundant opportunities for investigation assured me that the "cure" consisted of injections of warm salt solution into the veins of the arm. It was, in a sense, an operation by a special method, for which, of course, a large sum of money might, with some show of reason, be exacted.

"Cancer cures" seem to be on the decline. I suppose that the next generation will be educated in various methods for the eradication of tuberculosis.

Howard Crutcher, M.D.

Roswell, New Mexico.

THE WAR ON ADENOIDS AND TONSILS BY THE NEW YORK BOARD OF HEALTH.

To the Editor of the Medical Record:

Sir:—The Board of Health is conducting a veritable war against hypertrophied tonsils and adenoids. Children of school age are coming in a stream every day to the dispensaries and offices of private physicians to have their tonsils and adenoids removed. They are compelled to do it by the medical school inspectors. No one can deny that great credit is due the Board of Health for this efficient work, because, in removing early the adenoid growths and hypertrophied tonsils, we remove the probable cause of future complications of various kinds, such as a catarrhal condition of the Eustachian tube, otitis media, swollen glands of the neck, hindrance of respiration and circulation, a general slowing down of the mental and bodily development of the child, etc. Of course, nobody is perfect, and very frequently the medical school inspectors send children whose throats and noses are in perfect condition. I have seen many cases like this in Dr. Freudenthal's clinic for nose and throat at the Beth Israel Hospital. But this does not mean that the school inspectors do not attend to their duties right. On the contrary, it proves that they are anxious to do their full duty and are sending every doubtful and suspicious case to the specialist and hospitals. As an illustration of the great importance of early attendance upon adenoids and tonsil cases, I will relate the following case, which is characteristic of a good many others: A boy, about five years of age, was brought to my office by his mother, some time ago. The boy had a general swelling of the glands of the neck, a foul discharge from the nose, impaired breathing, a temperature of 101.5° F., a slight discharge from both ears, was in a drowsy condition, could hardly breathe. The examination of the throat showed slightly hypertrophied tonsils and a distinct adenoid hypertrophy. The mother told me that the child had been sick for a year, and during that time the family physician prescribed nothing but a nasal wash. I immediately removed the adenoid growths, which filled a good part of the nasopharynx. Within a few days all the symptoms disappeared. The temperature came down to normal, the glandular swelling of the neck disappeared entirely, breathing and respiration became normal, and soon the child was discharged cured.

Julius Solow, M.D.
78 McKibben Street, Brooklyn, New York.

Progress of Medical Science.

Boston and Medical Surgical Journal, October 28, 1909.

The Opsonic Treatment of Pyorrhœa Alveolaris.—T. C. Beebe, Jr., says that underlying all the various conditions which contribute to the onset and progress of this malady, there is a deficiency in the normal protective substances in the blood. As soon as the blood is stimulated to perform new protective substances there is an immediate improvement in the patient's local and general condition. The author reports a series of seventeen cases. In six the culture was practically one of pure pneumococcus. In all the others there was a slight admixture of staphyococci with the pneumococcus. In but one case had there been any sign of renal disease or diabetes. Two had had gastrointestinal disease, two were rheumatic, while in four there was a precedent history of Riggs' disease. In all the gums receded. In eleven pus could be expressed from the gums around the teeth. No *Spirochætæ refringentes* were found in any cases. Four had no loose teeth at the time, but two of these had lost teeth previously. The general results of the opsonic treatment were satisfactory. In some instances loose teeth became firmer. The author observes that in order to get the best results the opsonic treatment must be combined with most careful and thorough treatment. Nature must be assisted by the removal of calcareous deposits, loose teeth must be fastened in the best way possible, and malpositions should be corrected.

Relaxed Knees in Children.—M. H. Rogers says that the children are brought to the doctor because they cannot walk or run as fast as most children. They become easily tired and want to be carried. They are clumsy in running and awkward in walk, showing a tendency to fall. If the symptoms are more severe there is a feeling of discomfort, even of actual pain referred to the legs, especially the knees. At night when the children are first put to bed there may be restlessness and sometimes a crying out simulating the night cry of joint disease. The condition of the knees is the most prominent feature. When the child is at rest there is a slight knock knee, and one or both knees are in a hyperextended position. One knee may be held in a normal position, but when the weight of the body is shifted, that knee joint will spring backward. The position of the feet is more pronated than normal, and the scaphoid is prominent and low. In most of the cases, especially in a well-marked case, there is a good deal of lordosis of the lumbar spine and a prominent abdomen, and the shoulders are generally rounded and the head is held forward. The spinal muscles are prominent and sometimes held in spasm. When the child is lying down the knock knee can be corrected in cases where there are no rachitic changes of the epiphysis. There is a very appreciable laxity of the knee joint, and in all cases it is possible to obtain lateral motion. This is the most prominent feature in this condition. Sometimes we see a child presenting such a picture who also toes in, especially on walking. It is rather difficult to explain why there should be toeing-in and pronation at the same time, because one represents a certain degree of varus and the other valgus. This condition is seen in children who have had a good deal of joint relaxation for some time, and probably means that the child is trying to correct its balance and toes in to obtain a stronger standing position. In carrying out our treatment for relaxed joints, sometimes this toe-in is increased, but later will take care of itself. In the treatment of this condition there is no need of apparatus unless the knock knee is very pronounced. The pronation of the feet is best treated by raising the inside edge of the heel. To prevent hyperextension of the knees, spring-heeled shoes are worn, and by putting on heels from ½ to 1 inch in height the child is tipped forward and compelled to stand slightly flexed.

New York Medical Journal, October 30, 1909.

Gastric Ulcer in the Young.—A. Jacobi refers to the bibliography of this subject and then passes on to a general description of the subject. As causes he cites prenatal disposition, thrombosis of the umbilical vein and its small branches, local embolisms on the gastric wall, burns and septicemia, spasm caused by hyperacidity, local injuries, and infectious fevers. Symptoms are pain, vomiting, and hemorrhage. Statistics as to mortality vary from 2.4 to 50 per cent, according to the various authors. Treatment is to be conducted along the same lines as for adults. A diseased organ must not work. It must rest. An acute case requires rest in bed, morphine in proper dosage may be necessary. Hemorrhages require starvation and ice on the stomach, morphine by syringe or by mouth. Adrenalin is useless when swallowed. Lead and ergot have not been satisfactory to the author. Gelatine has been recommended, but its bulk is an objection. The author has seen good effects from ligation of the venous circulation in the lower extremities, chronic cases call for strict dietetic regulations. Milk should be taken with a spoon so as not to coagulate. Medicines are required to keep the stomach alkaline. The best preparation of bismuth is the subcarbonate. The author cannot advise instrumental treatment. Silver nitrate is a good remedy in relapsing and protracted cases. After treatment may require a long time. Warm applications may relieve local pain.

The Clinical and Pathological Significance of Bacteremia in Suppurative Otitis.—A. B. Duel and J. Wright report a series of sixteen cases of bacteremia out of sixty-seven cases examined. Four patients had definite clinical signs of septic sinus thrombosis for which jugular ligation and excision, and opening of the sigmoid sinus was performed (two with demonstration of clot; two without, on account of violent hemorrhage; recovery in all). One patient had acute suppurative labyrinthitis and acute diffuse leptomeningitis. One patient had acute purulent otitis without mastoid involvement. Two patients from the throat clinic had frontal sinusitis; one of these cases was complicated by meningitis. The remaining nine cases were those of mastoiditis without complications, each of these patients ran an uneventful course after operation. Streptococci were present in fourteen of the cases, pneumococci in two. It is significant that streptococcemia was present in all of the patients presenting clinical symptoms of sinus thrombosis, and in the case of diffuse leptomeningitis; however, it is none the less significant, from another point of view, that in nine patients without any alarming symptoms of further complications seven had streptococci and two pneumococci in the blood. It seems

perfectly evident that a bacteriemia occurring in the course of a purulent otitis can by no means be considered sufficient cause for invasion of the sinus in the absence of other definite clinical symptoms.

Intravenous Injections of Mercury.—W. F. Brenner reports a series of nearly ten thousand intravenous injections given for their antisyphilitic action. Over four hundred different patients were treated. A simple phlebitis followed in 208 instances, but rarely lasted over from four to seven days. An obliterating endophlebitis followed 48 of the injections. Obliteration did not always occur at the site of injection. The severest case of phlebitis followed an injection of mercuric lactate, supposed to be one of the least irritating of the mercury salts. The author has had no case of embolism in his own practice nor can he find recorded an authentic case in the practice of others. No renal complications have been observed except in three cases. Occasionally there have followed the injections a severe intestinal tenesmus, and a simple or even a bloody diarrhea. The smallest dose of the drug that ever produced a bloody diarrhea was three-twentieths of a grain of the bichloride given in the course of 20 hours. The exact curative value of the treatment is difficult to outline because of the limited number of patients treated, the lack of sufficient time for observation and the insincerity and migratory character of many of the patients treated. The previous reference to a full term treatment meant the administration of an intravenous course every two to four months over a period of one and one-half to two and one-half years, the intervals between these courses being covered by the intramuscular use of some insoluble salt of mercury or the administration of medicine by mouth. Rest from treatment, the use of iodides or tonics, was controlled by the same causes which would be competent for cases under some other method of medication. Of the twenty-two patients who completed this prescribed course (treatments finished before February, 1908) only one has shown a recurrence of his disease. The case showing the longest period of freedom from any syphilitic signs since the completion of a full term treatment, stopped all medication over five years ago. Those patients taking only one intravenous course and then neglecting further treatment showed that the shortest period of freedom from symptoms was about nine weeks and the longest over five years. Although unable to draw any positive conclusions as to the exact curative value of the intravenous medication, it can, however, be emphatically stated that a single course of such injections carries more effective therapeutic value than can be obtained in the same time from any other method of medication. When active syphilis is the factor to be considered they always will produce quick and favorable results.

A New Treatment of Locomotor Ataxia Based on a New Theory of the Disease.—A. Heym says that the destruction of nerve tissue in this disease is due to the toxins not only circulating in the blood but also contained in all the other bodily fluids. The ganglion cells of the spinal ganglia are the trophic centers of the sensory peripheral nerves and of the posterior roots and their prolongations. The ganglia are in direct communication with the subarachnoid space by means of the lymph paths and a part of the cerebrospinal fluid flows off that way. Hence, from the beginning of the disease the nerve tissue of the ganglia is exposed to the toxins of the fluid named. The ganglia are changed first in their functions and later in their structure. The functional change lowers the resistance of the nerve fibers. The motor nerves have the power to resist longer than the sensory ones, because their trophic centers are located in the spinal cord itself, but at the end we often find a degeneration of the motor nerves and a general atrophy of the muscles. In a similar way originate the lesions of the cranial nerves. In treatment these toxins must be neutralized where they are most abundant. The author has employed the arsenical preparation known as cacodylate, containing 0.05 in 1 c.c., the technique of the injection being the same as for lumbar puncture. He has a series of twelve cases to report. The neuralgic pains of the disease are not relieved by the injections but are relieved by the iodide given internally in saturated solution. The author hazards no statement as to how long good effects of the injections will continue after the latter have ceased.

Journal of the American Medical Association, October 23 and 30, 1909.

Cardiac Thrombosis.—F. Smithies reports the clinical and pathological findings in three cases of cardiac thrombosis treated in Professor Dock's clinic at the University Hospital, Ann Arbor. Two patients were males, one female, and in one case the diagnosis was made antemortem. He defines the term cardiac thrombus as "a solid or partly solid structure, primarily formed from blood elements, which develops in one or more chambers of the heart during life. Such a mass may be attached to the cardiac wall by a more or less altered base, or may exist as a free foreign body within a heart cavity. When cardiac thrombi are measured by this standard they are uncommon post-mortem findings. This applies especially to those of the free, or 'ball' variety." These formations are now considered as due to some damage done to the endocardium, either infectious, toxic, or mechanical, together with the increase of hemagglutinins in the blood and slowing of the blood stream. These are the essential factors. With the exception of influenza, tuberculosis, and perhaps rheumatism and syphilis, cardiac thrombi are uncommon products of infectious disease. They sometimes occur in the cachexias of cancer, malaria, etc. It is possible for them to arise from any part of the endocardium, even the valves, though the majority arise from the septum, the foramen ovale, and the auricular appendage. The symptomatology varies with the location and the symptoms are those of impeded circulation. An acurate diagnosis is not practicable, but some authorities claim that it should be suspected when in the course of a cardiac lesion the signs become anomalous and confused with practical loss of the clinical picture of either definite cardiac lesion or typical cardiac inadequacy. The reasons given by the patients, whose cases are here detailed, for entering the hospital, were shortness of breath, pain about the heart and stomach, general weakness, cough, cyanosis, edema, and palpitation. In discussing the special points of interest in these cases, Smithies calls particular attention to certain features of one case which seemed to indicate to him that the ante-mortem diagnosis of certain heart thrombi is not altogether impossible if the physical signs are carefully observed and reported. Of these physical signs he lays special stress on atypical peripheral vascular manifestations with the more or less characteristic auscultation and percussion signs in the heart itself. The manifestations of embolic process should always furnish significant information. These were constant in the cases here recorded. When the diagnosis appears likely, there can be little said as regards treatment. The suspicion of a thrombus makes a bad prognosis and certainly limits the prospect of doing any good with drugs in a heart whose compensation appears to be failing.

Eclampsia.—J. E. Welch says regarding the pathology of eclampsia, the typical picture accepted by most of those familiar with the subject consists in hemorrhages in and about the portal spaces, thrombi in vessels of the liver, and giant cell emboli in other organs. There changes found in post mortems of pregnant or postpartum women are considered by many as justifying the diagnosis of eclampsia, and with these changes in mind the clinician will sometimes make the diagnosis of eclampsia without convulsions. Obstetricians have for some years been calling a symptom complex characterized mainly by headache, visual disturbances, nausea, vomiting, delirium, and coma, with or without edema, the toxemia of pregnancy. This syndrome which seems to be due to a more or less profound systemic poisoning has been considered as a different disorder from eclampisia because of the usual absence of convulsions. Instead of hemorrhages about the portal spaces of eclampsia there was found in these cases extensive necroses which, in their early stages limited to the liver lobule, later invaded the remaining part of the lobule and produced the picture of acute yellow atrophy of the liver. A difference of opinion has arisen among pathologists as to the independence of these two disorders—toxemia and eclampsia—some holding that they are only different manifestations of the same general condition. The author reports several cases of these two classes and gives his views as to the origin of the different symptoms. He sums up his general conclusions as follows: "1. The liver lesions in eclampsia are not uniform. Pregnant or postpartum women dying from convulsions may have hemorrhages, central necrosis, general autolysis, or cloudy swelling in the liver. 2. The liver lesions in toxemia of pregnancy are not uniform. They may be either hemorrhagic or central necroses, both of which are found in eclampsia. 3. The hemorrhagic lesions are produced by liver and placental cell emboli, thrombi formed from blood plates and fused red blood cells, and by a solution of vascular endothelium. Heightened blood pressure increases the extent of the hemorrhages. 4. The agent producing the hemolysis and general cell destruction is probably an enzyme."

Placenta Prævia.—A. Stein disagrees with any whole-

sale condemnation of the use of vaginal section in placenta prævia. When there is central implantation of the placenta, it no doubt is dangerous, but in his opinion there are certain cases in which it is justifiable because it enables the obstetrician to become master of the situation quickly and safely. These are those cases of lateral placenta prævia in which we are forced to rapid interference and in which we are sure beforehand that we can avoid the placental insertion. He reports a case with extensive hemorrhage, in which this method was employed (Doderlein's modification of Duhrssen's method) with success, as regards the saving of the mother though the child was lost. He was astonished at the small amount of hemorrhage. In this case he had to do a quick and at the same time safe operation and other methods were out of the question, though the result was not an ideal one so far as the baby was concerned. This operation enables one to open the uterus enough to permit delivery in the normal passage without loss of time in a clean cut surgical way and at any moment during pregnancy or labor.

Quinine and Urea Anesthesia.—A. F. Hertzler, R. D. Brewster, and F. B. Rogers report the results of their treatment and experimental studies with quinine and urea hydrochloride anesthesia. They have been using the drug instead of cocaine in all the cases of local anesthesia to their complete satisfaction. They found that a perfect anesthesia is obtained which lasts from four to five hours. Disturbances in skin union sometimes occurred, however, making the wound slower to heal than when cocaine was used. There was marked induration and thickening, and Hertzler undertook to determine the cause, and found that instead of being cellular it was due to a purely fibrinous exudate. To what extent this fibrinous exudate is subsequently converted into fibrous tissue is not definitely determined, but apparently nearly all is absorbed. With the 0.25 per cent. solution this induration did not occur to any notable degree, however, and this seems to be therefore the strength advisable to use in operations where speedy primary union of the skin is desirable and where anesthesia lasting more than several hours is desired. In operations in which delayed action is unobjectionable, the stronger solutions are those of choice. He gives a number of disorders where this anesthetic has been found satisfactory, such as drainage of the gall-bladder and of appendiceal abscesses, exploratory laparotomies, hernias, castrations, varicocele, and hydrocele operations, etc., and specially recommends it in anal operations and tonsillectomies. The advantages over cocaine are the absolute safety and duration of anesthesia.

Antimeningitis Serum.—S. Flexner says that it is now three years since the antimeningitis serum has been employed therapeutically in this country, and within that period its employment has extended into Great Britain, France, and Germany. Heretofore, the epidemics in which it has been used have been mostly on the down-hill grade at the time, and a fair test of its efficiency during the period of the height of the incipient period of an epidemic when the mortality is at its height had not been made until the present outbreak in France. He gives tables showing the results of analysis of 712 cases of epidemic cerebrospinal meningitis which had been treated with the antimeningitis serum, the one showing the mortality according to age groups, and the other according to day of injection. These tablets are instructive as showing the importance of early injections of the serum, especially in the early years of life when the mortality is greatest. Flexner hopes to consider them in more detail in the near future. He emphasizes a point to which he has previously referred, namely, the importance of experience with the serum in securing the best results from it. The tables also show an increased mortality in the two highest age periods, approximating to that of infancy, which is not wholly accounted for. The explanations that suggest themselves are, that among older individuals there tends to be a large number of very severe, rapidly fatal cases, or that older persons are less subject to the beneficial action of the serum. He also touches on the point that the study of certain groups of cases coming under one observer indicates that the diagnosis can sometimes be made before the usual symptoms of meningeal irritation appear. The cerebrospinal fluid removed by exploratory lumbar puncture reveals the presence of the meningococcus and an immediate injection of the serum either abruptly terminates the case or the disease runs a relatively mild course.

Indicanuria.—Judson Daland says indicanuria may be mild or severe, acute, chronic, or recurrent and occurs as an independent affection or as a complication of other conditions. Its presence is significant of the absorption of products of putrefaction, usually in the intestines, but occasionally in other parts of the body. It may be absent during protein decomposition if absorption is prevented, and it is conceivable that intestinal toxemia may occur without indicanuria. The severe forms of intestinal toxemia simulate cholera and may cause death within a week. No exact knowledge exists as to the precise manner in which the body protects itself from the poisons produced during protein decomposition, but it is believed that the liver cells and intestinal mucosa have some such function. Clinically, indicanuria is more likely when the hepatic function is disturbed than when it is not. It not infrequently exists without symptoms, but there is no certainty that it is then harmless. The conditions that favor it are numerous. The importance of morbid conditions in the teeth, mouth, nose, etc., are too little recognized. Morbid conditions of the intestine and stomach, hernia, ileus, appendicitis, all produce favoring conditions for its occurrence. The author has emphasized elsewhere the importance of the recognition of indicanuria in typhoid. Constipation may exist without indicanuria, but it is exceptional. Acute attacks of toxemia are frequently associated with dark-colored, hyperacid urine of high specific gravity and indicanuria, and as the toxemia increases in frequency and intensity or becomes chronic with exacerbations, the long-continued irritation of the kidneys may lead to chronic interstitial and parenchymatous nephritis. The circulation in the blood of the derivatives of putrefaction derived from the intestines causes varying degrees of anemia which in extreme cases may simulate pernicious anemia. The toxins may also produce arteriosclerosis. The relationship of indicanuria to the nervous system is varied and most interesting. Neuroretinitis, neuralgias, pains in various parts of the body simulating rheumatism and gout, headache usually frontal, though sometimes in the vertex or occiput. The duration varies from a few hours to a few days, and it may be kept up thus for years with the cause unrecognized. Intestinal toxemia is as frequent a cause of headache as are refraction errors. Persistent insomnia has also been observed, and chronic intestinal toxemia may induce or complicate cases of neurasthenia. Benefit from a milk diet in neurasthenia is not improbably the result of the suppression of an intestinal toxemia. Indicanuria is a common complication of the various forms of insanity and has been associated with epileptiform convulsions. It has hindered the favorable course of many cases of tuberculosis, and diagnosis of such complication is essential in that disease. Catarrhal inflammations of the respiratory tract are aggravated by it, and skin diseases have been observed in connection with this condition. It is a common disease in itself and a frequent complication with other diseases, and its removal is very frequently followed by marked amelioration or disappearance of many distressing symptoms.

Intestinal Antiseptics and Peptic Digestion.—A. Heineberg and G. Bachmann have studied the effects of a number of the commonly used intestinal antiseptics, benzoic, boric, and salicylic acids, beta-naphthol, creosote, phenol, resorcinol, sodium phenolsulphon, sodium sulphite, and thymol, as regards their action. They do not believe that the use of the U. S. P. process and its modifications employed in this study at first enables us to form accurate conclusions, either as to the digestive power of pepsin or to the effect which other substances may have on peptic digestion, even *in vitro*. They therefore adopted what they consider a more accurate method, consisting in the estimation of the amount of peptone and allied products formed at the end of digestion by determining their nitrogen content according to the Kjeldahl method as recommended by Katz. Their conclusions are summed up as follows: "1. Intestinal antiseptics interfere with peptic digestion *in vitro*. 2. Beta-naphthol, salicylic acid, sodium sulphite and thymol are the most active in retarding digestion. 3. Boric acid and resorcinol are the least active. 4. The uniformity in the results of our experiments would seem to warrant the inference that intestinal antiseptics interfere with digestion in the stomach and probably in the intestine."

Hemolysis in Cancer.—O. P. Johnstone and C. H. Canning have studied the hemolysis reactions in tuberculosis and in malignant growths, with the object of determining their value as aids to early diagnosis. They found that only the advanced or decidedly active cases of tuberculosis gave reversed hemolysis, the others being negative. In carcinoma cases the positive reactions were in a great majority, and several of the cases giving negative ones showed slight hemolysis after from 48 to 78 hours. In carcinoma of the rectum, two cases out of three gave a negative reaction, but these two were not examined microscopically, so a clinical diagnosis was not verified. In

nine cases of sarcoma of various types, all gave more or less positive reactions, but less pronounced than the carcinoma cases, but with one exception they were all small or of moderate size. One patient who had been operated on and treated with Coley's fluid gave a negative reaction six months after the operation. There has been no recurrence one year after operation. In one of the nine cases the sarcoma was incompletely removed, and treatment with Coley's fluid employed. The final examination showed but a very slight hemolysis. Two patients with endothelioma were examined, the reaction was positive in each. No benign tumors showed hemolysis. A considerable number of patients suffering from various diseased conditions were examined and the results tabulated, together with those from eighty-five normal individuals. The technique employed was that of Crile, with very few minor variations. The authors' conclusions are given as follows: "1. The hemolysis reaction appears to be of decided value in the diagnosis of malignant neoplasms. Negative results do not rule out malignancy, but speak strongly against it. 2. The reversed hemolysis appears to offer valuable information with regard to the extent and activity of the tuberculosis lesion. 3. Several examinations should be made in doubtful cases. 4. The reaction does not appear to occur in other conditions that would lessen its value in the diagnosis of malignancy."

The Lancet, October 23, 1909.

Fatal Case of Septicemia Illustrating an Important Fact with Regard to the Lymphatics of the Upper Limb.—W. B. Brownlie's patient was a farm laborer with a painful swelling below the left clavicle in the infraclavicular region. It was hard, did not fluctuate, and showed considerable edema at the margins. Axillary glands were not enlarged. There was a history of a suppuration about one of the finger nails two weeks before. Diagnosis was made of acute lymphangitis of the costocoracoid glands following paronychia. The subclavicular swelling spread and the patient developed symptoms of general infection. The swelling became covered with vesicles containing blood-stained serum and was opened up. A deep incision was made between the pectoralis major and the deltoid, but no pus was found. The tissues were gangrenous, the patient, not feeling the incision, and cultures showed streptococci. In two or three days the patient had other rigors, and a new swelling appeared behind the angle of the jaw on the right side, probably a thrombosis of the internal jugular vein. He died at the end of three days, the mental condition being clear to the end. The anatomical point involved in this case is that, while drainage from the fingers naturally goes to the axilla, some of the lymphatics from the backs of the fingers go at times along with the cephalic vein to the costocoracoid glands in the infraclavicular fossa. This holds true with reference to the posterior aspect of the thumb, forefinger, and radial side of the middle finger. This route is of more danger to the patient because of the closer proximity of the costocoracoid glands to the large veins of the neck, and they are also a bit nearer to the thoracic duct.

The Importance of the Early Recognition of Tuberculous Mediastinal Glands in Children.—The general clinical cause of such cases is detailed by J. Allen, who dwells on the importance of early recognition so that proper treatment may be begun before the lung becomes involved. Great attention should be paid to afternoon fever, anemia, steady loss of weight, etc., and especially a spasmodic cough, to the significance of which the author attaches much attention. It is very similar to the cough of pertussis, and if it continues after the subsidence of an attack of the latter disease it is probably due to enlargement of the bronchial glands. Bronchiectasis may give a similar cough, but this condition is unusual in children. In early enlargement of the bronchial glands physical signs are wanting, but this might be expected, as the glands are small and deeply situated. If a gland causes constriction of a man's bronchus definite signs follow. Dullness, in any event, may be found under the manubrium, extending outward toward the pulmonary apices and downward toward the cardiac apex. One of the earliest signs of main bronchial constriction is diminution of vocal fremitus. Later the vocal resonance is impaired, breath sounds are feeble, and chest expansion defective. If the pressure is sufficient to prevent the entrance of air or if one of these large tubes has been plugged up by a caseous mass, there is absence of respiratory murmur over a single lobe or even entire lung. The Grancher sign is very variable and cannot be relied on. The tuberculin test controlled by the opsonic index is of much value.

Chronic Glanders in Man with Reference to an Unusual Type Affecting the Upper Respiratory Tract.—O. L. Addison and G. S. Helt report the case of a carman complaining of sore throat and presenting extensive ulceration of the palate and pharynx. One year before he had been seized with violent cramps in the legs and headache, stating that a horse he had been driving had had a "watery discharge from his nose and lumps under his jaw." An abscess developed on his forearm, but the pus from it was sterile. The case was thought to be one of influenza with intramuscular abscess. He remained under observation for several months without much benefit. At that time there was extensive ulceration of the nasopharynx and tonsils, with loss of the right anterior faucial pillar. Liquids taken returned through the nose. He again entered the hospital, having ulcerations in various areas of his throat and nose and abscesses on the face. Later cultures were made of the pus and revealed the bacillus of glanders. Finally his lesions healed and he was discharged. In general the lesions resembled those of tertiary syphilis, but Wassermann's reaction was negative. Points to be considered in these cases are history, occupation, type of ulceration, temperature (the patient had a daily fever), presence or absence of undoubted signs of syphilis, and reaction to antisyphilitic treatment. Improvement in chronic glanders is said to have resulted from mercurial treatment. Injections of mallein have been followed by improvement, and the authors suggest that possibly good may result from vaccines.

British Medical Journal, October 23, 1909.

Rodent Ulcer Treated by Potassium Bichromate.—The patient of W. Gemmill was a woman of 82 years, who had a sore nose for two years. The ulcer ran from the nasion above to the border of the nasal bones below. Laterally, it approached to within one-quarter inch of the inner canthus of the left and to within three-eighths of the inner canthus of the right eye and covered most of the bony skeleton of the nose. It had an irregular border with an ulcerated center and caused no pain but a constant itching. A 10 per cent. watery solution of the acid was painted on night and morning for a few days and a marked inflammatory reaction set in in the surrounding tissues, the ulcer being protected by lint held in position by plaster strips. The application was then stopped for a while, boric acid ointment being used meantime. The ulcer soon took on a more healthy look and granulations were seen. The whole process was repeated twice more and the ulcer completely healed, a somewhat irregularly pitted scar being left. Two weeks later a small portion of the margin began to break down. This was checked by two more applications. The whole period of cure occupied three months.

The Diagnosis of Malignant Disease by Means of the Antitryptic Index.—By the antitryptic index is meant, says H. W. Bayly, the power of inhibiting tryptic digestion possessed by any given serum, compared with such inhibitory power possessed by a normal standard serum, in other words, the ratio of the powers possessed by different serums for neutralizing tryptic ferments. The author refers to the work along this line of various investigators and reports his own experiences in 30 cases of carcinomata in various parts of the body. Of these 26 showed a markedly raised index, the remaining 4 showed practically normal indices except one, which was subnormal. This case was a very advanced one of the antrum of Highmore and died before a second test could be made. If bacterial infection is present, this method cannot at the moment claim any great value, but in the absence of such infection, it is of very great value in affording a diagnosis between malignant disease and gastric and intestinal ulcers, aneurysms, nonmalignant, disease of the bladder, or nonmalignant conditions of the pelvis in women. The negative evidence afforded by a normal antitryptic index is also of very great value in excluding malignant disease.

Report on Cancer Research.—H. C. Ross and C. Macalister detail the results of their investigations by *in vitro* methods. Over a year ago they discovered in the blood of cancer patients a substance which, like the artificial excitant of methyl blue and atropine, excites ameboid movements in leucocytes, and they described how lymphocytes in the presence of both these excitants extruded what at the time were believed to be flagella. These observations suggested the advisability of instituting a combined clinical and pathological research upon the lines referred to in the present paper, especially since the study of cancerous tissues *in vitro* had thrown some light on the behavior and possibly also on the character of the cancer cell itself.

They summarize by saying that they have found a chemical substance which causes a remarkable train of events when it is absorbed by human lymphocytes in that it promotes first an excitation of ameboid movements, then reproduction, and finally death. When it is considered that this series of phenomena constitute two of the cardinal facts known about cancer, for the cause of cancer, whatever it may be, must be an excitant of cell reproduction which ultimately leads to the death of the individual, the inference may be drawn that this first event in cancer may be followed by the succeeding ones, reproduction and death, which are produced by this artificial substance under the microscope. In the body the rapidity of change is far less rapid and would probably be spread over several generations of cells. Methyl blue and atropine excite ameboid movements in leucocytes; so does the blood of a cancer patient. The same mixture will cause lymphocytes to extrude flagella with a particle of chromatin at their ends; so will the plasma of a cancer patient. The authors have shown that the extrusion of chromatin seems to be a phenomenon which appears in cancer cells and that cancer cells apparently produce something which aggravates the disease. This something may be chromatin. This substance may excite the three changes in the chain of events referred to. The promotor of the first of these or its excitant exists in the blood of cancer patients and to a greater extent in cancer juice. If chromatin or a derivative of it is the something which aggravates the disease, in order to produce a chain of events similar to that which has been observed in lymphocytes, it will have to aggravate the action of a substance resembling in effect that contained in the aniline dye which caused first reproduction and then death. It may also be noted that chromatin is a product of catabolism, which may predispose to the disease in persons over the age of forty years.

Berliner klinische Wochenschrift, October 11, 1909.

Chlamydozoa in Nongonorrheal Blenorrhea Neonatorum.—Halberstaedler and v. Prowazek give the name of chlamydozoa to the class of microorganisms which are found in the conjunctiva in trachoma, and have been known as "trachoma bodies." In reply to the recent statement that these so-called trachoma bodies were not specific for the disease, as they occurred in gonorrhea also, the authors undertook the present piece of work. Secretions and epithelium were examined from the urethra in 35 cases of acute and 20 of chronic gonorrhea. The bodies were found in none of these, nor in secretion from the cervix and urethra of 15 infected women. In a series of gonorrheal blenorrhea neonatarum, the results were also negative. On the other hand, the chlamydozoa were found in the secretions from the eyes of five other infants who had what appeared clinically to be ophthalmia neonatorum. Repeated smear and culture examinations of the secretions from these cases, however, failed to show the presence of gonococci. In two of the cases the mothers of the infants were examined, and in one instance the typical bodies were found in the epithelial cells of the urethra. From these findings the authors conclude that the chlamydozoa do not occur in gonorrheal ophthalmia, but that there is a nongonorrheal form of blenorrhea neonatorum due to these organisms, which is not identical with the "trachoma bodies," but both organisms belong to this one class of chlamydozoa.

Münchener medizinische Wochenschrift, October 12, 1909.

Light Treatment of Bone Tuberculosis.—Freund says that the ray and light treatment of bone caries deserves earnest consideration, and where a conservative treatment is to be carried out, should be given a trial. However, climatic-hygienic and surgical-orthopedic methods must not be neglected. It is certain that in the mountain country, where the weather is constantly good and rain never protracted, similar good results might be obtained if the medical profession would begin to appreciate the fact. For cloudy days, however, and for those unable to go to the mountains, *x*-ray and arc light treatments come in play. It is especially indicated to carry on these investigations particularly as the beneficial action of the radium and *x*-ray therapy, which is reported from all sides, may also appear in tuberculous manifestations of other organs, as peritonitis, cystitis, and phthisis.

Blister Produced by Hypnotism.—Heller and Schultz report a case in which a patient was put under the hypnotic influence and the suggestion made that his hand had been burned, but the burn would be painless. The hand was then bound in cotton. Five hours later, under repeated hypnosis, the bandage was removed, and a red, inflamed patch was found, in which was a blister 2.5 cm. x 1 cm. in size. Pricking the blister let out a few drops of a rapidly coagulating fluid which contained a few epithelial cells, but no leucocytes. The patient was then given the suggestion that the hand would heal very rapidly and he was awakened. The next day there was still definite reddening, though less marked, and the blister was more lax. Five days later the hand had healed, leaving a smooth scar. From this style of healing the authors believe that the process was not similar to a fictitious urticaria but was a true epithelial necrosis.

Vicarious Menstruation in the Form of Lip Hemorrhage.—Hauptmann reports the case of an eighteen-year-old, physically well developed and healthy girl who gave the following history: At fourteen she began every four weeks to have marked swelling of the lips with a sensation of prickling and drawing. The swelling was of a purple color from extravasated blood. It lasted three to four days and disappeared. At the age of fifteen menstruation began, but was not regular. When the normal menstruation did not appear the facial swelling came in its stead. The author personally observed the swelling of the lips on four successive monthly periods.

Geographical Distribution of Diabetes Mellitus.—Williamson says that diabetes varies greatly with location and race. In England the diabetes mortality is 9.6 per 100,000; Malta, 37.8; Bordeaux, 25.8; Berlin, 20; Paris, 17.6; Worcester, 27.3; Syracuse, 25.7; Boston, 17.9; New York, 17.4. The disease is very common in Bengal, Ceylon, Siam, Tunis, and Madeira. Jews are markedly disposed to the disease. In Pesth the mortality from diabetes is seven times as great among the Jews as among the Gentiles. The poor Chinese have very little of it; the rich Chinese much more. In Japan it is as frequent as in Europe. Negroes do not have it as frequently as whites; in Baltimore the mortality per 100,000 among negroes is 8; among whites, 16.3. The disease is increasing in certain countries. In England and Wales the mortality was in 1886, 5.9, in 1907, 9.7; in Paris in 1881, 5.8, in 1890, 13, in 1906, 17.6; in Copenhagen in 1885-9, 8, in 1906, 15.3; in Berlin in 1881-90, 4.3, in 1891-1900, 8.2, in 1905, 16, and in 1906, 20; in Victoria, Australia, in 1902, 3.8, and in 1907, 11. In most countries men are more prone to diabetes than women. In New Zealand, Scotland, Havana, Buenos Aires, and a few others, the women are in excess.

Deutsche medizinische Wochenschrift, October 14, 1909.

Salt-Free Diet for Diseases of the Urinary System During Pregnancy.—Oskar Jaeger has made a study of the effect of a salt-free diet in all of the cases in his obstetric clinic which showed symptoms of nephritis, eclampsia, pyelitis, and cystitis, from which he draws the following conclusions: A salt-free diet is not a cure-all by which every case of nephritis gravidarum can be healed or even improved. There are many more cases of severe pregnancy nephritis where this therapeutic method, as well as every other conservative treatment, fails, and in order to save the life of the mother a forced abortion is an absolute necessity. Experience has, however, shown that a systematic withdrawal of all salt, especially where combined with a decrease of the water intake, is frequently a most valuable therapeutic procedure, not only to reduce the edema of the nephritis of pregnancy, but also to improve markedly all the other symptoms of the disease. In the treatment of the pyelitis and cystitis of pregnancy, the salt-free diet may be used as a nonirritating diet in the place of milk with excellent results.

A Large Omental Cyst in a Boy.—Seefisch reports the case of a boy of four years of age who was brought to his clinic supposed to be suffering from tuberculous peritonitis with ascites. The child was extremely emaciated and anemic, with an enormous abdomen. The lungs were normal and the glands not enlarged. The urine was normal; the pulse small and rapid, the temperature normal. The abdomen presented the appearance of a high grade of ascites. There was fullness in the flanks and tympany near the navel. The fullness was movable, and fluctuation was marked. Operation, however, demonstrated an enormous cyst of the large omentum with thin, dark, bluish-red walls attached to the transverse colon by a pedicle the size of a pencil. Its capacity was from 2½ to 3 liters, and it contained much blood, which it was interesting to find, on microscopic examination, was quite normal. There was no increase of white cells in the fluid. The cyst wall was formed of infantile omental tissue, composed of small fat cells, between which lay loosely connected fibrillary connective tissue strands. The patient recovered. True cysts of the omentum, Seefisch declares, are very rare.

Book Reviews.

American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M.D., LL.D.; Albert H. Buck, M.D., of New York City. Complete in Eight Volumes. Profusely Illustrated. Volume VI. New York: William Wood & Company, 1909.

This volume, of over 900 pages, is devoted entirely to regional surgery, and is therefore of special practical value. The several chapters are on: Prosthesis in Its Relation to Surgery of the Face, Mouth, Jaws, and Nasal and Laryngeal Cavities; Surgical Diseases and Wounds of the Nasal Cavities and Accessory Sinuses; Surgical Diseases and Wounds of the Mouth, Tongue, and Salivary Glands; Surgical Diseases and Wounds of the Neck; Surgical Diseases and Wounds of the Thyroid and Thymus; Surgery of the Thorax and Spinal Column; Surgical Diseases and Wounds of the Female Breast; Surgical Diseases and Wounds of the External Genitals and Vagina; Surgical Diseases and Wounds of the Male Genital Organs; Chancroid; Gonorrheal Urethritis; Surgical Diseases and Wounds of the Jaws.

The contributors are George E. Armstrong of Montreal, Franklin Green Balch of Boston, Joseph Colt Bloodgood of Baltimore, Hugh Cabot of Boston, Norman Bruce Carson of St. Louis, John M. Elder of Montreal, William Phillips Graves of Boston, Harris Payton Mosher of Boston, Harvey Gilmer Mudd of St. Louis, Francis J. Shepherd of Montreal, and Charles R. Turner of Philadelphia—all names which those who are acquainted with surgical literature will recognize as of men well fitted by special experience to deal authoritatively with the subjects assigned to them. The volume is quite lavishly illustrated with eleven colored plates and over six hundred text figures.

With the work now three-quarters completed one may safely pass judgment upon it as a whole; at least one may affirm that, if the two remaining volumes maintain the character of the six already published, the series will constitute the most exhaustive and indisputably the most authoritative treatise on the exercise and art of surgery which has ever been presented to English-speaking surgeons.

A Text-Book of Protozoölogy. By Gary N. Calkins, Ph.D., Professor of Protozoölogy in Columbia University, New York. Octavo, 349 pages, with 125 engravings and 4 colored plates. Philadelphia and New York: Lea & Febiger, 1909.

A few years ago little was known of the unicellular animal organisms, and what interest there was in the study of them was almost entirely taxonomic, but when it was found that many of them were parasites of man and were the causes of some of the most to be feared diseases, especially in the tropics, they acquired a new importance. They began to be studied with the same zeal and by much the same methods as the bacteria, and then, as so often happens, it was found that the rewards of the investigators were greater than had been anticipated, and that the nonparasitic and nonpathogenic forms of protozoa were as well worth close study as the disease-producers: "Here in those mere specks of animated jelly, which rarely measure more than the hundredth part of an inch, we find, in their simplest forms, the manifold processes of the living organism. Digestion and assimilation; respiration, with its dual action of oxidation and renewal; excretion and secretion; vitality and fatigue; reproduction together with the unfathomed mystery of fertilization and inheritance, all find expression in these simple animals, and raise the lowest protozoön immeasurably above the most complex of nonliving substances." This quotation from the author's preface shows how the study of these humble creatures may lead to an unravelling of some of the deepest of the biologist's problems. The subject, as lucidly presented in this book, is full of interest in this sense, as well as of practical importance to the medical man in his study of disease.

In the first part of the work, the most interesting part, Calkins describes the protozoa in general, their morphology, physiological activity, and various modes of reproduction. It has been the fashion, following Wiesmann, to speak of protozoa as immortal, and this author is often quoted as saying that natural death is the penalty which higher animals must pay for the privileges of differentiation. Leaving aside the very evident objection that a being is not immortal if it loses its individuality by dividing into two or two hundred separate entities, even though the protoplasmic elements of which it was originally composed may still exist in its descendants, Calkins shows very conclusively that protoplasm itself passes through the regular stages of youth, maturity, and old age, and that the protozoa, the successive generations being regarded as an "individual," as surely decay and die as do the individual metazoa produced by the successive generations of the germ cell.

In the final chapters the various parasitic protozoa, especially those pathogenic to man, are studied in their various life cycles. Among them the author includes the Negri and the Guarnieri bodies as the true pathogenic protozoa of rabies and smallpox respectively, and not mere cell inclusions. For students of medicine there is no more authoritative and satisfactory treatise on protozoa in the English language.

Medical Inspection of Schools. By A. H. Hogarth, M.B., B.Ch., Oxon., D.P.H., County Medical Officer of Health for Buckinghamshire; Assistant Medical Officer (Education), London County Council; Medical Officer Mansion House Committee on the Dwellings of the Poor. London: Oxford University Press, 1909.

This little book is written for the examiners in the elementary schools of England, but much contained therein is equally applicable to the conditions in this country. The first few chapters are devoted to the history of school inspection work in England, to summaries of the legislation on the subject in the various civilized countries, and to a strong appeal for more thorough legislation, conscientious administration, and liberal financial support in this important line of work. The denunciation of British lethargy is somewhat scathing. General and local organization of school hygiene is discussed and the duties of the school doctor and nurse, and the best way of carrying out those duties are described. The advantages of the formation of school clinics insuring proper treatment of the children receives a strong plea, and the book ends with brief summaries of causes, symptoms, and results of the more common diseases affecting school children. An appendix contains a number of official documents relating to the subject. The book is not deep or exhaustive, but it is well written, and is a useful one to be read by any man entering for the first time upon the duties of school inspection.

Verhandlungen des Vereins Deutschen Laryngologen, 1909. Herausgegeben von Dr. med. Felix Blumenfeld, Wiesbaden. Würzburg: Curt Kabitzsch, 1909.

The papers in this book have already appeared in current special journals and call for no comment here. They number twenty-three in all, some of them being fully illustrated. It is a worthy publication of the society whose scientific transactions it records. A few errors as to the page on which a given article appears have unfortunately crept into the table of contents.

Neurasthenia. By Gilbert Ballet, Professeur agrégé à la Faculté de Médecine de Paris, Médecin de l'Hôtel Dieu, Président de la Société de Neurologie. Translated from the Third French Edition by P. Campbell Smith, M.D. Illustrated with seven figures. New York: Paul B. Hoeber, 1909.

The first two editions of this book were produced by Prof. Ballet with the cooperation of Prof. Proust. The present edition has been undertaken since the latter's death. It shows no fundamental alterations of the original work, but additions have been made to the chapter on differential diagnosis and to the chapters on psychotherapy and diet. Further attention is paid also to new developments in the treatment of intestinal disorders so frequently found in neurasthenic states. The original title of the book is "L'Hygiène du Neurasthénique," and it formed one of a series of works on hygiene. It is devoted chiefly "to the laying down of the hygienic measures requisite for the prophylaxis and treatment of neurasthenia"; but it gives also a fairly good general description of the affection, both in its commoner and rarer forms, as it concerns the adult. The mental side of the picture is more completely described, perhaps, by others. Under treatment the routine use of drugs is condemned. Special establishments are recommended where the open-air treatment can be carried out. Appealing to the patient's "higher mental levels," as advocated by Dubois and others is "futile," the writer thinks, until after the patient's general condition has considerably improved. The book appears to have a practical trend throughout and the meaning, even in the translation, is usually clear. Diet, psychotherapy, hydrotherapy, exercise and gymnastics, and the effect of climate, are all considered in their application to treatment of the various types of the disease.

Society Reports.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-fifth Annual Meeting, Held in St. Louis, October 12, 13 and 14, 1909.

THE PRESIDENT, DR. JOHN A. WITHERSPOON, OF NASHVILLE, TENN., IN THE CHAIR.

(Concluded from page 752.)

President's Address: "Medical Education, Past, Present, and Future."—Dr. JOHN A. WITHERSPOON of Nashville, Tennessee, selected this topic and, among other things, said that being the largest independent medical society in this country, it should go on record as standing for more than social and scientific work in its meetings; it should stand firmly for medical education in its highest sense of progress and wield its influence to bring about reform in medical teaching by insisting (1) on every State within its territory having uniform medical laws; (2) that none but men of culture and strictest integrity be placed on examining boards, and that politics be kept out of all medical transactions; (3) that colleges not having equipments to teach modern medicine should be condemned, and that no one should assume the responsibilities of teacher who is not by training and natural talent especially fitted to impart and instruct others; (4) that no college should be recognized that did not insist upon sufficient preliminary education and mind training of every student to receive and digest modern medicine as an entrance requirement, and a standard curriculum, in which full laboratory and clinical facilities will insure that none but good and well qualified men will be graduates; (5) that all schools should give prominence to the teaching of hygiene and sanitation, departments sadly neglected in the past, but in preventive medicine so necessary for the protection of our people from infectious diseases, either endemic or epidemic; (6) we should insist upon the fact that colleges must have endowment, and that no philanthropy was more needed or deserved, and none would give greater returns both by insuring the people that none but competent men would belong to our profession and financially because they would enforce laws which would forever bar the entrance of epidemic scourges into the ports of this, the grandest and most glorious country that was created for the enjoyment of mankind.

Modern Surgery of the Digestive Tract.—Dr. JOHN B. DEAVER of Philadelphia stated that the two prevalent conditions of the stomach which might be considered grave menaces to the life and health of the patient were carcinoma and ulcer. It was out of the question that carcinoma anywhere could be considered as offering any opportunity for the display of medical agents, and we had gradually come to a realization that the same held good of gastric ulcer. Our problems as regarded these grave and not infrequent conditions were manifold. They might be summed up into several subdivisions, diagnosis, propriety and method of surgical intervention, and the results of surgery of the stomach. It was a lamentable fact that diagnostic methods and results in disease of the stomach had lagged far behind the improvements in surgical technique and pathological experimentation. It was customary among those who decried modern surgical tendencies to refer to the inferior diagnostic acumen of surgeons, yet here we had an instance in which the diagnosis of important and vital conditions had been entirely mistaken until the surgeon had shown the way. It was to the surgeon that credit must be given for showing that carcinoma of the stomach was generally recognized long before it had reached this final stage. The exploratory operation, so called by its opponents, but more rightly considered an early operation on early symptoms, was responsible for this. Observation of the living pathology in these cases had shown us that carcinoma of the stomach often made its presence known early in its course by signs, which to the experienced observer, were definite and often unmistakable. In any person at, or beyond middle age, the subject of a persistent, grave dyspepsia, with progressive loss of weight and strength, should be looked upon with suspicion. Anorexia, and, according to Kocher, especially that form of it which manifested itself in an aversion to meat, should be enough to cause a careful study of the case. Often a slight epigastric tenderness and a feeling of oppression after eating even the lightest of foods, would be the first symptoms to come to the patient's attention. Early operation must be considered as justified when we thought of the certainly fatal outcome of every unoperated case of gastric carcinoma, and of an overwhelming majority of those operated even before the disease had reached its final stages. In cancer of the stomach excision, where this was possible, and gastroenterostomy, where we could only hope to suitably drain the stomach, offered us the only hope of permanent cure or of temporary relief. Our technique was good, the mortality of pylorectomy was low, that of gastroenterostomy almost nothing. Our main difficulty, and one which seemed most hard to overcome, was to bring the cases to operation early enough. He would not say "operate for dyspepsia," but he would advise operation in permanent, grave dyspepsia in those of middle age; even when there was no apparent anatomical cause. Operation but too often showed the root of the evil, even then so extensive as to defy efforts to remove it. Gastroenterostomy as a cure for gastric ulcer now occupied an undisputed place. It must not always be recommended; for instance, in acutely bleeding ulcers it was worse than useless. Its initial mortality in benign conditions of the stomach was less than three per cent., in the hands of experienced operators, and its complications almost none. The end results were good, and observers such as Mayo Robson, Czerny, and others reported definitely from 75 to 90 per cent. of cures. It would be seen from the foregoing remarks that progress in surgery of the digestive tract had been great, but that much yet remained to be done. It was also evident that we must seek advances not principally in the elaboration of minor technical details or operative procedures, but by endeavoring to utilize thoroughly the recent great advances in the normal and pathological physiology of the digestive tract.

The Pectinate Line—Zone of Rectal Pathology.—Dr. J. RAWSON PENNINGTON of Chicago said that embryology furnished an explanation of the frequency with which disease attacked the junction of the anal canal and the rectal ampulla. The region in question was one of the points of coalescence of the two primitive germ layers, ecto- and entoderm. This junction of the anal canal and rectal ampulla was marked by the pectinate line and gave rise to the crypts and columns of Morgagni. The histological structures entering into the formation of this coalescence being different, we would expect the diseases affecting the area to be different also, and that was what we found.

Medical Treatment of Exophthalmic Goiter.—Dr. S. P. BEEBE of New York detailed the results of serum treatment of this disease and said in many respects it was very encouraging. He had seen the effects of surgery as practised by a variety of surgeons upon these cases. Men of very limited experience should not operate in cases of exophthalmic goiter. None but the most experienced surgeons should undertake this operation. The operation required not only great judgment and skill in its execution, but in the preparation of the patient. No greater harm could be done than when a number of young surgeons took it for granted that this was the operation to do and they did it right away. They should serve a long appren-

ticeship under surgeons before doing such a formidable operation

Postoperative Results in Exophthalmic Goiter and Tumors.—Dr. George W. Crile of Cleveland, O., presented a report based upon a total of 278 operations upon the thyroid gland. He had operated upon fifteen malignant tumors. In thirteen the diagnosis was either made or suspected. All of these died either as operative deaths or as recurrences. In two, one a sarcoma and one a carcinoma, malignancy was found in the routine pathological examination and was not suspected clinically. His personal experience and the reports from a number of clinics led him to conclude that cancer of the thyroid was at present rarely, if ever, diagnosed in its curable stage, and the occasional cure was accidental. Among the benign tumors and plain goiters there was one fatality. In malignant tumors diagnosed clinically the postoperative results were as uniformly unsuccessful as they were successful in plain goiters and benign tumors. A study of his series of seventy-two operations for Graves' disease, presenting as they did numerous and complex symptoms, and involving many organs as well as the most fundamental vital processes, impressed him with the great, almost unsurmountable difficulty, or even the impossibility, of compiling any statistical table that accurately represented the net clinical results. The longer the disease had existed, the greater the organic changes, and in consequence the more tardy the convalescence, and if the organic lesions had progressed to a certain degree the operative risk was greatly increased and the risk might become an operative impossibility. In these desperate cases, when operative recovery took place, the convalescence would be correspondingly slow, and stormy and incomplete. The ship had gone upon the rocks and it was the wreckage that we were dealing with. Now, he had seen no case that was not benefited by operation. The majority regarded themselves as cured. Acknowledging all the difficulties and shortcomings, he knew of few cases that experienced such deep and fundamental relief as cases of acute toxic Graves' disease operated on successfully before organic changes of importance had occurred.

Primary Bilateral Ligation of the Upper Poles of the Thyroid Gland for Exophthalmic Goiter.—Dr. J. H. Jacobson of Toledo, Ohio, said that in all there had been eight cases of pole ligation; one, in which a single upper pole was ligated, resulting in a cure; one, in which the upper and lower poles on the same side were ligated, which was followed by improvement; and six in which both upper poles were ligated; in one of these there was no effect. The patient was moribund at the time of operation, and of the remaining five, four were symptomatically cured, and one had been very markedly improved. This case was too recent to give the final result. All of the patients expressed themselves as being greatly pleased with the operation and its effect. He presented the following conclusions: 1. Ligation of both poles of the thyroid gland, acted, first, by diminishing the blood supply to the gland and thus diminishing immediately its activity; second, by directly diminishing and preventing the gland secretion from entering the general circulation by way of the main lymphatic channels which left the thyroid body at its upper poles; and, third, by causing a subsequent atrophy of the gland itself. 2. The operation of "pole ligation" was much easier to perform than ligation of the thyroid vessels, and might be as effective as a partial thyroidectomy. 3. It did not disturb the blood supply of the parathyroid glands, nor endangered the recurrent laryngeal nerve. 4. Theoretically, at least, and from the simplicity of its performance, it would seem that "pole ligation" should entirely supplant the operation of simple ligation of the thyroid vessels in Basedow's disease, and in many cases the necessity of partial thyroidectomy. 5. As a preliminary operation to partial thyroidectomy for Basedow's disease, it would be found of great value. 6. At the present time we were warranted in saying that "pole ligation" offered the prospect of cure in many cases and of lasting improvement in others. 7. The operation of "pole ligation" was a safe one and in skilled hands had no mortality.

The Value of Thyroidectomy in the Treatment of Catatonic Dementia Precox.—Drs. Allen B. Kanavel and Louis J. Pollock of Chicago summarized the results obtained in operations upon twelve cases of this disease, operated upon at the Dunning Institution for the Insane. The cases were studied by Dr. Pollock and submitted to operation. Dr. Kanavel reported his results as follows: There was absolutely no result in any of the old cases. Of three cases operated upon in the so-called favorable stage, two showed marked improvement, lasting in one case for two months, and in the other case for six months. The third case showed no change at all. The two cases which showed temporary improvement relapsed at the end of the periods mentioned and were now in practically the same condition they were before the operation. The pathological examination of the glands did not show changes favoring the diagnosis of thyreotoxicosis, although the changes were compatible with it. Berkley still reported favorable results in his cases, but the results of the investigation in the present series could not but lead one to a most conservative report concerning the value to be derived from the procedure.

Surgical Treatment of Exophthalmic Goiter.—Dr. A. J. Ochsner of Chicago said that exophthalmic goiter became a surgical disease after it had been shown that internal treatment and treatment by serum were of no avail. When cases had advanced to the point of great interference with the function of the heart muscles and of the nervous system, then the results from surgical treatment were not promising.

Dr. Herman Tuholske of St. Louis said that the thyroid gland was an organ necessary to life. Without it trophic changes would be inaugurated of such a character as to result in the decay or death of the patient. This one factor should be kept constantly in mind in considering the various phases of this subject. Again, it was the experience of all surgeons that there were a number of patients with exophthalmic goiter who would get well with or without treatment, and while that number was small, still it became a factor in discussing the value of the remedies that had been used in the cure of this disease.

Dr. Arthur R. Elliott of Chicago said the tone of the papers read was preponderatingly surgical. This was in keeping with the present tendency which had initiated a movement strongly towards the assumption that Graves' disease was a surgical affection, but perhaps not always in the interest of rational therapy. This was probably to an extent due to the fact that medical measures were unsatisfactory and unsuccessful in a certain proportion of inveterate cases of Graves' disease. It was not to be forgotten, however, that the medical practitioner came in contact quite frequently with many cases of thyroidism in various stages and degrees of intensity, many instances of which underwent a symptomatic cure, if we could speak of such a thing as curing this disease, and a large proportion of them improved under measures intelligently applied, such as rest, tonic treatment, dietetic therapy, etc. This was true not only of the milder and the chronic types of thyroidism, but of many instances of more acute Graves disease, as those who practised before the days of thyroid surgery could testify. Without directing any criticism against the surgical treatment, which in the hands of expert and experienced surgeons had amply justified itself by results, it was a fact that in the hands of the average surgeon the operation of partial thyroidectomy was attended by a high mortality.

Dr. J. Henry Carstens of Detroit said the symptoms of

this disease were very obscure, but there was one symptom he wanted to emphasize. Take a young woman who had repeated attacks of palpitation of the heart, without any particular cause, without any other symptoms such as protrusion of the eyes, enlarged thyroid, etc., we should bear in mind constantly Graves' disease.

Sigmoid Diverticulitis.—Dr. Daniel N. Eisendrath of Chicago stated that there had been many cases of autopsy reports of peritonitis due to perforation of these diverticula, but their rôle in the production of definite clinical pictures was not known until the paper of Gräser in 1898. Diverticula of the sigmoid were as a rule acquired. They might occur anywhere in the large intestine, but were most common in the sigmoid, ending abruptly at the rectum. Unless they underwent secondary changes they did not give rise to any symptoms. Telling in 1908 collected 105 cases. Of these nearly one-half showed no clinical symptoms, but were found by accident at autopsy. Diverticula were most apt to occur in two rows at either side of the gut. They might, however, develop at the mesenteric attachment and occur between the layers of the mesentery. In some cases they were simply protrusions of the mucous membrane into the appendices epiploicæ, while in others they formed definite pouches, either oval or flask shape. One of the most important factors in the production of diverticula was muscular weakness incident to old age and the presence of considerable fat in the intestinal wall which favored a pushing out of the mucosa. The most frequent secondary pathological changes were (a) infection of the general peritoneal cavity without perforation; (b) acute or gangrenous inflammation resembling the same pathological form of appendicitis: (c) acute perforation, formation of an abscess, or general peritonitis. Attention was called to the fact that the preceding pathological forms greatly resembled corresponding types of appendicitis. The other varieties not occurring in appendicitis were the form of fistulæ between the diverticula and the bladder or the bowel and the development of a hyperplastic inflammation greatly resembling in appearance carcinoma. The latter form caused great thickening of the gut wall, so that its lumen was reduced to a minimum. The clinical cases could be divided into the acute and chronic forms. To the former belonged the catarrhal gangrenes, with or without localized abscess formation, and perforative with general peritonitis. To the chronic belonged the chronic hyperplastic or stenosing form; the enterovesical fistulous forms and the chronic adhesive form caused acute or chronic intestinal obstruction. The acute forms resembled the corresponding forms of appendicitis, except pain and tenderness, rigidity and tumor formation, when present, occurring in the left iliac region. The treatment of these did not differ much from the corresponding forms of acute appendicitis and, unless the case was recognized, recurrence was apt to take place. He reported one case in which diverticula were found filled with enteroliths during the operation for hernia and a second case of general peritonitis due to perforation of diverticula. He also called attention to the fact that no doubt many of the cases of the stenosing form or peridiverticulitis had been erroneously diagnosed as carcinoma of the sigmoid.

Dr. Ernst Jonas of St. Louis said a point of practical importance was that a condition of this kind was often mistaken for carcinoma of the sigmoid, and some cases of sigmoid diverticulitis had been operated on for carcinoma of the sigmoid. Dr. William J. Mayo had reported several cases in which he removed part of the sigmoid for a condition of this kind, believing at the time of the operation that he had to deal with carcinoma, and only after careful pathological examination of the specimen did he believe that it was a chronic inflammatory condition due to diverticulitis. The weakness of the muscular walls, which was mentioned as an etiological factor, must either be hereditary or acquired. Very little could be done for the patient where the weakness of the muscular walls of the sigmoid was hereditary, but in the acquired condition we had first hypertrophy and later on dilatation and weakness of the muscular wall resulting whenever there was any obstruction further down. Adhesions around the sigmoid, which pulled the sigmoid out of place and interfered with the drainage were the cause of deverticulitis. Another cause for diverticulitis was a slight chronic ulceration in the particular place where diverticula were found.

Dr. J. Rilus Eastman of Indianapolis was reminded of two cases in which the abdomen was opened for what was obviously an acute generalized suppurative peritonitis, which was ascribed to the rupture of an inflamed appendix. Every one present had opened the abdomen for these indications when there was no evidence whatever pointing to any infection arising in the upper abdomen, but every bit of evidence pointed to an infection arising from the lower zone of the abdomen. We had cut down upon the appendix and found suppurative peritonitis with the escape of a thin fluid filled with flocculi, followed by a thick, creamy pus. We had examined the appendix and found it practically normal. We had removed the appendix not knowing what else to do with it, and we had either irrigated or left the abdomen dry and put in a large tubular drain. In a case which he had seen, within a month, of this general character, he found that the adhesions in the intestines were upon the left side, and while it would be absurd for him to say in the presence of such meager evidence that he had to deal with a condition like that described by Dr. Eisendrath, still in the future he should be very cautious and be on the lookout for infections arising from these diverticula in the sigmoid, because he was reasonably sure that a sigmoid diverticulitis, followed by a rupture, had given rise to more cases of general suppurative peritonitis than we had imagined, and if we were to consider adhesions in the future we would not only look to the right side of the abdomen for the cause of this suppuration, but also to the left side occasionally.

Dr. Edwin Walker of Evansville operated last week on such a case as Dr. Eisendrath had described. There was an abscess on the left side exactly like an appendical abscess. He was reminded of the case of a man which was diagnosed as carcinoma of the sigmond flexure, and the post-mortem findings were precisely like those described by him. It was thought at the time the trouble was inflammatory, but he thought there was perforation and inflammatory trouble. This case occurred twelve years ago, and in the light of what had been said to-day it was without doubt a case of sigmoid diverticulitis.

Dr. Channing W. Barrett of Chicago said there were points of practical interest in this paper. First, the point Dr. Jonas brought out of an acquired or congenital weakness of the bowel walls. It was likely in many cases that constipation caused the dilatation and that resulted in overdistention of the abdomen, causing separation of the muscle fibers and this furnished opportunity for the mucous membrane to herniate between the weakened muscle fibers. In an acquired condition of this kind, we should do away with any cause for overdistention; but instead of being able to do nothing in the congenital condition, it was all the more important that these conditions be looked after. Another practical point was we had been inclined to deal with enlarged and inflamed appendices epiploicæ as though it was merely a question of having to control hemorrhage. We might not only have to deal with hemorrhage, but with the communication of the bowel, the same as in dealing with the appendix. Just the other day in dealing with a pus tube he felt it was desirable to cut off several of these appendices epiploiccæ and deal with them as he would with a hemorrhage.

Dr. Robert F. Wilson of St. Louis differed from Dr.

Eisendrath and others in reference to acquired diverticulitis. He still clung to the old theory, namely, that all cases of diverticula of the sigmoid were congenital and we must go back to the embryological formation in the primitive hindgut from where the sigmoid was developed and look there. He did not believe the conditions mentioned caused diverticula of the sigmoid, but it was a weakened condition in the gut that was the sole cause.

Dr. R. H. Barnes of St. Louis believed diverticula of the sigmoid, as well as of other parts of the bowel, were more common than most physicians or surgeons thought. These diverticula did not always cause trouble and might only be recognized postmortem. The majority of cases of diverticula were congenital. There was a localized weakness of the muscular wall of the bowel which formed them and these became infected through the fecal matter or from some other cause and then we might have the symptoms of diverticulitis. The majority of cases were not recognized from the clinical symptoms and for that reason were overlooked.

Gunshot Wounds of the Thigh; Amputation at the Hip Joint.—Dr. William Britt Burns of Memphis reported twenty cases of gunshot wounds of the thigh. He had observed a number of others. He had been impressed with the destructiveness of tissue and with his inability to get good results on account of lack of repair on the part of the tissues and the seeming susceptibility to infection. Every one of the cases was thoroughly and freely opened on all sides and all kinds of material removed from the wound by scraping, by the use of scissors, removal of spiculæ of bone, establishing proper drainage, dressing the thigh and using every effort to prevent sepsis, and yet the results had not been what might have been expected.

Dr. H. O. Walker of Detroit had seen a few cases of gunshot wounds of the thigh that were not only made with bullets, but with buckshot and with small shot. He had opened the wounds in these cases freely, removed thoroughly all particles of clothing and other material from the wounds and the patients had all recovered. He had not had to resort to amputation in any one of the five cases which he now recalled.

The Advantage of Pfannenstiel's Incision.—Dr. H. O. Walker of Detroit said the fibers of most of the abdominal muscles ran either diagonally or transversely, an exception to this was the recti. The principal blood vessels supplying the abdominal region were the two superior and inferior epigastrics and their branches. These all ran in a general way parallel to the recti muscles. It was never necessary to cut but the two inferior epigastrics and this was not always required. The nerves supplying the abdominal region ran in a general way parallel to the muscle fibers also. The prevention of hernia could no doubt be aided by incisions in line with the muscle fibers. It was more necessary to respect nerve fibers in incisions than blood vessels, generally speaking. The cosmetic advantages of cross cuts were very apparent. Pfannenstiel's cross incision fulfilled all of the above requirements. Thirty-eight cases had been operated on by this incision through which practically all possible pelvic operations had been carried out.

Dr. George Gellhorn of St. Louis said the advantages of the Pfannenstiel incision were becoming more and more appreciated in America. It had many advantages over the longitudinal incision. He had used this incision for a number of years and had not yet seen a case of hernia, although in four cases he had disturbances of wound healing. There was, however, a limit to the use of this transverse incision, in that the larger tumors, which extended about half way to the umbilicus, were not as easily removed through this incision as they were through the longitudinal incision, but outside of that fact the advantages were all in favor of this transverse incision.

Dr. Walker, in closing the discussion, said that we could remove very large tumors through this Pfannenstiel incision and could go still further with it, in that we could reach the stomach, pancreas, and gall-bladder, and do any surgical work which might be required to be done on any of these organs. It was an incision that had a great many advantages over the longitudinal incision in many operations in the pelvis.

Sarcoma of the Prostate.—Dr. Joseph Rilus Eastman of Indianapolis said it was certain that of malignant neoplasms of the prostrate, carcinoma was much the most common, although as Barth stated years ago sarcoma of the prostrate was doubtless less rare than had been imagined and owing to the circumstance that until recently very little, if any, distinction was made between carcinoma and sarcoma, there had been, perhaps, some misconception on this point. That malignant disease of the prostate was much more common than had been appreciated heretofore, might be inferred from the experience of such careful observers as Hugh Young, who in 500 cases of prostatic enlargement found 100 cases of carcinoma, or one case of carcinoma to every four of prostatic hypertrophy, and although there had been reported less than thirty cases of sarcoma of the prostate of primary origin in the gland, which had been satisfactorily proven to have really been sarcomata, no doubt in view of the general indifference as to microscopical examination many cases of sarcoma of the prostate had been carelessly called carcinoma or even tuberculosis. The case which the writer reported was one of spindle celled sarcoma of the prostate occurring in a man, 27 years of age, and apparently running a course covering five years and having many characteristics in common with tuberculosis. Upon microscopical examination the masses of tissue at the base of the villi removed by the curette were found to be infiltrated and degenerated, showing a preponderance of embryonic connective tissue cells with a relatively small amount of mucoid intercellular substance. The tissue removed from within the capsule of the prostate was made up of the same spindle shaped connective tissue cellular elements.

Stricture of the Male Urethra.—Dr. E. O. Smith of Cincinnati said that stricture of the urethra was an abnormal narrowing of some part of that channel which interfered with the free outflow of urine, due to either muscular spasm or to organic changes in the walls of the urethra. Abnormal narrowing of the external meatus should be divided very carefully. If cut too widely the patient would be left without projectile force. Spasmodic contraction of the urethra was usually due to acid urine, sexual excesses, fissure of anus, hemorrhoids, pin worms, cantharides, turpentine, etc. Strictures following traumatisms were much more stubborn to yield to treatment and the band of scar tissue might have to be dissected out through an external incision. The popular idea that a rapid cure of gonorrhea caused stricture was not based on facts, but on the contrary the longer the duration of the gonorrheal inflammation the more liable was the patient to have a stricture. In fact, it was the exception for an urethra to become absolutely normal after one prolonged attack of specific urethritis. The urethra behind the constricting band became dilated, a pouch was formed which was a most excellent container and incubator for the germs of sepsis, which might lead to periurethral abscess and possibly to urethral fistula. All this argued for an early treatment of stricture. Stricture was suspected when there was gleet, frequent micturition with a tardy beginning of the stream, dribbling after urination, with possibly some hypogastric pain. In examining for stricture great care and gentleness must be practised, otherwise a false passage might be produced. Treatment was both general and local, diet, bland and not stimulating. Alcohol and tobacco were to be excluded. Sexual excesses were to be avoided. There should

be no exposure to cold and wet. Local treatment was that of gradual dilatation. Begin with the largest sound or bougie that could be easily passed. This might be only a filiform. Gradually increase the size of the sounds used. Treatments to be every four or five days in the beginning, all the time being surgically clean with one's hands and instruments. Urethral chill and shock could usually be prevented by giving the patient ten grains of quinine and five drops of tincture of aconite about twenty minutes before the treatment. Epididymitis might, but seldom did, follow the passage of a sound. Strictures that did not yield to the gradual dilatation treatment were the exception. Internal urethrotomy should not be attempted except by those skilled in genitourinary surgery as there was a possibility of doing great damage. External urethrotomy was seldom necessary in the treatment of stricture, other than those due to traumatism.

Burns.—Dr. A. H. Barkley of Lexington said burns were the most frequent injury in civil life and caused the most agonizing suffering and condemned the patient to a life long mutilation of the most repulsive character. The severity of a burn depended on the character and degree of the heat, the length of time it was applied and the thickness of the cutaneous surface. The author reported a case of a male, aged 56, an engineer, who was burned by hot water and steam. Patient was 5 feet 10 inches and weighed 160 pounds at the time he was injured. He has 19 square feet of skin on his body. Of this 10 square feet were burned off, of which four square feet were of the third degree. Recovery was complete. The interesting points in this case were the area of skin burned, no contractures, no complications, and healing without skin grafting.

The Treatment of Some Forms of Neuralgia by Deep Injections.—Dr. D'Orsay Hecht of Chicago said that his first case was injected November 20, 1906, and his last September 30, 1909. During the period between these dates he had injected forty-eight cases of tic douloureux. Eight cases besides this number were rejected because they were unsuited for this treatment. In all cases the diagnosis was made on the strength of the short, sharp paroxysms of pain so characteristic of the condition, and after careful inquiry into all conditions of the teeth, jaws, mouth, nose, and accessory nasal sinuses, which sources were frequently responsible for pain which might quite closely simulate the disease. One must be mindful of the fact that tumors involving the fifth nerve, as well as syphilis and migraine, could give rise to pains that might readily deceive as trifacial neuralgia. In many of the cases external skiagraphs were taken, and where these were felt to be unsatisfactory or unreliable, intrabuccal film skiagraphs were supplemented for the purpose of eliciting better detail, thereby affording a better means of localizing possible dental or oral sources of irritation. Among the rejected cases were those in which pain was caused by the presence of abnormal dental conditions, post-influenzal nasopharyngeal infections, sinus disease, and hysteroid conditions. In point of therapeutic results, thirty-two cases were distinctly benefited; eight were improved; five were unimproved; and three were aggravated. Of the thirty-two benefited, one patient was free for one year and eight months. The shortest free interval had been two weeks. Recurrences had varied, in the successful cases on an average of one year. A given number had returned for reinjection upon the first reappearance of pain in four months, some six, some ten, some one year, some sixteen and eighteen months. The variability was accounted for by the personal equation and the accuracy with which the alcohol was deposited in, at or near the nerve. In the entire series the patients required from one to five injections, this number sufficing for a permanent cure in the non-symptomatic neuralgia. An 8 per cent. salt solution of body heat injected in the amount of from 90 to 120 centimeters seemed to act to better advantage than lesser amounts of different temperature.

What Women Should Know in Regard to Uterine Cancer.—Dr. J. Henry Carstens of Detroit suggested that the medical profession agitate this subject in the lay press and on every occasion talk cancer. The doctor should talk about it in order to arouse the public as to its importance, because it was a great menace. He had suggested to the Michigan State Board of Health that they get up a circular which should be in the hands of every woman in the cancer period of life. This circular should be in the possession of county societies and of every physician and should be given to every woman in the cancer age. The menopause came on gradually, rarely suddenly. It was not preceded by excessive flowing, or discharge, or pain in a healthy woman. By the cancer period was understood those years after forty, although rarely it might occur earlier. The first symptoms of cancer were: 1. Profuse flowing, even if only a day more than usual. Flowing or spotting during intervals or after the use of a syringe or the movement of the bowels. 2. Leucorrhea, if not existing previously. If not existing, but getting more profuse, watery, irritating, or producing itching, it was a very suspicious symptom. 3. Loss of weight if no other cause was apparent. Pain in the region of the womb, back, or side. If any of the above symptoms occurred after the age of forty or forty-five, a woman should seek prompt relief and insist on a thorough investigation of the cause and prompt treatment. Cancer was always at first a local disease and could be removed if early recognized, and an absolute permanent cure brought about.

Problem of the Insane and the Defective.—Dr. Leo M. Crafts of Minneapolis read a paper on this subject, which embodied a consideration of past methods of care or neglect of these conditions by society, the present lines of care and nurturing of them, enabling their more frequent and prolonged survival and activity, including procreation. It also took up the conditions in the present social state tending to greater strain on the nervous system, with the increasing lines of neuropathic heredity thus engendered. It dealt with the various state and national statistics bearing on the questions and pointed out the present absolute lack of regulation or control of the free activity of these classes in producing a posterity, and the author offered suggestions for advisable legislation for effective control of such subjects.

Genital Canal Block Following Neisser Coccus Infection.—Dr. Chas. Barnett of Fort Wayne exhibited a number of photographs illustrating the pathology found in genital canal block. He contended that sterility was not the greatest factor, but that the pathology causing the block and following it, especially the retention of cysts, were "nagging" the man's body continuously. He believed that prostatectomy, unwittingly, frequently opened up the vesicular field of drainage. He considered that in the correction of this pathology the surgical question was a difficult one when the final results anticipated normal function. It was true that in some cases the cysts were emptied and the block removed. This relieved the symptoms temporarily, but the time might finally come when a recurrence would happen indicating that a thorough removal of the field that was pathologic was necessary in order to prevent a further extension of the diseased process, rather than to try to save a crippled canal surrounded by contaminated glands that would never assume complete resolution.

Some Reflex Neuroses Arising from Nasal Abnormalities.—Dr. J. A. Stucky of Lexington, Ky., emphasized six salient points as given by Ziegler to be borne in mind when searching for reflex neuroses and added a seventh. 1. Eye and nose must first of all be thoroughly

examined and excluded or accepted as exciting cause. 2. A careful differentiation of those reflexes manifested in common by the eye and nose. 3. Eye strain from whatever cause, whether ametropia, subnormal accommodation, or intranasal pressure, should be corrected to exclude the eye as a factor. 4. Pressure contact in the nose in every instance must be relieved, as the symptoms of such pressure of hyperesthetic areas were so like the eye in their reflex manifestations. 5. Every obstruction to free breathing in the superior part of the nose should be removed. 6. Recurrence of any reflex neurosis demanded reexamination, renewed search for and correction of original exciting cause. 7. Lithemic conditions, faulty intestinal metabolism of whatever type, must be corrected and deserved careful consideration in every reflex neurosis whatever be the exciting cause.

Acute Dilatation of the Stomach.—Dr. Edwin Walker of Evansville, Ind., said the treatment of acute dilatation of the stomach consisted of prompt evacuation of the stomach by the stomach tube, followed by copious lavage. It would be an excellent practice in all post-operative cases whenever vomiting was prominent to resort to this measure. In order to release the pressure on the duodenum the patient should lie on the abdomen, with the foot of the bed elevated, or in extreme cases a knee-chest position. It was astonishing in grave cases to see the prompt relief given by these measures. The lavage should be repeated when the fluid reaccumulated or if the condition of the patient did not improve. Strychnine and physostigmin had been given. Rectal feeding should be given.

Muscle Rigidity; An Important Physical Sign of Disease Within the Chest.—Dr. F. M. Pottenger of Monrovia, California, described this sign.

Prophylaxis of Pellagra.—Dr. C. H. Lavinder of Washington, D. C., in a paper on this subject reviewed very briefly the theories as to etiology and discussed two points: First, the communicability of the disease, and, second, the practical application of its alleged relation to the use of spoiled corn as a food stuff. He thought that our experience in the United States was too limited for us to base conclusions thereon and that it would be unwise to reject the accumulated observations and deductions of other able men in other countries whose experience had been so much wider and fuller than our own. Since practically all observers agreed that the disease was not communicable, and since quarantine measures were not in force against it, he thought it was not necessary in the present state of our knowledge to adopt quarantine measures against the disease. So far as its relation to spoiled corn was concerned, he admitted that much of the evidence was unsatisfactory, but since practically all theories of the disease took corn into more or less essential consideration and since Italy, in her determined fight against pellagra, had based most of her procedures on this theory and was claiming a fair share of success, we could not at present do otherwise in our prophylactic measures than recognize some relationship between corn and pellagra.

The following papers were also read: "The Problem of a Federal Department of Health," by Dr. Liston H. Montgomery of Chicago; "Therapeutic Renascense," by Dr. R. A. Bate of Louisville, Ky.; "Some Comparisons of the Physiological Action of Preparations of the Heart Tonics of the Digitalis Series," by Drs. E. Mark Houghton and H. S. Yntema of Detroit, Mich.; "Atony and Tonics," by Dr. Nathan Rosewater of Cleveland, Ohio; "The Abuse of the Obstetrical Forceps," by Dr. J. O. Jenkins of Newport, Ky.; "Some Pediatric Cases Found in General Practice," by Dr. Geo. Allen Staples of Dubuque, Ia.; "Infant Feeding in Country Practice," by Dr. Charles W. Carter of Clinton, Ill.; "Pellagra," by Dr. C. H. Lavinder of Washington, D. C.; "Clinical Types of Pellagra, with Exhibition of a Case," by Dr. C. M. Rudolph of Birmingham, Ala.; "Pellagra Symptoms and Report of Cases, with Exhibition of Patient," by Dr. Geo. A. Zeller of Peoria, Ill.; "The Socialistic Future of Medicine," by Dr. Maynard A. Austin of Anderson, Ind.; "Alcohol," by Dr. John H. Landis of Cincinnati, Ohio; "Camp Sanitation," by Dr. S. C. Stanton of Chicago, Ill.; "Improved Technique for Dissection of Vulvovaginal and Other Cysts, and Hernial Sacs," by Dr. A. J. Schoenberg of Chicago, Ill.; "Local Versus General Anesthesia," by Dr. B. M. Ricketts of Cincinnati, Ohio.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. Frank P. Norbury of Kankakee, Ill.; *First Vice-President,* Dr. George W. Cale of St. Louis, Missouri; *Second Vice-President,* Dr. Wm. B. Laws of Hot Springs, Arkansas; *Secretary,* Dr. Henry E. Tuley of Louisville, Kentucky, reelected; *Treasurer,* Dr. Samuel C. Stanton of Chicago, Illinois, reelected.

Detroit, Michigan, was selected as the place for holding the next annual meeting.

NEW YORK ACADEMY OF MEDICINE.

SECTION OF PEDIATRICS.

Stated Meeting, Held October 14, 1909.

Dr. Eli Long in the Chair.

A Case of Pyloric Stenosis Cured Without Operation.—Dr. Linnæus La Fétra presented a male infant, nine months old, the only child of Jewish parents. The child was born at full term. He was breast fed until his admission to the Babies' Hospital on June 15. The baby vomited from fifteen to twenty times a day, usually just after, but always between, feedings. This vomiting was projectile in character. He was always constipated. There was a constant loss of weight from birth. The peristaltic wave was noted at first because of the tense abdomen and some abdominal tenderness. The child was at first thought to be suffering from pylorospasm. Four days after admission the peristaltic waves were first seen and felt, and they became very marked up to June 30. The waves could be seen across the room, and the thickened wall of the stomach could be picked up between the fingers. The "spool" of thickened pylorus was easily made out. Only once had Dr. La Fétra seen any such peristaltic waves in a case other than pylorus stenosis with marked vomiting. This child was a Mongol, one year old. The mother had noticed a peculiar swelling on the abdomen when the child was given a bath. There was no more vomiting than occurred in normal babies. In this child the wave was marked, the stomach was thick, and the artery on the greater curvature could be felt pulsating. The child presented by Dr. La Fétra was admitted to the hospital when five months old, on June 15. His weight was seven pounds and fourteen ounces. The stomach was washed out and modified food given. On the day following he vomited two or three times. Sodium bromide, two and a half grains, was given at each feeding. On the 30th one minim of paregoric was added. From the seventh of July the baby was breast fed and the same medicines continued. The child had projectile vomiting only every second or third day. On August 4, two ounces of junket was given three times a day. There was practically no vomiting, but the infant lost weight. On August 7 the amount of paregoric was increased to three minims, and about one drachm of milk of magnesia was given each night. All this time, notwithstanding the breast milk, there was a loss in weight which on August 12 was down to seven pounds and two ounces. On August 19 the paregoric was increased to six minims, and the sodium bromide to four grains seven times a day. By September 22 there was no vomiting, and the medication was stopped. On September 27 the child developed a bronchopneumonia, having a temperature of from 101° to 103.5° F. for ten days. There was no vomiting. Since October 6 the tem-

perature had been normal, the stools were normal, and the baby only vomited occasionally. The weight had increased to ten pounds and three ounces.

Dr. La Fétra reported two other cases cured without operation. Also three cases that were operated on, all dying. In his last case, operated upon by Dr. Alfred S. Taylor, the pylorus was found very hard as well as thickened. The walls were three-eighths of an inch thick and the tissues so friable that sutures would not hold. For such cases operation was the only hope and even then the chances were slight because of the difficulties of the operation. The cases of hypertrophic pyloric stenosis differed so much that no general rule could be laid down as to medical or operative treatment. Breast milk was of the first importance and might be all that was required; sedatives, especially opium, should be used in full doses. Lavage and poultices over the stomach were of value. If scanty urine and meconium-like stools persisted and the infant lost weight steadily, operation should be considered.

Dr. Alfred S. Taylor reported the case of a child, six weeks old, who had persisted vomiting from birth. The classical symptoms of pyloric stenosis were present. One could feel the hardened pylorus and the peristaltic waves of the stomach could be seen and felt with perfect clearness. The pylorus was split longitudinally through the serous and muscular layers, thus avoiding any chance of contamination of the peritoneal cavity. The pyloric opening was readily enlarged. The child was in such a bad state of nutrition that it was though desirable to do an enterostomy into the upper jejunum, and to feed the baby through a tube. The pylorus was easily exposed; it was as hard as ivory, its muscle was very thick and friable, the sutures tearing through. Finally a diamond shaped segment of the pylorus was removed down to the mucous membrane and the wound sutured. He succeeded in getting a good sized pyloric opening. He then did an enterostomy in the jejunum and sutured in the feeding tube. On the following day, the child suddenly collapsed and died. The specimen showed the great thickness of the pyloric wall. The sutures held well. The lumen of the pylorus was sufficiently large to allow food to pass with ease.

Dr. Charles Herrman reported a case of pyloric stenosis cured without operation. He asked why symptoms of pyloric stenosis did not appear at or shortly after birth, but only after some weeks had elapsed. Westphal had tested the electrical reactions in the new born and had found that during the first few weeks of life they were very much diminished in the peripheral nerves. If the symptoms of pyloric stenosis were dependent upon increased reflex irritability, this peculiarity might explain why the symptoms were not present during the first few weeks of life.

Dr. Charles Gilmore Kerley had observed three cases of pyloric stenosis and all got well without operation. He was inclined to believe that perhaps operation was performed too early. On the other hand, if the operation was delayed too long, the resulting malnutrition made the operation all the more hazardous. It was a very difficult matter to decide just when the operation should be performed. Because of the high mortality there should be no interference until it had been demonstrated that the child's condition would be hopeless without the operation. These cases did particularly well on breast milk.

Dr. Herman Schwarz said that it was a recognized fact that these infants died shortly after the operation, apparently from giving too great quantities of food.

Dr. J. Finley Bell believed that operation should be decided upon when no fecal matter appeared; this indicated a complete stenosis, and was a positive indication for operation.

A Case of Amaurotic Family Idiocy.—Dr. Charles Gilmore Kerley presented a Hebrew child, eighteen months old, who had been under observation since he was one month old. He was never bright, never smiled, never appeared to care for, or take hold of toys, and evinced no interest in his surroundings. The child was stupid, inactive; the pulse was slow and irregular. The reflexes were absent. The pupils reacted slowly. The fontanelle was tense and bulging. A lumbar puncture was performed; the fluid was under a great deal of pressure; nothing abnormal was found in it. The child brightened somewhat, but the mental dullness and apathy continued.

Dr. Robert Grigg Reese said he had examined the eyes of the infant presented by Dr. Kerley and found lesions characteristic of amaurotic family idiocy, consisting of a white spot at the macula lutea twice the size of the optic papilla, with a brownish red, almost circular spot at its center. Hyperacousis was very marked. The ophthalmoscopic picture was due to a degenerative change in the ganglion cell layer of the retina.

Dr. George Dow Scott reported the case of a child with amaurotic family idiocy; the posterior nares was fully plugged with adenoids. The removal of the adenoids was followed by a complete recovery from the pseudo imbecility. Cases of cretinism, feeble minded children, and amaurotic family idiocy often were very difficult to differentiate and required the exercise of great care in diagnosis.

Dr. Godfrey R. Pisek said he had seen three such cases and had had a good opportunity for studying the eye grounds. One patient had a pseudoparalysis which was very marked. All the patients died before attaining the third year.

A Case of Scorbutus.—Dr. Godfred R. Pisek presented a child, thirteen months old, who had nursed for six weeks. The breast milk then became insufficient and the child was placed on a prepared food. The mother stated that six weeks previous in crawling about he had sprained his knee and was taken to a dispensary where he was treated locally by a surgeon. Upon inquiry he found that the child's mouth bled when it was cleansed and that blood had appeared in the stools on a few occasions. He also learned that the so-called "sprain" of the right knee soon passed to the left knee; then the baby was brought to the medical clinic. The baby was seen for the first time seven days ago. He had a waxy, pale color; the limbs were in a condition of pseudoparalysis. The right knee was somewhat swollen and painful. Even pressure upon the chest or ribs caused pain. The examination of the mouth showed the characteristic condition of the gums, swollen and spongy, the hemorrhagic appearance of scorbutus. The swelling of the knee had diminished considerably after a few days' treatment. There were no rickety manifestations. Syphilitic paralysis was readily ruled out.

A Case of Severe Infantile Paralysis, Showing Possibilities of Apparatus Correctly Applied.—Dr. Charlton Wallace presented this patient, showing what could be done if mechanical knowledge was applied to support paralyzed muscles.

A Case Illustrating the Proper Treatment of Weak Feet.—Dr. Charlton Wallace presented a patient who showed the typical condition of bulging at the scaphonavicular joint. She walked with her toes turned outwards and was now being taught to walk with the toes pointing straight ahead. Exercises were also given to strengthen the calf muscles. Whitman's shoe plates were employed.

A Case of Diabetes in a Child Seven Years of Age.—Dr. David Bovaird, Jr., presented a child, seven years of age, who, three weeks before admission to the hospital, had been noticed to urinate frequently and to pass an unusually large amount of water. He had an extreme degree of thirst, and an unsatiable appetite. He was underweight, poorly nourished, and slightly anemic, and was passing between 3500 and 5500 cc. of urine daily. After keeping the

child under observation for several days to determine the condition under an ordinary diet, he was placed in Dr. Cook's hands for a study of his metabolism on various carbohydrate diets.

Dr. Robert A. Cooke summarized the work done in Dr. Bovaird's case as follows: 1. The rapid disappearance of sugar on a carbohydrate free diet. 2. The very slight increase of acidosis with the sudden change from regular to carbohydrate free diet. 3. The varying utility of the carbohydrate administered in different forms. 4. The rapid elimination of carbohydrates when administered beyond the limit of tolerance.

A Case of Diabetes in a Child Sixteen Months of Age.—Dr. Charles Gilmore Kerley reported this case, which was of interest because of the tender age of the child. When fifteen months of age, the child weighed twenty pounds. The patient had suffered from early malnutrition and had been fed on malt soup. When a little over fifteen weeks old, the mother noticed that the baby was very thirsty, and brought the child to Dr. Kerley. He found that the urine contained three per cent. of suger, as well as acetone and diacetic acid. The child died in two months. This was the youngest case of the kind Dr. Kerley had ever seen.

A Case of Persistent Intussusception Due to an Unusual Cause.—Dr. Charles Gilmore Kerley reported the case of a child which came under observation when seven months old because of constipation and a distended abdomen. The constipation was very persistent, and required the use of laxatives; unless the bowels were moved frequently, the distension would be extreme; when the bowels moved freely, the distension would disappear. There was thus an intermittent distension of the abdomen, with constipation. A rectal examination revealed an intussusception which could be forced up readily with the finger. A tube could be passed into the intussuscepted part and the sac would drain. The condition continued, the abdomen became more distended and, on one or two occasions, quite a collapse was caused because of the pressure of the gas distended intestine upon the diaphragm. Dr. Gant operated seven months ago, entirely relieving the child and curing the intussusception.

Dr. Samuel G. Gant said that it was very easy to verify the condition in the child with the proctoscope; the invaginated portion of the bowel was eroded or in a chafed condition. After examining the child he felt sure that there was both a chronic intussusception and some other mechanical obstruction present. Cases of chronic intussusception were more common than was generally believed. Dr. Gant described the operation he performed. A large fibrous band was encountered which bound the hepatic flexure to the central part of the abdominal wall. This fibrous band was about 1 x ¼ inches wide. The band was divided and then the hepatic flexure of the colon and the sigmoid were anchored to the inner abdominal parietes to overcome the dropping downward of the gut and to prevent a recurrence of the invagination after it had been withdrawn. Dr. Gant stated that he had performed colopexy eighty-nine times for the relief of enteroptosis and chronic invagination in adults and that the results had been almost universally satisfactory.

A Case of Edema of the Glottis Complicating Nephritis in a Child Five Years of Age.—Dr. Joseph C. Roper reported the case of a child, five years old, who was admitted to the New York Hospital with a diagnosis of laryngitis and bronchitis. Up to a few days before admission she was apparently well. She remained in the hospital two weeks. She was believed to suffer from a spasmodic laryngitis complicating a bronchitis. Cultures from the throat showed no diphtheria bacilli. Her condition gradually improved under treatment and she was discharged from the hospital. Several months later, on October 4, the child returned to the hospital with the dyspnea very marked. She had been well until one week before, when she developed a cold and six days later was brought to the dispensary for treatment. On the day following she was brought to the hospital with very marked expiratory and inspiratory dyspnea. A throat culture proved negative. At 2 P. M. she was admitted to the service of Dr. Lewis A. Conner. Intubation was performed with but temporary relief. At 10 P. M. marked expiratory dyspnea appeared following a feeding. The heart gradually weakened and, at 5 A. M. the next morning, without having developed any special cyanosis, the child suddenly died. At autopsy there was found a marked edema of the glottis; the heart was considerably hypertrophied; the left ventricle was slightly dilated and the right auricle and ventricle were distended with blood. The left kidney was markedly atrophied, being represented by a small mass, about 2.5 x 1 cm. The right kidney was enlarged and showed marked parenchymatous changes. The question naturally arose, was this edema glottidis due solely to the renal insufficiency? A negative culture for diphtheria organisms was made on the occasion of the first attack. During the fatal attack a negative culture was made during life. One culture made immediately after death showed a few organisms having the appearance and staining reactions of Klebs-Loeffler bacilli. An emulsion of this mixed culture was inoculated into a guinea pig. This animal died forty-eight hours later of septicemia due to the bacillus mucosus capsulatus. The site of inoculation showed no diphtheritic lesions. Smears and cultures taken post mortem failed to reveal any Klebs-Loeffler bacilli. Sections of the larynx stained by Gram's method with methylene blue showed only cocci and a few short bacilli. The larynx and vocal chords showed moderate inflammatory exudate but no membrane. The deeper layers of the larynx showed some round-celled infiltration.

SECTION ON MEDICINE.

Stated Meeting, Held October 19, 1909.

Dr. C. N. B. Camac, Chairman pro tem.

A Case of Diabetes in a Child Seven Years of Age.—Drs. David Bovaird, Jr. and Robert A. Cooke presented this case. (See report of the Section on Pediatrics meeting, October 14, page 839.)

Dr. T. Stuart Hart asked Dr. Cooke if, in the tables he presented, the weight was that of the rice, or of the carbohydrate contained in the rice, this being, of course, an important point in estimating the comparative tolerance for different carbohydrates. The tables also showed an interesting point to which Dr. Cooke had not referred, namely, that as, under the influences of the restricted diet, the carbohydrate tolerance improved this was accompanied by an improvement in the tolerance for fats. The execretion of β-oxybutyric acid, diacetic acid, and acetone was evidence of the improper oxidation of fats; hence a diminution in the excretion of these bodies (as shown in the tables) indicated the improvement in the utilization of fats. The ammonia estimations, which were supposed to approximately indicate the degree of acidosis, did not, however, in this case corroborate the findings of a diminished acetone-body excretion. Their impression of this fact might, however, be modified if the estimations of ammonia were calculated in actual amounts excreted in twenty-four hours as well as in percentages of total nitrogen.

Dr. J. Rudisch said that what impressed him most in the study of the case was the points brought out by Dr. Cooke, first, that when the twenty-five grams of Uneeda biscuit were given in the morning, usually at seven o'clock, a large amount of glucose was excreted within a few hours, while

the evening urine was sugar free, and, secondly, that when the carbohydrates were given in smaller doses throughout the day the sum total of sugar excreted in the twenty-four hours was greater than in the former instance. These statements might perhaps be best explained by supposing that in the latter case the body was able to convert a larger amount of the carbohydrates into sugar than in the former where the carbohydrates were given at once in a relatively overwhelming quantity, only a part of which could be so converted before excretion. An analogous experiment was seen in the feeding of pancreatic extract in severe cases of diabetes, as well as to dogs from which the pancreas had been removed. The pancreatic extract, by facilitating digestion, made it possible, in the presence of faulty metabolism, to convert a larger amount of the proteins and carbohydrates into glucose.

The Effect of Digitalis Upon the Ventricular Rate in Man.—Dr. T. B. Barringer of New York and Dr. A. W. Hewlett of Ann Arbor, Mich., presented this paper. Of the various cardiac irregularities produced experimentally by digitalis, the earliest to appear in most instances was an occasional omission of ventricular contractions, owing to an interruption of the stimulus between the auricles and ventricles. Somewhat later, or immediately after this, the heart might assume a most peculiar rhythm in which the auricles and ventricles were beating independently of each other. This differed from the ordinary rhythm of complete heart block in that the ventricular rate was not slow, but approached, and, indeed, usually exceeded the auricular rate: so that, for example, one might count sixteen ventricular to fifteen auricular contractions. This rhythm was so common in carefully graded digitalis poisoning that it had become a regular portion of the pharmacological demonstrations given to students at the University of Michigan. So far as they knew, this form of irregularity had never been described in man. Its probable occurrence in the patient reported led them to discuss the effect of digitalis upon the ventricular rate in man. The patient was a teamster, 27 years old, who entered Bellevue Hospital complaining of cough and dyspnea. He had had acute articular rheumatism when he was 12 years old, a suspicious venereal sore when 22 years old, and he had been a heavy drinker up to five months before admission. For two years he had been troubled with shortness of breath on moderate exertion, but in the past two months this had become much more severe and was often paroxysmal in character. He had a loose cough and at times slight fever. There was no edema. The examination showed a well nourished young man suffering from dyspnea. The cardiac dullness was not enlarged, the heart sounds were clear and of normal intensity. The lungs showed a diffuse bronchitis; the left lower axilla showed dullness and diminished breathing sounds, diminished fremitus, and numerous crackling râles. The liver was palpable at the level of the umbilicus. The urine showed a heavy cloud of albumen with a specific gravity of 1,020, and many hyaline and granular casts. After being in the hospital a little less than two weeks he was discharged considerably improved on July 10. On August 3 he was readmitted, complaining of dyspnea. His heart was distinctly enlarged and there was a soft systolic murmur at the apex transmitted to the axilla and back. The second pulmonic sound was accentuated. The pulse was weak, of small volume, and occasionally irregular. The urine was at times negative, at other times it showed traces of albumen. The feet were swollen. He ran a slight but continuous fever. There was a mild anemia. The blood cultures were negative. He died on September 5. There was no autopsy. The clinical diagnosis was chronic myocardial insufficiency with dilatation. During the early part of his second stay in the hospital, his venous pulse was of the usual negative type, the well marked *a* waves indicating normal auricular contractions. The day before he died his general condition had become much more serious and his edema and dyspnea more severe. At times gallop rhythm was heard over the precordium. The venous tracings taken on this day were remarkable in that they showed a regularly recurring cycle of changes. Each cycle required about seven seconds for its completion, and included about fourteen ventricular contractions. At certain portions of the cycle a single, sharp, positive wave occurred in the jugular pulse just after the onset of ventricular systole. Midway between these groups of sharp waves, each ventricular systole was represented on the venous pulse by two waves of almost equal height connected by a more or less distinct plateau. It was evident from the long durations of these cycles (seven seconds) that they were independent of the respirations, for the respiratory rate was constantly about thirty per minute. The explanation of these cycles was to be sought in the interference of two systems of waves which were independent of each other and not quite synchronous. The one system was best represented on their venous tracings by the negative waves which recurred regularly and nearly always distinctly. The other was represented by the apex beats. A comparison between these two showed that the former recurred at a slightly slower rate than did the latter, so that, for example, thirteen of the waves corresponded to fourteen apex beats. There was, therefore, a lack of synchronism between the apex beats representing the systoles of the left ventricle, and the portion of the heart, which caused the waves. It was probable that the negative waves were due to auricular diastoles and that the cyclic variations in the venous pulse were caused by a lack of synchronism between the auricles and ventricles, of such a nature that for thirteen auricular there were fourteen ventricular contractions. On this assumption these cycles in the venous pulse became clear. What came out clearly, when a diagram was constructed to show the relation of auricular and ventricular contractions, was that the single high waves on the venous pulse occurred when the onset of ventricular systole coincided with that of auricular systole. This peculiar rhythm was frequently observed in the later stages of experimental digitalis poisoning. Upon inquiry it was found that the patient had been taking drugs of the digitalis series in considerable quantities over a long period of time. Although the daily amount of digitalis and its allies did not seem excessive, it seemed probable that his irregularity was due to a cumulative action of the drug. If this was true, it illustrated how difficult it might be to ascertain when enough digitalis had been given, for at no time was marked slowing of his pulse observed. This peculiar irregularity was believed to be due to the action of digitalis in increasing the spontaneous ventricular rate. Ordinarily these chambers took their rhythm from the auricles and their tendency to contract spontaneously was held in abeyance. Should stimuli from the auricles fail to reach them, however, sufficient time might elapse for the ventricles to develop their inherent rhythm. In complete heart block they contracted spontaneously and regularly at a rate of about thirty per minute.

Drs. Barringer and Hewlett also reported a case of complete heart block in which an active preparation of digitalis was given in fairly large doses over a considerable period. The patient was a laborer, 60 years old, and had been picked up in the street while unconscious and admitted to Bellevue Hospital. He had used alcohol regularly, to excess at times, and had not had any infectious disease except gonorrhea and a venereal sore. He had an enlarged heart with an accentuated second sound, and a blowing systolic murmur over the apical region. The radial arteries were markedly thickened, and the pulse rate was usually about thirty-three per minute. In the hospital he had a number of typical convulsive attacks. Of the many venous tracings taken, the great majority showed a

complete heart block, although at times there was a partial heart block, or none at all. From this single experience it was impossible, of course, to draw conclusions, though it indicated that moderately large doses of an active preparation of digitalis might fail to increase the ventricular rate in patients with complete heart block, and the authors of the paper concluded therefore that one could not rely upon such an increase as a guard against an overdose of the drug in these patients.

Dr. Lewis A. Conner believed that the interpretations arrived at by the writers of the paper were quite justified. There seemed to be no question but that the tracings indicated a complete dissociation between the contractions of the auricles and ventricles, in spite of the fact that the ventricular rate was much more rapid than was usually the case when such a complete heart block existed. In view of the recognized fact that digitalis could produce in animals such dissociation with a rapid ventricular rate, it seemed fair to believe that the increase in the spontaneous ventricular rate in this particular case was due to the effect of the digitalis administered. Assuming, therefore, that digitalis might be able to increase the ventricular rate in man in complete heart block, it still remained to be proven whether such an effect was desirable. In the present case the patient's condition steadily deteriorated in spite of the fact that the ventricle was contracting as rapidly as one could wish, and his effect upon the ventricle was manifestly an indication of toxic, rather than therapeutic action of the digitalis. It was only by such careful, graphic study of the individual cases as had been made in the present paper that they could hope ever to place digitalis therapy upon anything like a rational basis. They had still much to learn concerning the types of cases in which digitalis was indicated. MacKenzie believed that the useful effects of the drug were seen chiefly in conditions of dilatation of the heart and especially when such dilatation was associated with nodel rhythm. It was evident that when digitalis was not indicated and did no good, it might very well do harm; as, for example, in conditions of disturbed conductivity with a partial heart block, so that the need for a clear appreciation of just what cases were likely to be helped was obvious. They should, therefore, welcome just such studies as those, for it was only by the accumulation of such studies that they could hope to learn the indications for the use of this drug.

Dr. Haven Emerson said that certain facts had evidently been established. Digitalis would cause the ventricles to beat faster than the auricles in digitalis poisoning in dogs. Digitalis had caused the same thing in a patient with advanced myocardial changes. This would have been missed unless the most painstaking analysis of the jugular and apex tracings had been made. The reading of an irregular jugular trace might mean no more than the stethoscope told, or it might on analysis betray essential variations in the irritability, and conductivity of the heart. Such careful technique and study of heart tracings proved more and more profitable as familiarity with the instruments increased, and it should be a matter of pride in a hospital that the necessary instruments were provided for polygraph work, while, as a matter of fact, few hospitals were properly equipped in this respect. The addition of a respiratory record, while adding complexity to a difficult tracing, would avoid all possible criticism as to one of the common causes of uneven jugular waves. This selective action of digitalis upon the ventricle gave an interesting illustration that a drug might exhibit not only the property of susceptibility in different individuals, or in special tissues, but in separate parts of what was essentially one tissue. As an indication of the danger point in the use of digitalis, certainly the absence of the *a* wave in the jugular tracing should prove a more reliable warning than evidences of gastric irritation.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of November 6, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	386	140
Diphtheria	303	29
Measles	161	8
Scarlet Fever	167	10
Smallpox	—	—
Varicella	86	—
Typhoid Fever	76	16
Whooping Cough	32	8
Cerebrospinal Meningitis	1	1
Malarial Fever	—	—
Totals	1,212	212

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended November 5, 1909:

SMALLPOX—UNITED STATES.

		Cases.	Deaths.
District of Columbia, Washington	Oct. 17–23	1	..
Georgia, Macon	Oct. 9–15	2	..
Illinois, Chicago	Oct. 17–23	1	..
Indiana, Indianapolis	Oct. 18–24	2	..
Massachusetts, Boston	Oct. 17–23	..	1
North Carolina, Charlotte	Oct. 16–22	2	..
North Dakota, Henry County	Aug. 1–31	5	..
Ohio, Dayton	Oct. 17–23	2	..
Texas, San Antonio	Sept. 5–Oct. 2	4	..
West Virginia, Wheeling	Oct. 17–23	1	..

SMALLPOX—FOREIGN.

Algeria, Algiers	Sept. 1–30	..	4
Bona	Sept. 1–30	5	3
Brazil	Sept. 11–26	7	..
China, Amoy	Sept. 5–11	..	1
Egypt, general	Sept. 17–23	9	4
Alexandria	Sept. 10–23	..	2
Cairo	Sept. 24–30	..	2
France, Marseilles	Sept 1–30	..	2
Greece, Athens	Sept. 19–25	..	2
Hungary			
India, Madras	Sept. 18–24	..	2
Indo-China, Saigon	Sept. 6–13	1	1
Italy, general, Naples	Oct. 4–10	6	..
Mexico, Veracruz	Oct. 11–17	4	1
Portugal, Lisbon	Oct 3–9	12	..
Russia, Odessa	Sept. 27–Oct. 2	7	2
Moscow	Sept. 27–Oct. 2	1	3
Warsaw	Aug. 29–Sept. 4	..	1
Spain, Almeria	July 1–Aug. 31	..	8
Barcelona	Oct 4–11	..	3
Madrid	Sept. 1–30	..	109
Valencia	Oct. 2–9	2	..
Vigo	Oct. 2–9	..	Present.
Turkey, Bagdad	Aug. 15–Sept. 18.	..	Present.
Constantinople	Oct. 4–10	..	1
Smyrna	Sept. 29–Oct. 5	..	Epidemic.

CHOLERA.

Belgium, Antwerp	Oct. 21–27	8	6 In vicinity.
China, Amoy	Sept. 5–18	..	39
Hankow	Sept. 25	..	Present.
Shanghai	Sept. 12–18	..	Present.
Germany, Heysenkunig, district	Oct. 20	1	..
Niederung	Oct. 16–20	..	2
Tilsit	Oct. 11	..	1
India, Calcutta	Sept. 11–18	..	8
Java, Batavia, district	Sept. 12–18	35	30
Korea, Seoul	Sept. 21	Estimate	100 cases daily.
Manchuria, Dalny	Sept. 19–25	5	7
Netherlands, Hattem	Oct. 1–8	4	1
Russia, Riga	Oct. 2–8	16	4
Straits Settlements, Singapore	Sept. 12–18	..	1

YELLOW FEVER.

Brazil, Para	Sept. 27–Oct. 9	9	6
Mexico, Merida	Oct. 8–14	1	..

PLAGUE.

Australia, Brumby	June 4	1	On S.S. *Zoroaster.*
Brazil, Rio de Janeiro	Sept. 20–26	1	1
Chile, Iquique	Sept. 9–22	2	2
	Sept. 22, two cases in the lazaretto.		
China, Amoy	Sept. 5–18	..	86
Ecuador, Guayaquil	Sept. 19–25	..	9
Hawaii, Hilo, Pepeekeo	Oct. 4	1	1
India, Calcutta	Sept. 12–18	..	9
Indo-China, Saigon	Sept. 7–13	7	7
Mauritius	Aug. 13–19	2	2
Peru, general	Aug. 28–Sept. 23.	14	10
Zanzibar	Oct. 20–26	..	2

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SOME ASPECTS OF ROCKY MOUNTAIN SPOTTED FEVER AS SHOWN BY RECENT INVESTIGATIONS.

THE WESLEY M. CARPENTER LECTURE OF THE NEW YORK ACADEMY OF MEDICINE, 1909.

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As your lecturer on this occasion it will be my privilege, a most honorable one, to present a more or less succinct account of an investigation of Rocky Mountain spotted (or tick) fever, which has been under way for more than three years, and which, it is believed, has contributed results of value for a better understanding of the disease, in certain important aspects. Many of the essentials have been described in scattered articles in two different journals, and in two reports which have been rendered to the State Board of Health of Montana. However, such a presentation as I wish to give, involving some new data, a consideration of the natural history of the disease, and certain observations regarding its microbic etiology, may perhaps free me from a possible charge of too much repetition.

History and Occurrence.—It would be interesting if one were able to give a satisfactory history of the disease, bearing on its first appearance among the native Indians and among the white men of the different "infected districts," its early geographic distribution, and the possibility of its having extended into new territories. Knowledge on these points is very incomplete, however, and regarding its antiquity it can only be stated that it was a well-known disease when certain of the older physicians and residents first came into the valley of the Snake river, in southern Idaho, thirty or forty years ago. In the Bitter Root valley in western Montana it is difficult or impossible to learn definitely of cases which appeared prior to the early '80's. Hence it is possible, though by no means to be taken for granted, that spotted fever appeared more recently in western Montana than in Idaho. The Bitter Root valley is separated from Idaho only by the Bitter Root range of mountains, and since spotted fever occurs only on the west slope of the Bitter Root valley, it is conceivable that the disease extended into the latter region from Idaho through the various mountain passes and that it has as yet failed to reach the eastern slope of the valley. It is known as particularly hazardous to visit certain canyons of the Bitter Root mountains during the months of spring.

Its distribution in any one State appears to be very irregular, although it is found here and there over a wide range of territory; in southern Idaho along the course of the Snake river, and in western Montana as stated, at another point in eastern Montana, near Bridger, in the northern and northwestern parts of Wyoming south of the Bridger district, in northern Utah, eastern Oregon, and in ill-defined districts of Colorado and Nevada. In none of these States, however, except Idaho and Montana, has any systematic attempt been made to learn the exact occurrence of the disease.

The irregular geographic distribution is greatly accentuated in certain instances. Thus, in Idaho, for many years the disease was known to occur only on the north slope of the Snake River valley, and if my informants are correct, it has existed on the south side of the valley, in the eastern part of the State, only during the past twelve or fifteen years. Its limitation to the west slope of the Bitter Root valley was mentioned. The various possibilities which may be adduced in the explanation of this peculiarity and the factors which operate for extension, on the one hand, and for its limitation on the other, cannot well be discussed within the limits of this lecture.

No satisfactory estimate can be given of the number of cases which appear annually over this whole territory. In the two infected districts of Montana the number probably varies from fifteen to thirty. Twelve occurred in the Bitter Root valley in 1908 and twenty-six or twenty-eight in 1909. The increased number during the past spring was due to railroad construction, which resulted in the exposure of an unusual number of persons. In 1908 Dr. Edw. E. Maxey of Boise, Idaho, did an admirable piece of work, in which he obtained all possible data regarding spotted fever from the physicians of the State, locating the disease exclusively in the basin of the Snake river, chiefly on the north slope of the valley; 380 cases occurred in Idaho during that year.[1] The work of Dr. Maxey urgently demands repetition in other States.

There is no more striking feature of the disease than its sharp limitation to the months of the spring. In Montana it makes its first appearance in the latter part of March or April, and the last cases are seen at about the middle of June. The spring is earlier in southern Idaho, and corresponding with this the "spotted fever season" begins and closes from two to four weeks earlier than in Montana. The relation of the tick to this peculiar seasonal occurrence will be referred to again.

General Features.—Spotted fever has a history in literature since 1899, when Maxey defined it as follows: "—an acute endemic, noncontagious, but probably infectious, febrile disease, characterized clinically by a continuous moderately high fever, severe arthritic and muscular pains, and a profuse petechial or purpural eruption in the skin, appearing first on the ankles, wrists, and forehead, but rapidly spreading to all parts of the body."[2] I shall not at

this time discuss in detail the various clinical aspects of the disease, but rather refer you to the reports of Maxey,[2] Wilson and Chowning,[3] Anderson,[4] and Stiles[5] for information in this regard. I may only state that, in my experience, variations from the typical type of eruption are encountered rather frequently.[6]

The anatomical changes are not highly characteristic with the exception of the cutaneous phenomena which have been mentioned. Gangrene of the scrotum, prepuce, faucial pillars, and soft palate sometimes occur. Strangely this is met with more frequently in Idaho than in Montana, and the explanation may lie in the difference in the duration of the infection in the two localities. Customarily patients in Montana die before the period when gangrene is likely to occur, whereas in Idaho the large percentage of recoveries gives sufficient opportunity for the development of this phenomenon. Gangrene in both man and animals is a comparatively late symptom. The most striking and constant visceral change is found in the spleen, which is always enlarged and may weigh two or three times as much as the normal organ. Its consistence is rather firm and gives the appearance of a very cellular organ, such as might be caused by a massive proliferation of pulp and endothelial cells. It has none of the soft semi-gelatinous appearance of the typhoid spleen. The lymphatic glands are uniformly enlarged and moderately congested, but in man I have not found them hemorrhagic. The kidneys are swollen and degenerated and the liver is moderately enlarged, congested, and may be fatty. No striking or constant changes are found in the suprarenals, heart, and lungs. The central nervous system shows no alterations except slight meningeal congestion and edema, but these are of a very minor order. In one case I found a lobular pneumonia and the appearance of multiple infarctions of the spleen. The conditions were such that the bacteriology of the case could not be worked out.

The histological pathology is in the hands of Prof. E. R. LeCount.

Severe and Mild Types.—As regards severity, two different types are to be recognized, the mild and the severe, and in this point lies another of the peculiarities of the disease. In western Montana it is almost uniformly of a very severe character, the mortality ranging from about 65 per cent. to about 90 per cent. Children recover with some frequency, adults very rarely. In Idaho, on the other hand, the death rate rarely rises above 5 per cent., and in the 380 cases which Maxey collected in 1908 it was 4.86 per cent. and 3.8 per cent. for the preceding year. This difference would not be so remarkable were it not constant: the spotted fever of Montana has always been severe, while that of Idaho has always been mild. Occasional cases in the latter State go through the entire course of fever without being confined steadily in bed. This feature suggests that the disease in the two localities may not be absolutely identical, but may rather represent varieties, just as we accept paratyphoid fever as a variety of typhoid.

The difference in virulence is also borne out by animal inoculations. Guinea-pigs may be infected with the Idaho disease by the injection of diseased human blood, just as in the case of the Montana disease, and the clinical and anatomical phenomena are the same in both cases. The Montana disease may be kept going indefinitely in the guinea-pig by consecutive passage with a high rate of mortality (about 90 per cent.). On three occasions, however, and with material taken from different patients, I have been unable to maintain the Idaho disease in the same way. In one instance it was carried into the third passage, in another into the fourth, and in the third into the tenth.

In spite of this constant difference, their practical identity is shown not only by the identity of the clinical manifestations, but also by specific immunity tests. Guinea-pigs which have recovered from the Idaho disease are immune to that of Montana, and the converse is also true. It may be that quantitative determinations of the protective and agglutinating power of the two immune serums will show such differences that the two diseases may be considered to stand in a sort of "group relationship" to each other.

Although a satisfactory explanation of this difference may not be possible, it is of interest to note that the spotted fever tick of Idaho differs specifically from that of Montana. Banks has identified the latter as *Dermacentor venustus*. The Idaho tick is also a dermacentor, but its marking are much less distinct than those of *D. venustus*, and it is constantly smaller in size in all its stages, as shown by numerous comparative measurements of the eggs, larvæ, nymphs, and adults. From specimens sent to Banks, he concluded that the species had not been described previously, and he gave it the name of *Dermacentor modestus*. Our experiments have shown that both *venustus* and *modestus* will transmit the Montana disease to the guinea-pig, and *venustus* will also transmit the Idaho disease. So far we have been unable to obtain transmission of the Idaho disease to the guinea-pig by the use of the Idaho tick, *i. e. D. modestus*, except in one instance in which a large number of ticks was involved. It will be for future experiments to determine whether this is due to the comparatively low virulence of the Idaho virus for the guinea-pig, as it exists in *D. modestus;* in other words, whether a larger amount of this strain is required for the infection of the guinea-pig than a single tick of this species is able to inject during its feeding.

It is, of course, possible that the tick plays only a partial rôle in the maintenance of virulence. As indicated later, the disease appears to be maintained in nature by alternating between the tick and some one or more of the native small animals. It is possible that the animals which play this part in Idaho are not identical with those enacting a similar rôle in Montana, and if this proves to be the case, the difference in virulence may depend in whole or in part on the difference in the animals which serve as hosts in the two localities. This may or may not be open to experimental determination.

Theories Regarding the Source of Infection.—In the past various local theories have prevailed, and do still prevail to a certain extent, regarding the source of infection for man. The sharp limitation of spotted fever to the months of spring, suggested to the residents and to many of the physicians that the virus may be obtained from the water which flows down from the mountains during the melting of the snow. It was assumed that this resulted in the flushing out of certain low places which contained decaying vegetation, in which the virus or poison might breed or have its source. In the Bitter Root valley, in Montana, so many of the patients were employees of sawmills, or lived in the vicinity of such mills, that the disease also became associated with this industry. Old and decaying accumulations of sawdust were supposed to contaminate the water,

and many patients give a history of having drunk water from a stream on which a sawmill previously had its site. It is pointed out that there was virtually no spotted fever until the lumbering industry entered the valley.

In spite of a fair degree of plausibility which attached to the water theory, careful examination of the distribution of cases during any one season shows that this does not correspond to any type of water supply. Indeed, one of the characteristic features of the disease, though it is an accidental one, is the rare occurrence of more than one case in a given family during a season, and the number of cases which occur on any one stream during a season is too small to admit of the water theory. Also the rough coincidence of the spotted fever season with that of the melting snow and high water is a misleading one. A few consecutive warm days are commonly followed by a crop of cases of spotted fever in the spring. This, of course, does melt more or less snow, and does cause a rise in the streams, but it is equally efficient in rousing from lethargy millions of ticks which in cooler weather are too somnolent to respond to the presence of a host.

The lumbering industry has indeed been a factor, but only in this, that it took its employees into the timbered country which harbors infected ticks, and caused a general increase in the population of the valley with the consequent exposure of a larger number of persons. The industry of railroad construction did the same thing in 1909. Furthermore, there is no lumbering in southern Idaho, where spotted fever is much more common than in Montana.

The theory that the tick may have a relationship to spotted fever had a fluctuating existence in both Montana and Idaho for some time, but it was not generally credited, and really had its birth with the publication of Wilson and Chowning in 1902.

Previous Investigations.—A laboratory study of the disease was first undertaken in 1902-3 by Drs. Louis B. Wilson and Dr. Wm. M. Chowning, then of the University of Minnesota.[†] In addition to giving an account of the clinical and anatomical phases of the malady, they advanced the hypothesis that the tick is the means of infecting man; described as the cause a protozoon parasite, to which they gave the name of *Piroplasma hominis*, and which they found to have a specific location within the erythrocytes; and suggested that the ground squirrel may be the source of infection for the ticks, basing this hypothesis on the supposed presence of the same parasite in the erythrocytes.

Their work was followed by that of several members of the Public Health and Marine Hospital Service during succeeding years: Anderson, Stiles, and King. Anderson agreed with the essential claim of Wilson and Chowning, namely, the existence of a piroplasma in the erythrocytes of the patients, and also took a stand favoring the hypothesis of transmission by the tick. Stiles, on the other hand, was unable to find the piroplasma, and expressed his disbelief in the tick theory. Wilson and Chowning had no experimental proof of the correctness of this theory, just as Stiles had none to show its incorrectness.

Personal Studies.—The investigations of which it is the purpose to speak were inaugurated in the spring of 1906 with the discovery that the guinea-pig and monkey may be infected with spotted fever through the subcutaneous or intraperitoneal injection of the blood of human patients.* In view of the fact that the disease has been without a known bacteriology during the course of the work, it has been necessary to rely on the clinical course and anatomical changes in the guinea-pig, together with negative bacteriological findings, as criteria for the recognition of the disease in this animal. Since the reliability of the different phases of the work really depends on this point, it is desirable to emphasize that spotted fever in the guinea-pig is a characteristic condition, and that confusion can occur but rarely.

Spotted Fever in the Guinea-Pig.—When the inoculation is accomplished by the injection of virus (diseased blood, and the organs or eggs of infected ticks), an incubation period of from two to five days is followed by a sudden rise in temperature, which may reach 105° or 106° F. (in rare instances 107°) within two or three days, and which persists without remission for a period of from six to twelve days, or until the death of the animal, four to ten or twelve days after onset. A swelling of the scrotum, which begins in the males on the third or fourth day of fever, progresses rapidly, and the overlying skin is soon infiltrated with blood. In white-skinned animals, which are shaved at this time or later, a generalized roseolar eruption, most marked on the back, extremities, and face, can be made out readily. In females the vulva becomes swollen, but exhibits hemorrhages only in occasional cases. Swelling, congestion, and hemorrhage of the lymphatic glands, a more or less massive enlargement of the spleen, which is cyanotic in color, and, in males, marked congestion of the tunica vaginalis and often of the testicles, are the essential anatomical changes, which are encountered with little variation. Commonly the kidneys are swollen and degenerated, the liver swollen, and the suprarenals may show cortical hemorrhages. The serous surfaces, lungs, heart, and central nervous system are never involved, in the absence of mixed infections. As indicated by ordinary culture media, the blood and viscera are sterile.

The "immunity test" is an important and sometimes an essential aid to diagnosis in animals which recover. In the event of mild infection, which has occurred accidentally, or which has been produced deliberately, by modified virus, the fever may be short in duration and moderate in height, and the external hemorrhages may not appear.† In such cases the immunity test, which consists of the injection of from 500 to 1000 pathogenic doses of infected blood, determines whether or not spotted fever was present in the first instance. This active immunity is strong and of long duration, and the offspring of immune females possess a passive immunity which persists for a period of from three to four months.

These data have proved sufficient for the positive recognition of spotted fever in the guinea-pig, and on three occasions they have enabled us to recognize mixed infections which crept into experiment animals in some unknown way.

*The monkey (*Macacus rhesus*), rabbit, horse, and at least five species of small wild animals have a greater or less degree of susceptibility. In all of these except the monkey confirmatory transfers must be made into the guinea-pig in order to prove the character of the infection; hence, for this reason among others, they are of no service for routine experimentation.

†In some successful vaccination experiments a moderate rise in temperature for only one day was all that marked the course of infection. Such animals were thereafter immune.

The transfer of spotted fever to the guinea-pig from human patients in Montana and Idaho has now been repeated not less than fifteen times from as many different patients, and with practically unvarying results. The oldest strain now on hand, representing the Montana disease, has been kept alive by passage in the guinea-pig for three and one-half years, with symptoms and anatomical changes which do not vary from those produced in the first animals injected, and with no decrease in the virulence of the diseased blood. Two other "human" strains have been maintained in the same way, each for approximately a year when they were dropped. Also a strain from naturally infected ticks (*D. venustus*) has now been maintained for six months. Inasmuch as the work has been done with these various strains more or less indiscriminately, it is important to be certain of their unity, and this is shown not only by the identity of the clinical and anatomical phenomena, but also by the fact that each establishes immunity against the others. The integrity of the infection in the guinea-pig was also confirmed by attempts at reinoculation with fresh human virus; animals which had recovered from inoculations with a strain grown in the guinea-pig for a year proved immune to such inoculations, and from the further correspondence of the clinical and anatomical manifestations in man and the guinea-pig, we may be certain that the infection which has been used in the experimentation is identical with human spotted fever. That the disease is an infection rather than an intoxication by non-living material is abundantly demonstrated by the statements just made; the causative agent must be one which is capable of proliferation, in order to survive two hundred consecutive passages in the guinea-pig with undiminished virulence.

Experiments with the Tick.—With the demonstration of the exquisite susceptibility of the guinea-pig it was manifestly possible to proceed to an investigation of the hyposthesis of transmission by the tick.*

The technique of this work was very crude in the beginning, but satisfactory methods were soon evolved, as described in a prior communication.[8] The first problem was one of simple transmission, namely, is the tick (*D. andersoni* of Stiles, *D. venustus* of Banks) able to transmit spotted fever from the sick to the healthy animal by means of its bite? The initial successful results, obtained with a single female and later with a single male (1906), have been repeated, I should estimate, not less than two hundred times in the course of various experiments conducted in the field and home laboratories. There is, indeed, no difficulty in obtaining it. It is only necessary to permit a tick to feed on a diseased guinea-pig for several hours to a day, and then to transfer the arachnid to a healthy animal as soon as it can again be induced to bite.

The exact duration of feeding required for infection of the tick has not been determined. This must vary a good deal. The tick is a slow feeder. From fifteen to twenty minutes are required for the hungriest and most vigorous to attach itself firmly, and without firm attachment by means of the palpi, feeding is impossible. In other instances the process is much slower, and after two or three days of attachment there is little evidence of the ingestion of blood.

In so far as we have determined, the incubation period in the tick is brief, and, perhaps, is represented only by the time required for the distribution of the virulent organisms throughout its body and eventually into its salivary glands. In a number of instances the tick proved virulent immediately following its removal from the infected animal. In one exceptional experiment, transmission could not be obtained until nearly two weeks following the infected feed.

Likewise the minimum duration of the bite required for inoculation probably varies a good deal, depending on the vigor of feeding. Dealing with ticks whose infection had already been proved by longer feedings, transmission resulted several times from ten-hour exposures, and recently from a feed of less than two hours.*

The mechanism of transfer would seem to consist of the injection of the salivary secretion, laden with virus, into the cutis of the host. By injecting into the guinea-pig separate triturations of the salivary glands and alimentary sac of the infected tick, the presence of the virus in these tissues was shown in 1907. It seems that the tick must undergo a generalized invasion by the virulent organisms, from the intestine as a point of departure, with their eventual localization in the salivary glands. The hereditary transmission of the disease, involving the presence of the virus in the oviduct and germ cells, is a further indication of this generalized infection. That a toxic secretion is injected at the time of feeding is indicated by the intense local reaction which follows the bite of even the normal tick. There is, indeed, no difference between the bite of the normal and the infected tick. The spotted fever virus does not produce a local cutaneous or subcutaneous reaction.

Inheritance in the Tick.—In the summer of 1907 three additional points were determined regarding the relationship of the virus to the tick, namely, the occurrence of hereditary transmission, the possibility of "stage to stage infection," and the existence of naturally infected ticks. The first point was demonstrated by permitting the offspring of infected females to feed on normal guinea-pigs, and the development of spotted fever in the latter signified the transmission of the disease from the female to the larvæ through the medium of the germ cell. The frequency with which hereditary transmission occurs has an important bearing on the natural history of the disease, particularly on the means by which it is maintained from year to year, and for more accurate information in this regard, the subject was again taken up in the winter of 1907-8 with

*The infective dose of diseased blood drawn on the third day of fever in the guinea-pig is frequently as small as 0.001 c.c., when injected intraperitoneally into a fresh animal.

It is interesting to note that the first experiments which were performed with the intention of determining a possible relationship of the tick to spotted fever were done on the human subject, and have not been formally reported by the authors. I have referred to this in a former article, and here may only repeat that Drs. McCalla and Brereton of Boise, Idaho, infected two individuals successively by the bite of a tick which they had removed from one of their patients. Naturally, the consent of the subjects was obtained, which in this case was not difficult on account of the mild nature of the disease in Idaho. The experiments of McCalla and Brereton followed the publication of the tick hypothesis by Wilson and Chowning, and they were unknown to me until after the larger part of my work with the tick had been done.

The first transmissions of spotted fever in the guinea-pig by means of the tick were undertaken and reported almost simultaneously by Dr. W. W. King of the Public Health and Marine Hospital Service and by the writer.

*The problem of time relationship is now the subject of further study by Mr. J. J. Moore.

the assistance of Dr. Maria B. Mayer. In the neighborhood of thirty females were infected and the virulence of each was proved by means of a feed on a normal guinea-pig, after which they were put aside for the laying of eggs and the hatching of the latter. Broods were obtained from only eighteen of this number, and of the eighteen only nine proved capable of infecting the normal guinea-pig, giving us 50 per cent. of hereditary transmission. This percentage is greater than that obtained in either earlier or later experiments, and it seems to be a safe conclusion that under natural conditions hereditary transmission does not take place from more than 50 per cent. of the infected females.

The practical significance of this result is seen when one attempts to answer the query: How is spotted fever maintained in nature? The occurrence of hereditary transmission explains perfectly how the disease is kept alive from one spring to the next, but does not explain its permanent maintenance since not more than 50 per cent. of the infected females transmit the disease to their young. Assuming that the total number of ticks in an infected region remains the same over a period of years and this condition appears to be approximated in the Bitter Root valley, a 50 per cent. reduction in the number of hereditary transmissions for each succeeding year would, in the course of time, spell the extermination of the disease among the ticks. There is no evidence, however, to show that spotted fever is decreasing. It would seem that its very existence at this time signifies a prolonged previous history, and that there exists in nature a mechanism for the annual replenishment of the virus among the ticks, to offset the reduction (50 per cent. or greater) which takes place every year. I shall have occasion to speak of this further when considering the relationship of native animals to spotted fever and the source of infection for the ticks.

"Stage to Stage Infection."—Still another phase of the relationship of the virus of spotted fever to the tick would seem to be of importance for the maintenance of the disease; this relates to the occurrence of "stage to stage infection." In the summer of 1907 larvæ from uninfected females were permitted to feed on guinea-pigs which had been inoculated with spotted fever. After they had molted into the next active stage (nymphal) they were placed with normal guinea-pigs; the development of spotted fever in the latter, after being bitten by the nymphs, proved that the organisms when taken in by the larvæ, retain their life and virulence, until the succeeding active stage is reached. In a similar way it was demonstrated that the nymph which feeds on diseased blood is still able to transmit spotted fever when it reaches the adult stage, some weeks later.

"Stage to stage infection" would be of little significance for the maintenance and spread of spotted fever were it not for the habit which *Dermacentor venustus* and *D. modestus* possess, of dropping from the host for the process of molting.* To assume a case, larvæ which have inherited their spotted fever may infect a ground squirrel; dropping from this animal in order to molt, certain of them, after reaching the nymphal stage, may reach a hitherto uninfected ground squirrel, or a rock squirrel, and convey the disease to the latter; and this event may again be repeated after the adult stage is reached. Thus it is possible for a single tick to infect two or three different animals in the different stages of its development. The habit of dropping also affords opportunity for extension of the disease among the ticks. Nonvirulent larvæ and nymphs, feeding on a susceptible animal in company with infected ticks, may well derive the disease from the animal after its infection is established, and they in turn after molting and seeking further hosts may cause additional extension in the same way. Hence, it is manifest that the facilities for extension are much greater, in view of the habit of "dropping" than they would be if the tick remained on its original host during its entire development.

From what has been said it may be inferred that the ticks in question have a multiplicity of hosts. They are known to occur naturally on at least seventeen of the domestic and wild animals of the Rocky Mountains (horse, cow, dog, swine, sheep, elk, deer, mountain goat and sheep, bear, ground squirrel, pine squirrel, rock squirrel, ground hog, chipmunk, mountain rat, and the so-called rock rabbit), and experimentally they feed readily on the guinea-pig, rabbit, and monkey.

Naturally Infected Ticks.—As proof of the etiological relationship of the tick to spotted fever, I have cited the experiments of McCalla and Brereton, in transmitting the disease from man to man, and my own work demonstrating the carrying power of the tick, and the intimate relation of the virus to the tick, as illustrated by hereditary transmission and stage to stage infection. To these may be added the almost unfailing history of recent tick bites in the cases of human infection.* With all these data, however, it may still be argued with some show of reason, that these conditions are accidental, that the mere fact that the tick has the carrying power does not constitute proof that man acquires his infection from the tick. Furthermore, to remove an infected tick from a human patient and prove its virulence does not improve the character of the proof, since the critic may say that the tick derived its infection from the patient, rather than the converse.

Appreciating both the pertinence and the improbability of this conception, it seemed that the situation demanded the discovery of naturally infected ticks. This was undertaken successfully in 1907. Several hundred ticks from an "infected district" were allowed to feed on guinea-pigs in groups of from thirty to fifty. One of these groups produced spotted fever in its guinea-pig, and the diagnosis was verified by repeated passage and immunity tests. During the past spring it seemed desirable to repeat this observation. Ticks were collected from Lo Lo valley, which is tributary to the Bitter Root valley and sent to Chicago, where Dr. Mayer conducted the tests, placing the ticks with guinea-pigs in groups as in the previous experiments. In this instance infected ticks were found in two of the groups, and a strain of spotted fever derived in

*This is the custom of most species, but some, as *Margaropus annulatus*, which carries Texas fever, remain on the host for both molts. The latter, after reaching a host as larvæ, remain with it until the adult stage is reached, and, indeed, until the female is ready to drop and lay her eggs. Hence, even if stage to stage infection occurs in this instance, it can have no great significance for the extension of Texas fever.

*As stated in reports to the State of Montana, the failure to find a tick on the patient or evidence of a recent tick wound, provides no evidence of the absence of a tick bite. A few hours' feed only is required for infection, and a tick may feed and escape or be brushed off accidentally and the individual himself have no knowledge of the bite. Tick wounds situated on the scalp or perineum may well escape very careful search

this way is still being carried on by the method of passage in the guinea-pig.

With the discovery of naturally infected ticks, it would seem that the requirements for proof of the relationship of the tick to the infection of man have been met as fully as it is possible to meet them.

Seasonal Relations.—As I have stated elsewhere, the peculiar limitation of spotted fever to the months of spring depends on two facts in relation to the development and habits of the ticks involved: First, that the cycle of development is annual, and second, that only the adult ticks are found as parasites of man,* and adult ticks are to be found only in the spring, or roughly so. One may, indeed, find occasional adults in February or the latter part of January, or, on the other hand, as late as August or September. High in the mountains they are found later in the summer than in the lower valleys. Presumably, this is on account of the lower temperature in the former localities, which favors both a late development, and a prolongation of life after the adult stage is once reached. Such observations are exceptional, however, and it remains true that the appearance and activity of the adult begins some time during the latter part of March or the first part of April, the exact time depending on the occurrence of warm days, and that they are not commonly seen after the middle of June. We may be quite sure that the temperature of the region is the most potent factor in determining this rather sharp annual cycle. From experience gained in laboratory cultivation, and by observations on the stock and wild animals, we may fix the egg-laying period in nature in the latter part of the spring and the early part of the summer. During the summer larvæ and nymphs are found on the small wild animals in large numbers, and it is probable that many of the nymphs have had their feed and dropped from their hosts before the onset of cold weather. In several instances, however, large numbers of feeding nymphs have been obtained from horses in December and January, hence it is probable that the nymphal development is in progress during the most of the winter. Those which drop from the hosts late in the autumn probably spend the entire winter in the resting or molting stage, which they complete on the advent of warmer weather. Little progress is made in molting during the winter. Enlarged nymphs have been kept in the laboratory at a temperature of about 10° C. for nine months without molting, but when removed to the temperature of the room, the process would go on to completion in about the usual time. The enlarged nymphs which drop from their hosts at any time during the winter must wait for the warm weather of spring before they can cast their skins and appear as adults.

Source of Virus for the Tick.—The observations in relation to hereditary transmission in the tick indicate, as stated previously, that it is necessary to assume some extraneous source of infection for the tick in order to explain the maintenance of the disease.

At the outset it would be natural to inquire whether man can play the same rôle in the maintenance of spotted fever as he does in that of malaria and yellow fever, and as he possibly does also in the maintenance of human tick fever of South Africa. Without going into a full discussion of all the conditions which would seem to render this impossible, the essential reasons for this conclusion may be given as follows:

Ticks which are naturally infected have no relation to the habitation of man; they are wood ticks, not house pests, and are not found in the houses except as they are brought in accidentally on the clothing. The conditions are very different in the relation of *Ornithodorus moubata* to South African tick, or recurrent fever. The latter have the habits of the bedbug to a large degree, secreting themselves in the house during the day and coming out at night to feed on the inmates. In this case man may well be the common or only source for the fresh infection of the carriers. For man to be concerned in the maintenance of spotted fever it would be necessary to assume that ticks which were hitherto normal must feed on him during the course of his illness, and that the females must either mature on him directly in preparation for the laying of eggs, or, after leaving him, must subsequently find some other host on which it may mature. One who has seen the enormous size which the matured female attains, and who knows that a continuous feed of not less than a week or ten days is required for this degree of development, can hardly conceive of its occurrence on a patient who has been stripped of clothing and is confined in bed. Spotted fever patients are invariably looked over carefully for ticks, and it is a safe conclusion that those which are found are destroyed with little ceremony. Regarding the possibility that a tick after once feeding on a patient may escape and subsequently find another host on which it may mature, this must be admitted as a rare possibility, or better as an extreme improbability. The tick travels slowly, covers very short distances, and does not readily find a second host. On account of the virtual impossibility of a female maturing on man, we should have to assume that the second host in this case would be an animal rather than another human. The dog, and perhaps the cat (?), exist as the only reasonable possibilities in the way of such a second host, and they alone render the occurrence under consideration a rare possibility. Given even the matured and infected female, the likelihood of the offspring being infected is not more than 50 per cent., and, furthermore, the chances which operate against the development of the progeny of any one female to the succeeding adult stage are very heavy. Hence, for these various reasons the process mentioned virtually drops out of consideration as a means for the maintenance of spotted fever.

The Study of Small Wild Animals.—Holding to the correctness of the conclusion just stated, it seemed necessary, in a search for the source of infection for the ticks, to turn to its more general food supply, namely, to one or more of the domestic or wild animals on which the arachnid feeds more or less extensively. The question may be raised as to whether it is justified to exclude the vegetable kingdom from an investigation of this character. In answer one can only say that the probabilities of the case seemed to justify such an exclusion. It is the general and firm belief among entomologists that such ticks live exclusively on the blood of animals, and that the anatomy of their mouth parts permits of no other type or mechanism of nourishment. I have undertaken no work to determine whether or not the life of ticks may be prolonged by keeping them in the presence of various types of living, dead, or decaying vegetables, or, for that matter,

*Only in two instances have I learned of larvæ and nymphs feeding on man; children were concerned in both instances.

with dead or decaying animal tissues. In a fairly extensive experience, however, they have never been observed in the position of feeding on such vegetables as are kept with the animals in the tick-proof cages, namely, carrots, cabbage, dandelions, and clover. Concerning the possibility that they may feed on dead or decaying animal matter, it can only be said that ticks, as a rule, make haste to leave the body of an animal on which they have been feeding after the death of the latter. As a determining influence, moreover, we had before us the demonstrated fact that the tick readily acquires spotted fever by feeding on the blood of an infected animal, and it seemed rational to assume that it would acquire the disease in a similar manner under natural conditions.

Hence, a campaign was outlined, which had as its object a study of the various animals which serve as natural hosts for the tick—a campaign which has not yet been brought to a conclusion, but which has yielded results so suggestive in their character as to furnish an ample reward for the labor and difficulties involved.

Certain types of animals were eliminated from the study for what appeared to be justifiable reasons. Because of the limitation of spotted fever to the Bitter Root valley, in so far as western Montana is concerned, it was decided to postpone the study of animals which wander widely. Hence deer, elk, bear, birds, and animals (mountain goat and sheep), which continuously remain remote from human habitation were omitted from the list, at least for the time being. Also, because of the demonstrated resistance of the horse (relative resistance), ox, sheep, and the fowl, the domesticated animals were not subjected to further study for the purpose under discussion.

Just one definite clue served to indicate the type of animal which, it appeared, should be selected for the first experimentation. This concerns the segregation of spotted fever not only in the Bitter Root valley as contrasted with adjacent districts in which the ticks and animal life are identical, but also its localization to the west slope of the valley, and even to particular foci on the west slope. On the basis of this consideration it would seem that an animal to be concerned in maintenance must be one which has a tendency to a more or less permanent abode, one which does not wander widely from its habitation from year to year, hence one which would not be likely to disseminate infected ticks over a large area.

The ground squirrel (a spermophile), ground hog or woodchuck, the rock squirrel, the chipmunk, the pine squirrel, rock-rabbit, mountain rat, and perhaps the three species of rabbit found in the district (cotton-tail, snow-shoe, and jack rabbit) were considered as meeting this requirement more closely than other species.

Briefly, the plan was first to determine the susceptibility of these species as it might be indicated by the injection of virulent blood; second, with those which were found to be susceptible by the method of injection, to attempt infection by means of the bites of ticks of known virulence; third, to perform "tick cycle" experiments, by which is meant the production of the disease by means of the tick, while at the same time permitting normal ticks to acquire the disease by feeding on the animal during the course of fever; fourth, and last, to attempt to discover individual animals in nature, which were either suffering from spotted fever at the time of observation, or which had survived an infection at some previous time. The last point was to be determined by means of immunity tests, provided, of course, that the previous experimentation should show that one attack in the various species confers lasting immunity. It has not yet been attacked experimentally.

It is to be understood that in the study of the first three points, the animals used in the experiments were taken from localities in which spotted fever had not been known to occur.

The first experiments with the ground squirrel were perplexing. It had been anticipated that a rise in the temperature of this animal would serve as a guide to the occurrence of infection, as it does in the case of the guinea-pig, rabbit, and monkey. The results, however, were very inconstant in this regard. In four out of thirteen animals inoculated, four had absolutely no fever. The shortest febrile period observed was one day, and it persisted no longer than four consecutive days in any of them; in four animals it lasted for three days, and in another for two. "The incubation period varied from one to five days. It was five days in one animal, four days in two, three days in four, two days in one, and one day in one animal. During the incubation period the temperature varied between 100° and 103°, being for the most part below 102.5°. One observation was as low as 97.8°. After the cessation of fever the temperature returned to about what it was during the incubation beriod."[9] But one of the animals inoculated died, and at autopsy the only discoverable change was a pronounced enlargement of the spleen, as compared with controls which were killed for the purpose of comparison. From this animal, and also from one other which exhibited distinct fever, transfers of blood were made into the guinea-pig, and in both instances the latter developed typical attacks of spotted fever, as shown by the fever, hemorrhages into and gangrene of the scrotum, and the changes in the spleen and lymph glands seen at autopsy.

The series showed the possibility of infecting the ground squirrel with spotted fever, but it seemed necessary to conclude either that the susceptibility of the different individuals is not uniform, or that the temperature which follows injection cannot be taken as an index of infection.

With the hope of obtaining information regarding the last point, "the temperatures of a number of normal gophers were taken for several consecutive days in order to learn its natural variations. It was found to be very inconstant and the irregularities were not always to be accounted for. When the weather was cool, as in the mornings, it was common to observe a low temperature, and for several days it might remain in the vicinity of 97° or 98° F. At other times it was low when the outside temperature was too high to account for the condition. That of the normal animal rarely exceeded 102.5° or 103° F., and it was concluded that this would represent approximately its temperature when in a state of normal activity, and with metabolism at par. The fact that the gopher is a hibernating and a semi-cold-blooded animal, no doubt is responsible for many of these variations. When in actual hibernation the temperature in three instances was so low that it did not register on the clinical thermometer. It has been observed, also, that there are individual variations in the tendency to go into the somnolent state, that even at the warm temperature of the laboratory

one may be so somnolent that he can be taken out and handled without awakening, while others will be quite active. It seemed more probable, therefore, that the temperature of the gopher is not a good index of his infection rather than that 30 per cent. of the species should be naturally resistent to the disease."

During the following spring and summer (1908) this was proved to be true. Of a series of squirrels which received quantities of virus from the guinea-pig varying from 0.02 c.c. to 3.0 c.c., and which showed the greatest irregularities in temperature, following the injections, every one acquired spotted fever, the diagnosis being established by the injection of blood from each of the animals, at the proper time, into normal guinea pigs.

It may be mentioned as a point of incidental interest that a *relative fever* developed in a large percentage of the ground squirrels. If the temperature of a particular animal had been found in the neighborhood of 98° or 99° for several days, it would commonly rise to a height of 101° to 103° during the customary febrile period, the latter being scarcely above that of the normal active animal.

The experience taught a new point in technique, namely, that for the positive recognition of spotted fever in the ground squirrel it is necessary to carry the inoculation back again from the latter to the normal guinea-pig. Eventually this step was adopted as a uniform procedure in the work with other small wild animals.

Following this plan of experimentation, the ground squirrel, ground hog, rock squirrel, chipmunk, and mountain rat were found to be susceptible to the innoculation of the virus of spotted fever, as represented in the blood of the infected guinea pig on the third day of fever. The first four species were also found to be susceptible to the bite of single virulent adult ticks, the infectivity of which had been proved previously on normal guinea pigs. It was not possible at the time to study the susceptibility of the mountain rat to the bite of the infected tick.

It is of theoretical and practical importance to know whether spotted fever is an acute self-limited infection in the animals under consideration, or whether it may exist in a chronic form. If it were sufficiently chronic, lasting for a year or more, as in the case of certain protozoon diseases, maintenance could be accomplished without the aid of inheritance in the tick. Inasmuch as the latter does occur the only evident influence of chronicity in the animal would be a more massive infection of the ticks of the locality. Investigations have shown, however, that the number of infected ticks, in comparison with the whole, is very small—so small indeed that this fact alone would seem to be a strong argument against chronicity in the four-footed hosts.

Two general arguments also speak for acuteness in the small wild hosts: first, that in the other animals which have been studied carefully, and in man, the disease is acute and self-limited; second, that after recovery protracted (probably permanent) immunity is established against reinfection, and the serum of such animals possess protective antibodies in considerable concentration—much more than is found in any known chronic disease.

In only two of the wild animals has the subject been studied specifically, the ground squirrel and the rock squirrel. After they have recovered the blood is free from virus, as shown by transfers into the guinea pig, and they resist attempts at reinoculation. One-half c.c. of the blood of the immune ground squirrels was found to protect the guinea pig against approximately 1000 pathogenic doses of virus, the blood of the normal squirrel having no protective effect. The possible presence of the virus in some of the internal organs of these animals after recovery has not been investigated. The concentration of antibodies in the blood would seem to preclude this. It is not found in the spleen of the guinea pig and monkey after recovery.

It is manifest from previous statements that spotted fever in the tick is very chronic. The relation of the disease to the tick, indeed, does not differ from that of various microparasites to their insect carriers in this respect.

"Tick Cycle" Experiments.—The "tick cycle" experiments represented an attempt to duplicate what was assumed to be a step in the maintenance of the disease in nature. Individual ticks, rather than groups of ticks, were dealt with, and the following steps were involved:

First, the individual testing of virulent ticks on separate guinea pigs in order to prove their infectivity before beginning the experiment; second, the testing of the supposedly normal ticks on guinea pigs to insure their freedom from the virus; third, the attachment of a single infected tick to the ear or head of the small wild animal, permitting the former to feel for a period which was known to be sufficient for the production of the disease; fourth, after the elapse of an interval corresponding to the established incubation period, to draw blood from the heart of the experiment animal, and inject it into the guinea pig for the purpose of determining the existence or nonexistence of spotted fever in the wild animal; fifth, the attachment of one or more normal ticks to the latter as soon as the incubation period has passed; and sixth, the testing of the latter on normal guinea pigs in order to determine whether or not they had acquired the virus during their feed.

There were many failures and embarrassments due to the accidental death of valuable ticks, or of animals, or to failure to do the right thing at the right time in all cases; but eventually positive "tick cycle" experiments were obtained with the ground squirrel, ground hog and rock squirrel. With the delicate little chipmunk the cycles were broken in character. Several times this animal was infected by the bite of virulent ticks, and we were successful in transferring the disease from the chipmunk to the tick, following the inoculation of the former by means of the syringe. In the "cycle" experiments, however, the intermediate step of bleeding from the heart proved fatal in nearly all cases, which, of course, prevented the completion of the experiment. Nevertheless, the broken character of the experiments with the chipmunk does not materially impair their significance.

These experiments would have little justification were it not for the fact that the animals mentioned are utilized as hosts by the tick at one stage or another of its development. Particularly on the ground squirrel, rock squirrel and pine squirrel (the last not yet studied), larvæ and nymphs have been found in great abundance, and on the other animals mentioned, to a less extent. That adult ticks are found less commonly, indeed rarely in my experience, on these animals than the earlier stages, in no way invalidates the experiments, which were performed with the adults, since an abundance of experience shows that the larvæ and nymphs do

not differ from the adults in their ability to acquire and transmit spotted fever. We may only bear in mind the possibility that more than one larva may be required for the production of the disease,* whereas, a single nymph or adult is sufficient.

Maintenance.—In accordance with the results and deductions which have been outlined, it is conceived that spotted fever is maintained as follows: A certain percentage of the female ticks which have acquired the disease as a consequence of feeding on animals, the latter having been infected by other ticks, transmit the disease to their offspring through the egg. The new generation during the process of feeding transfer the virus to certain of the susceptible small wild animals (ground squirrels, rock squirrels, chipmunks, ground hogs, and perhaps others), and this may take place during either the larval, nymphal or adult stage, hence at various times of the year. During the infection of the wild animal it is required that hitherto normal ticks, either as larvæ, nymphs or adults, acquire the disease by feeding simultaneously with, or shortly after, the feeding of the infected ticks. Regardless of the tick's stage of development at the time it acquired the disease, the virus is retained into the adult period, and in certain of the females reaches the germ cells and again appears in the next generation. The infection of man is an unessential incident for maintenance, and depends on the occasional and accidental bite of the infected adult tick.

I shall not discuss the bearing which these results have on the control and the eradication of the disease further than to say that this work naturally should take two directions, one having as its object the destruction of the ticks in proximity to human habitation following methods which have proved successful in the campaign against Texas fever, and the other leading to the extermination of the susceptible wild species of animals, a procedure which also has as a consequence the curtailment of the food supply for the ticks. Detailed recommendations embodying these points have been made to the State Board of Health of Montana.

Microbic Etiology.—Inasmuch as rational methods for the control and eradication of spotted fever depend on an accurate acquaintance with the means by which man is infected, and the agencies through which the disease is maintained in nature, it is fortunate that these questions could be investigated without any knowledge of the microorganism which causes the disease. Yet so much theoretical, and perhaps practical, importance pertains to the recognition, and particularly to the cultivation of the causative agent, that this part of the problem has never entirely dropped out of mind. Following many failures, further study was often deferred until other lines of work which promised solution could be disposed of.

With the knowledge that the tick is the agent through which man is infected, one turns naturally, and first of all, to some other diseases of known etiology which are also carried by one or another species of tick, at the same time keeping in mind the dangers of generalizations and analogies. When spotted fever was first studied ticks were known as the carriers of piroplasmas only. On the other hand, since 1903, it has been definitely shown that ticks are the medium of conveyance in at least three diseases which are caused by spirilla, the spirillosis of fowls (Marchoux and Salembini), South African tick fever of man (Dutton and Todd, and Koch), and a disease of cattle in South Africa (Theiler).

With these analogies in mind, and animated also by the conflicting opinions of Wilson and Chowning on the one hand, and Stiles on the other, a careful search has been carried on for both piroplasmas and spirilla, but with absolutely negative results in both cases. If it is fair to judge from the known infections with piroplasmas and spirilla, it would seem that the recognition of these organisms should not be attended with great difficulties, particularly since the introduction of the Romanowsky method of staining, with the various convenient modifications. In the case of the known piroplasmoses the blood is often heavily infected, with many parasites in a single field, and even the most minute species, as *Piroplasma parvum* in the cattle of South Africa, are of such size in relation to the erythrocytes that they could not escape detection in prolonged microscopic studies which were carried on during all stages of the disease, with both the blood and the various internal organs. Such studies were entirely negative with both fresh and stained material, and after many months of study in which fresh material was always at hand the conclusion was reached that spotted fever either is not caused by a piroplasma at all, or if it is, that the organism is extremely minute (ultramicroscopic) and not susceptible to microscopic demonstration.

There are also some general considerations which suggest strongly that spotted fever is not a piroplasmosis. In the first place there is no massive destruction of the erythrocytes in either man or the guinea-pig, the number of which does not fall below a level commonly seen in various febrile infections. There is no hemoglobinuria, such as is seen in many piroplasmoses, and the degree of icterus is not more than frequently occurs in different fevers of bacterial cause, nor is the blood pale and watery. Further, the facts that spotted fever in man is invariably an acute self-limited disease, and that the serum of man and animals after recovery possess protective antibodies in rather high concentration, are not in harmony with a piroplasmatic etiology.

The results of the search for spirilla were similar. In relapsing fever, in the South African tick fever of man, and in the spirilloses of animals, the number of organisms in the circulation is often very conspicuous. In spotted fever, on the other hand, exhaustive search of the blood and tissues in all stages of the disease, and painstaking examination of the tissues and eggs of infected ticks, has failed to reveal the presence of spirilla. Here again it must be concluded that if spirilla are present they are so small as to justify the assumption that they would be ultramicroscopic or filterable.

Similarly the possibility of a leucocytic parasite has always been kept in mind, but such forms have not been observed

From time to time various experiments were performed with the hope that some light might be thrown on the character of the organism. The virus was found to have a fairly uniform distribution in the various body fluids and organs. It proved not to be an exclusive parasite of either the red or white cells of the blood, but was found in approximately the same concentration in the lymph and serum as in the full blood. Its resistance to heat and light and plasmolysis* was such that no conclusion

*In testing the virulence of eggs, five is the smallest number which so far has proved capable of infecting the guinea-pig.

*Experiments conducted in association with Dr. P. G. Heinemann.

could be drawn regarding its bacterial or protozoon nature. None of these indirect methods furnished evidence of particular value relating to the character of the organism.

A generalization frequently made in former years emphasized the hypothesis that all diseases which are transmitted habitually by insects are probably due to protozoon parasites, the assumption resting on facts which were known in relation to many insect-borne diseases, as malaria, piroplasmosis, the malaria of the birds, and more recently, trypanosomiasis. Plainly, however, the newer developments regarding the relation of the flea to plague, and the tick to the relasping fever of South Africa, both bacterial diseases, remove the ground for the generalization, and in facing a new disease of this type to-day, the possibility of a bacterial rather than a protozoon etiology demands unprejudiced consideration. If, indeed, one were to resort to generalization in the case of spotted fever, it may well be in favor of a bacterial instead of a protozoon parasite, because of the chronicity and low grade of immunity which pertain to the known protozoon infections. Even this, however, cannot be ventured with justifiable assurance because of the number of diseases whose etiology is still unknown.

Interest in the microorganism has been sustained by the results of filtration experiments. Repeatedly, virulent serum, both when concentrated and greatly diluted, lost its infective power after being passed through Berkefeld candles. It is, of course, conceivable that the filter may have been more or less occluded by the large number of albuminous particles in the serum, a condition which would interfere with the passage of the organism through the filter. Later, when dealing with virulent eggs from the tick, the filtration experiment was repeated under more favorable conditions. In one instance, two hundred eggs were crushed and thoroughly shaken in five cubic centimeters of salt solution. The albumin was so scant that even a faint degree of opalescence could not be detected in the salt solution. This was filtered and the candle washed with five additional cubic centimeters of salt solution. Of the filtrate a quantity representing one hundred and fifty eggs was injected into one guinea-pig, and another, representing fifty eggs, into a second. Neither of the animals developed spotted fever although five, ten and fifteen of the unfiltered eggs produced the disease in controls. This was accepted as proving finally the non-filtrability of the virus through the ordinary, unmodified Berkefeld candle, and is further evidence that the organism is of such size that it should be seen with the microscope.

Following this brief account of negative findings reference may now be made to a bacillus which has been found in association with the disease under interesting circumstances. In the early part of the studies a diplococcus-like body with an eosin staining intermediate substance was encountered, first in the blood of an infected monkey. Further examination disclosed the presence of similar bodies in the blood of infected guinea-pigs, and later in man, and it came to be the common experience that they could be found in any preparation of infected blood during a search of not more than a half hour's duration, the specimens being stained with Giemsa's solution after fixation in absolute alcohol. The morphology varies somewhat regarding the size and proximity of the two staining bodies, and even small bacillary forms are encountered. In spite of this constant observation the conditions were such that a positive interpretation was impossible merely on the basis of the microscopic findings. The forms are very minute and often appear as a pair of granules which might arise from a disintegrated leucocyte or from a fragmented nucleus. As rendering the latter interpretation plausible, disintegrating leucocytes frequently occur in the blood, particularly of human patients, and in such examples small globules of chromatin may sometimes be found in proximity to the injured cell. Further, my own attempts, and the attempts of Mr. P. G. Heinemann, to cultivate an organism of this or any other character from the blood of patients and animals had been fruitless.

Some months ago it was possible to take up seriously a long-deferred line of investigation, namely, a study of the organs and eggs of the tick with the hope that the microorganism might be present in such concentration or form that its identification would be possible. The disease being hereditary in the tick, it seemed that the freshly layed eggs might be a most favorable medium for search as in South African tick fever, one in which there would be comparatively few opportunities for confusion. The first preparations from a batch of virulent eggs showed the presence of an astounding number of organisms which for the most part have the form of minute polar staining bacilli. Frequently, two or three are attached end to end, and the staining poles give the appearance of a chain of four or six cocci. In the eggs, as a rule, the amount of intermediate substance interposed between the poles is comparatively large, the stained masses being rather widely separated. Frequently, however, the poles are more closely approximated, such forms resembling closely the "diplococcoid" bodies seen in infected blood.

Still other bacilli are found which stain solidly, and they too are often in pairs (diplobacilli). In the latter it appears that the staining substance has not yet become segregated into the poles of the organism. Intermediate forms in which the chromatin of the two ends communicates at one or both borders of the cell substantiate this belief. When specimens from a batch of eggs are examined from day to day a change takes place in their predominating morphology, as the cells of the embryo tick multiply. The sharply marked bipolar forms with the wide intermediate substance gradually become fewer and fewer, and the presence of some which have become abnormally large and swollen indicates that many are in process of dissolution. On the other hand the number of smaller "diplococcoid" forms undergoes an increase, and many of them eventually appear in groups within the cytoplasm of the embryonic cells of the tick. The growth of the latter, however, hardly compensates for the disappearance of the larger bipolar forms, and the impression is gained that the total number of organisms has undergone a decrease. In spite of this change the virulence of the eggs does not decrease. In one batch in which five eggs produced infection when freshly layed, the same number was equally virulent at a later period, when the total number of organisms had apparently undergone a great decrease and none remained but the smaller "diplococcoid" bodies, which for the most part were intracellular. This series of observations, which has been repeated many times leaves the impression that the cells with the large amount of interpolar substance are involution forms, whereas the shorter "diplococcoid" bodies and the solid staining cells represent the more active proliferating organism.

Examination of the alimentary sac, salivary glands and oviduct, disclosed the presence of large numbers of similar organisms, but here the "proliferating" forms are much more numerous than the so-called involution forms. These organs, in a certain sense, represent free surfaces and render possible the removal of the products of bacterial metabolism and a renewal of food substances for the mocroorganisms. The eggs, on the other hand, are closed sacs, covered with a mucilaginous substance, which renders impossible the separation of deleterious and inhibiting material; when the bacterial proliferation has reached a certain degree further growth may also be limited because of exhaustion of the food supply by the growing embryo. Thus it is conceived that only the younger and more resistent bacilli survive, and appear in the embryonic cells and later in various tissues of the active tick.

That a specific agglutination reaction can be obtained with the organisms as they exist in the eggs has been reported previously.[10] From fifty to one hundred eggs, depending on the number of organisms they contain, are crushed in about 1/20 c.c of salt solution, and the suspension shaken until the distribution of the bacilli is uniform. On account of the small quantity of material available it is necessary to use the hanging-drop method, and since the emulsion is so dense in refractile elements from the eggs, determination of the result cannot be made with the moist preparation. After two hours' residence in the thermostat, the cover glasses are removed, the drops permitted to dry, after which they are fixed in absolute alcohol and stained with the solution of Giemsa. I may quote the results from the article mentioned above:

"The serum of the normal guinea-pig either causes no agglutination at all, or at the most produces only slight agglutination in proportions of 1 to 1 and 1 to 20. Dilutions higher than this cause no agglutination. In testing the agglutinating powers of immune serums, three animals which had been infected from different sources, and had recovered, were used. One (1751) had been infected with a dermacentor from Idaho; another (1692) with a strain handed down direct from guinea-pig to guinea-pig for nearly three years without the intervention of ticks, the original infection having been obtained from the blood of man; the third (1757) with a strain kept in the same way since last spring. Graded dilutions, beginning with 1 to 1 and going as high as 1 to 400, were used in the different series, with the striking result that a complete agglutinating power was present in the three immune serums in dilutions up to 1 to 320. It was somewhat less in a dilution of 1 to 400. The highest dilution which will cause clumping has not been ascertained.

"No fresh immue serum from man is at hand, but tests were made with three specimens which are about five, seven and nine months old, respectively. They have been preserved in the ice chest with the addition of 0.3 per cent. of chloroform. The peculiar phenomenon of failure to agglutinate in concentrated solution was noted with all three.* With the oldest serum no agglutination occurred until the dilutions of 1 to 320 and 1 to 400 were reached, when incomplete clumping was produced. With the second there was no agglutination in the dilution of 1 to 1, distinct clumping in 1 to 20, 1 to 40 and 1 to 80, with little or none in higher dilutions. In the serum of five months' standing the reaction was absent in the dilutions of 1 to 1, 1 to 20, and 1 to 40, positive but not complete in 1 to 80, 1 to 160, and 1 to 240, with very little clumping in 1 to 320, and 1 to 400. Normal human serum caused clumping in a dilution of 1 to 1, a very slight amount in 1 to 20, and none at all in the higher dilutions."

*The "agglutinoid" phenomenon.

These experiments have now been repeated many times with invarying results, in one instance distinct agglutination being obtained with the immune serum in a dilution of 1 in 1000.

The result of the agglutination test, then, is a distinct one. The blood of the immune animal contains agglutinins in high concentration for the bacillus, whereas these bodies are almost entirely absent from the serum of the normal animal. Hence, in the light of experience we must either conclude that the organism is present in the body of the animal during his attack, or suffer our faith in the value of the agglutination test for diagnostic purposes to be shaken.

Having outlined the observations which favor the position of the bacillus in question, I may refer to other findings, which apparently throw some discredit on it.

Scientific proof, among other things, would seem to demand that the bacillus be found constantly in all virulent ticks and eggs, and that it be absent constantly from all non-virulent material. In the early stage of this study eggs from ticks which had been definitely proved to be non-virulent were not at hand, but in view of the presence of the organism in the internal organs of the virulent tick, it was considered that the tissues of non-virulent ticks would serve as satisfactory controls in the place of normal eggs. It so happened that in the material then available for study no bacilli could be discovered in the salivary glands, genital organs and alimentary sac of normal ticks, and the results were considered as satisfactory and confirmatory.

Later, when more material was available, and particularly when the eggs from non-virulent ticks were obtained, it was, to say the least, a cause for astonishment, that bacilli of exactly similar morphology were found, often in great abundance, in both eggs and tissues which experiments showed to be absolutely without virulence. Continued observations, indeed, showed that an organism of this character is present with almost perfect constancy in the eggs and tissues of *Dermacentor venustus* and *D. modestus*, regardless of their infectivity. In only occasional individuals has it been impossible to find them.

Not only do they resemble exactly the bacilli found in virulent eggs and tissues in their morphology, but they respond to the specific agglutination test in the same manner, *i. e.* they are agglutinated by immune spotted fever serums in high dilutions and not by normal serums, except in dilution of 1-10, or 1-20. Therefore on the basis of morphology and the agglutination test there seems to be no question but that the bacilli found in avirulent eggs are identical with those found in the virulent.*

The situation, therefore, is a perplexing one. In favor of the causative relationship of the bacillus are the following two points: First, the presence in infected blood of forms which correspond in their morphology with those seen in the eggs and tissues of the tick; and, second, the positive agglutination

*Such bacilli could not be found in the eggs and tissues of specimens of *Ornithodorus megnini*, *Amblyoma americanum*, and an eastern *Dermacentor* [variabilis (?)].

reaction with immune serums in contrast with a negative result with normal serums. Against it is the fact that organisms of similar morphology, which respond to the agglutination reaction in the same manner, are found in the tissues and eggs of the non-virulent ticks.

One may entertain one of three hypotheses, as affording an interpretation of the results. It may, in the first place, be assumed that the organism described is merely a constant associate of the true virus in the infected animal, and consequently, although not having a necessary relationship to the disease, it may cause the formation of agglutinating substances. An example of this condition apparently exists in hog cholera, in which the true virus is very minute and filterable, whereas the hog cholera bacillus is only a more or less constant associate in the general infection. Against such an assumption in this case, however, are the facts that the virus of spotted fever is not filterable, and in the perfectly fresh eggs, in which there is the least possible morphological confusion, the bacillus described is the only organism which can be recognized. Or, second, one may suppose that for some unknown reason the agglutination reaction is not specific in this case, and that the clumping of the bacilli by the immune serum, in contrast to the negative action of normal serum, is brought about by some peculiar and unusual conditions in the experiments as they were performed. The possibility however, does not seem sufficiently strong to shake our faith in the time-honored specificity of the agglutination reaction. Or, finally, it may be assumed that the bacillus in question is the true cause of spotted fever, and that it has a tendency to undergo a loss of virulence as a consequence of long residence in the tissues of the tick, thus explaining the non-infectivity of the eggs and tissues of "normal" ticks which are rich in similar microorganisms. Such an assumption carries with it the idea that the virus of spotted fever in an attenuated form has an exceedingly wide distribution in the ticks of the Rocky Mountain States, and that it assumes virulence only under certain conditions, such as might be attained by sufficiently frequent passage through some suitable animal. If a virulent tick and its progeny do not, within a certain period, feed on a susceptible animal and convey spotted fever to the latter, it is possible that the strain of microorganisms which they contain becomes hopelessly avirulent and incapable of producing infection in any animal save the tick itself. If, on the other hand, they do convey the disease to susceptible animals before the strain has lost its virulence, the organisms may again be acquired by other ticks, and the period of pathogenicity thus prolonged. Indeed, scarcely any fact is better known among bacteriologists than the loss of virulence which a microorganism may undergo for one species of animal as a consequence of repeated passage (long residence) in another species, and the frequency with which various pathogenic organisms lose virulence for a host in the absence of occasional passage through the host, is known to all. Further, I may call your attention to evidence already cited that strains of the spotted-fever virus showing differences in virulence actually do exist in nature, as illustrated by the low virulence of the Idaho strains for both man and the guinea-pig in contrast with the high virulence of the virus of Montana. Reasonably, therefore, strains of still less or no virulence for these animals may exist under natural conditions.

As a working basis, then, I have chosen the last assumption as being the most reasonable and in best accord with the known facts. On the one hand it is hoped that the bacillus may yet be cultivated, in spite of many failures up to the present time, after which, proof of its position may be more easily obtained. At the same time another type of experiments is being carried on, which, there is reason to believe, will be equally decisive as to the relationship of the bacillus. The possibility of vaccination against spotted fever has already been determined, and the method of sero-vaccination has been described.[11] Successful vaccination, not hitherto reported, has been accomplished by the injection of the tissues and eggs of virulent ticks (rich in bacilli) after the material has been sterilized either by desiccation or by chloroform. If the microorganism under discussion is the cause of spotted fever, and if the bacilli found in a virulent material are merely attenuated strains of the virulent organism, equal success may be attained in vaccination with the latter. Although this has, indeed, been accomplished quite recently, it seems desirable to await the study of a more abundant material before submitting further conclusions.

Prevention and Serum Therapy.—To go into detail regarding methods of prophylaxis and control of spotted fever, which have been evolved on the basis of the results cited, would be to trespass too greatly on your time. An account of the procedures recommended is published in a Report to the State Board of Health of Montana, previously referred to.

Serum therapy, as practised with an immune serum derived from the horse, has not afforded decisive results, and perhaps for several theoretical reasons. In the first place, a degree of immunity in the horse greater than that established by simple recovery from the infection cannot be obtained until the organism can be cultivated and injected in excessive quantities. The repeated injection of virulent blood into an immune animal is of little or no value in increasing the quantity of protective antibodies because of the comparatively small quantity of virus which such blood contains. The immune serum is of such strength that from 0.3 to 0.5 c.c. protects against 1.0 c.c. of virus (approximately 1000 pathogenic doses). Second, experiments with animals have shown that the serum cannot be expected to exert a marked curative effect when it is given later than the second or third day after inoculation, and even in this case such an amount is required as to reach an almost prohibitive quantity when translated into terms of the human body weight. Further, it is very exceptional to obtain cases of spotted fever earlier than the third to the fifth day of sickness, *i. e.* until the eruption renders the diagnosis reasonably certain. Third, it is probable, though not a demonstrated fact, that the serum is bactericidal rather than antitoxic in its nature. If this proves to be correct, experience with other similar serums augurs a low curative value regardless of the concentration of germicidal antibodies.

No unfavorable effects, so far as can be determined, have attended its use. The advisability of modifying the technique of administration so that large quantities are given *intravenously* early in the course of infection is still a subject for consideration.

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CREOSOTE TREATMENT OF PULMONARY TUBERCULOSIS.*

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First of all, I ask pardon of the Society for again taking up even a few moments of their time with this well-worn theme. I would not do it unless I thoroughly believed in its very great importance and unless, at the same time, I felt I might correct a few errors of thought and practice.

To begin with, I wish to affirm that so far as I know, I practically introduced the use of creosote treatment among practitioners in New York and elsewhere in the United States, by a paper read before the Association of American Physicians (Transactions of the Association, Vol. III, p. 305) over twenty years ago. In that paper I made statements based upon numerous recorded and painstaking observations, which were true then, and are true now. Since that date, I have written and spoken many times upon this subject, and tried in every way, to convince my colleagues that I was in dead earnest in regard to the doctrine preached. To-day I am thoroughly convinced that we have absolutely no medical treatment of pulmonary tuberculosis at all equal to the creosote treatment properly used and insisted upon. In fact, I might say without much fear of effective contradiction, that no other medical treatment up to date has any great value at all, except so far as temporary relief, perhaps, of symptoms is concerned.

What I should like very much at this, or better still, some future meeting of the Society, would be a full and frank discussion of the facts I have presented to the profession already on many occasions, and that their great value should be sustained and corroborated, or else, through that discussion, their negation should be finally affirmed and supported.

It is idle and wrong to my mind, to be building sanatoria and spending large amounts of money to accomplish very little that is really useful and enduring to even a few sufferers, when we consider the vast number of the afflicted who can never hope to be treated in this way, and the fact that they, the vast majority, must finally be taken care of, as well as may be, in their own homes. It is well nigh criminal to ignore these, and other facts that may become patent and well known to all.

I would not repeat myself at length at this time, since by reading my communications in *American Medicine*, March, 1909, in the *New York Medical Times*, of October, 1908, not to speak of an article in the *American Journal of the Medical Sciences*, for August, 1908, anyone desirous of knowing accurately what I believe and reaffirm now, may become fully informed.

Finally I state that by the combined, persistent, intelligent use of beechwood creosote *internally* and by *inhalation*, many patients may be saved who otherwise would die. In nearly all cases, no matter what the stage of the disease, much relief to symptoms may be obtained. This treatment is very simple and inexpensive, and interferes with no other rational doing. It greatly supplements that doing.

Creosote treatment is of great value as a *preventive treatment*, when pulmonary tuberculosis is a menace to the individual, either by reason of constitutional tendency, exposure to infection, or both. To judicious rest, when required, fresh air, and proper food, add creosote treatment, with or without lime salts, and there is at present little or nothing in the way of further treatment to insist upon.

I have added to my treatment of pulmonary tuberculosis on several occasions during the past few years the use of the lactophosphate of lime. Is this addition as valuable as the use of insoluble carbonate and phosphate of lime vaunted by P. Ferrier? I am not yet prepared positively to state; but at least on theoretical grounds I believe it is. Is Ferrier's dietary, excluding fats and all acids, and indeed all foods that make acids in the economy, really better than what we all are and have been insisting upon in our practice, public or private? I do not as yet know. What I do know is that Ferrier's statements, corroborated by Letulle, of Paris, are startling, to say the least, and if true, are a sad indictment of human fallibility.*

*Read at a meeting of the Practitioners' Society, May 7, 1909.

A PLEA FOR A REFORM IN MEDICAL EDUCATION.

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It must be evident to other educators and practitioners of medicine that the constant increase of the requirements and examinations of the program of medical education in the colleges of the United States, and in fact all over the world, is harassing students and is truly beyond the brain capacity of a good many of them, thereby impairing their receptivity for desirable and indispensable knowledge. This certainly calls for a halt and for deep consideration and a reform of some sort to check, reduce, and regulate this burden on the students.

Having been an educator all my life, I am certainly in favor of the acquirement of as much knowledge as possible, but surely not to the detriment of final results.

To cover the programs or curriculums, *essentials are neglected at the expense of nonessentials*, and the result is that medical colleges fail in accomplishing their supreme duty, which is primarily to train students properly for the work that awaits them

*After this article was in type I received a letter from Dr. Antonio Stella of this city, in which he writes: "In reply to your inquiry as to the results I am having with the creosote inhalations, I am glad to say that I have found them very useful in many cases of bronchopneumonia and bronchitis, either simple or associated with pulmonary tuberculosis. I have an opportunity of advising such inhalations very often in my practice and at the clinic, and I have no doubt they are doing good work."

upon leaving the college, that is, that of general practitioners of medicine competent and able to diagnose and treat successfully the patients who will call upon them.

The objection, to my mind, is not so much the amount of matter in the programs as the details and minutiæ the students are called upon to attend to and to remember, and which they cannot simply because the majority of them have not the aptitude for these minutiæ, and no ambition to know them. These confuse them and prevent them from mastering and remembering the essential facts which all fairly educated practitioners should be thoroughly familiar with.

In about all the laboratories and special clinics a great deal of time is occupied in compelling students to study and to do detail work in which the larger number is not interested, as they instinctively feel that it will be of little service to them in the practice of medicine.

For instance, in the laboratories of histology and of pathology, much valuable time is given to making students stain and mount sections, for which work many have no aptitude. Much of that time should be devoted instead to making them study and to quizzing them on typical slides made by expert technicians. I know distinguished surgeons and physicians who have never made a section or a culture or mounted a slide, who are nevertheless thoroughly familiar with histology and pathology from the study of slides made by others.

In the laboratory of physiology most of the experimental work should be done to sections small enough to enable all of them to see the details of the experiment.

The teaching of specialties to students should be limited to the study of the common diseases which practitioners are likely to meet pretty often. Great stress should be made to impress on the students the symptoms indicating danger that they may recognize them in time to send them to specialists before incurable damage has been done through ignorance and oversight.

It is the detail work that should be reduced and the time thus saved devoted to essentials and those facts which the students will butt against as soon as they go out into practice, *i. e.* especially diagnosis (clinical and laboratory), prognosis, and treatment. Too much time cannot be given to the laboratory of clinical medicine.

Thus reduced to the needs of the practitioner of medicine, the understanding of the contents of the program should be insisted upon for graduation.

All the text-books of all the branches should be cut down two-thirds at least, but a fair knowledge of their contents should be required for graduation. A text-book on anatomy, for instance, should not exceed some 350 octavo pages, all needed plates included. The print should be no finer than that of the *Journal of the American Medical Association*. It is ludicrous and pitiful to see a beginner trying to work out his dissections with the ponderous books they use, which books are, most of them, splendid books of reference or cyclopedias but not fit for students in the dissecting room.

Lectures on general laws and principles of the various branches should be delivered to students, but the practical details, the facts, should be eliminated from such lectures and imparted in the laboratories, at the bedside, and in the dead house. These lectures should include remarks on the peculiarities of the most important points on each subject (anatomy, physiology, medicine, surgery, etc.), it being assumed by the teacher that the facts are known to the hearers and only the special features to be dwelt upon.

Alongside of their brief text-books, the equipment of students should comprise cyclopedias on each branch of medicine, which would give them all the details and minutiæ they may desire on any subject or point.

Written examinations should be reduced to a minimum and graduation based upon attendance, attention, quiz marks, and knowledge, and the estimate each teacher places on the mental value and ability of the candidate.

Over and above the course to make efficient general practitioners or Doctors of Medicine, there should be special courses open to those who wish to become proficient in special branches, and a special title and diploma should be awarded to those who have successfully passed examinations on one or more of those special branches (chemistry, anatomy, surgery, ophthalmology, gynecology, etc.).

It is truly saddening to see young graduates start out as specialists who have but a smattering and no experience in the branch which they claim to treat.

The matter that should compose the programs and the text-books should be decided upon by a board composed of members of the Association of American Colleges, of the Council of Education of the American Medical Association, and also of some general practitioners of medicine.

A CASE OF IDIOPATHIC HYDROPNEUMOTHORAX WITH COMPLETE RECOVERY.

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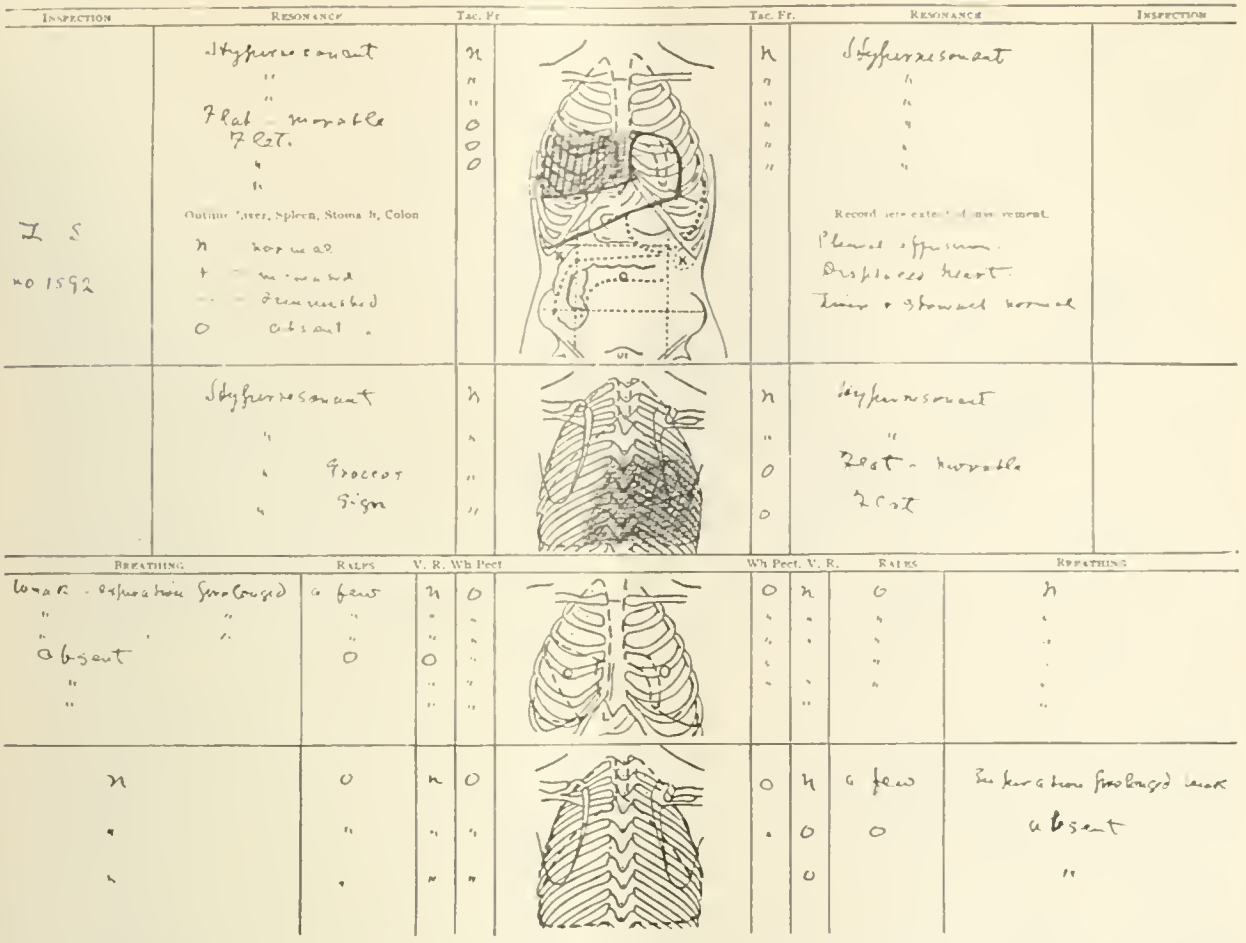
L. S. Jefferson Medical College Hospital, No. A-11189, white adult male, was admitted to the medical service of Dr. H. A. Hare on February 23, 1909, with the following history: "Suddenly Sunday morning he was seized while eating his dinner with severe pain in right anterior chest. The pain resembled the stab of a knife. He immediately became weak, faint, pallid, and had to be carried back to bed. He suffered with air hunger, and says that if he could have walked he would have run to the window for air as he could not get his breath. He states that three or four days prior to Sunday he had felt weak and had a slight cough, but did not pay especial attention to his condition, as he was accustomed to attacks of colds."

From this it will be seen that the history of onset was typical of pneumothorax. The patient's family history was without significance except for the absence of any history of tuberculosis. His previous personal and medical history was also without significance, having had no infections except in childhood, and there being no history of contact with tuberculosis. He said that he had lost some weight.

Without going into the details of the complete physical examination, examination of the thorax showed markedly decreased expansion on right with prominence, and increased motion on left. The apex beat was visibly displaced to the right. The patient showed all the typical signs of hydropneumothorax. The coin test was clear and distinct, "ex-



quisite," as it is marked on the chart, while the succussion splash was plainly demonstrable and heard by the patient himself. He was repeatedly demonstrated to the ward classes in medicine by both Dr. Hare and Dr. Landis, on account of the distinctness of the physical signs of hydropneumothorax.

Second skiagram of L. S. taken by Dr. Leonard, May 4, 1909, shows lungs normal, with enlargement of peribronchial glands more marked on right. The heart normal in size and position in systole. The white spot in the stomach is gas.

During his entire stay in the Jefferson Hospital he was unable to lie down wtihout becoming extremely dyspneic and cyanotic. It was a matter of comment during his stay in the hospital that the left lung was apparently normal. The percussion note over the right apex gave a skodaic resonance both back and front, with other signs of relaxed lung. Below, over the area of pneumothorax, vocal fremitus, tactile fremitus, and breath sounds were absent. The note was tympanitic and there was an area, over the effusion, of movable flatness.

In view of the existing condition, the secondary anemia, the loss of weight, and a positive cutaneous tuberculin test, the diagnosis of pulmonary tuberculosis complicated by hydropneumothorax was made.

L. S. presented himself at the Penna. State Dispensary for Tuberculosis (No. 21) on April 7, 1909, case No. 1592, in the service of Dr. William G. Turnbull. He gave a history of having been in the Jefferson Medical College Hospital under the care of Drs. H. A. Hare and H. R. M. Landis, and said that he had been frequently demonstrated to the students in ward class. He consequently knew a good deal about his previous condition and said that he had had a hydropneumothorax with a succusion splash, which he could plainly hear and feel himself. Dr. Turnbull made a careful examination and found no evidence of pneumothorax whatever, but an extensive plural effusion reaching to the third rib on the right side. He made the following note: "Patient has typical history of hydropneumothorax, said he had succussion splash, could hear it himself until recently. No signs of pneumothorax can be elicited now. Signs of large rightsided pleural effusion."

Dr. Francine examined the patient and confirmed Dr. Turnbull's view in every detail, and the case was referred to Dr. C. L. Leonard for skiagram. The first plate was taken April 10, 1909, and showed a large pleural effusion. The patient's temperature

at the first visit was 99 3-5°, respiration 22, pulse 88. He gave no history suggestive of tuberculosis with the exception of loss of weight, his highest previous weight having been 160 pounds, while his present weight was 138½ pounds. He was under treatment until May 4, 1909, during which period he paid in all five visits to the dispensary. His temperature subsequent to the first visit was uniformly normal, and his pulse never above 84 and as low as 68. His weight on the last visit was 141¼ pounds.

During the course of his treatment the pleural effusion rapidly diminished, and upon final reexamination at the last visit there was no evidence of any fluid in the chest whatever, but what was more remarkable, there was no evidence of any pleuritic thickening nor of any localized tuberculous process in his lungs.

His hydropneumothorax had come and gone and left no trace of its existence. Tactile fremitus was normal all over chest, expansion normal and symmetrical, and the breath sounds normal except in so far as the breathing was somewhat emphysematous over both lungs. The percussion note over the entire pulmonary area was slightly hyperresonant. Dr. Turnbull's note reads: "Signs of effusion have disappeared. Tactile fremitus normal." He was referred to Dr. Leonard for a second plate, and this skiagram showed the chest to be free from any fluid and the lungs clear throughout and without evidence of tuberculosis localization except in enlarged peribronchial glands.

The above history and course of this case make it of considerable clinical interest. The vast majority of cases of hydropneumothorax develop in the course of pulmonary tuberculosis and most frequently in advanced cases from the rupture of a cavity or area of softening and the condition is usually a terminal one.

While this patient was very probably tuberculous, that is, had a chronic tuberculous adenitis, there were no signs nor symptoms of pulmonary involvement. He showed evidence, however, of some emphysema and it would seem likely that there had been a rupture of an air vesicle, permitting the entrance into the pleural sac of a small quantity of air. This was sufficient to induce effusion and give rise to a true hydropneumothorax. The fluid increased to large proportions and the air was compressed and absorbed and the picture changed to one of simple serous pleural effusion. The air having disappeared, the cause of the pleural effusion was gone and the fluid was rapidly absorbed.

The accompanying chart and skiagram explain themselves.

A FRAGMENTED FILIFORM REMOVED FROM THE MALE URETHRA WITHOUT OPEN OPERATION.

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THE problem of passing a tight stricture with a filiform guide is partly solved by the selection of the type of filiform used. The composition (rubber) instruments are extremely unsafe and should be discarded by all operators. The woven filiforms are not infrequently so flexible that they coil within the urethra in front of the stricture and may deceive the operator with the impression that he has passed onward into the bladder. Probably whalebone guides are the instruments of choice for this service and are procurable in various sizes from almost horse-hair thickness to 1 or 2 millimeters in diameter. Relatively, all these whalebone guides possess sufficient spring and rigidity to permit them to pass through the vast majority of strictures. One fact about whalebone is, however, not as well understood as it should be, namely, that through either disease or changes incident to frequent sterilization and long use, whalebone becomes brittle, so that it will fragment partially or completely both transversely and longitudinally. For this reason no whalebone guide should be used before it is examined as to splits, cracks, exfoliation, and other changes. Of course, it is also necessary in buying whalebone guides to examine them, not only as to these points, but also as to whether or not rubber imitation is being substituted.

Upon the point of disease of whalebone guides, instrument dealers state that it is advisable to store all whalebone instruments in air-tight glass tubes to keep them from the insect which attacks this material.

The writer desires to report the following case in which a whalebone guide broke within the urethra and was removed without open operation.

G. C., white, 52 years old, married, born in the United States, always has enjoyed very good general health, usually following the vocation of licensed engineer, necessitating hard work. He admitted a number of infections with gonorrhea extending backward many years into his youth. Symptoms of stricture developed during the past five or six years with total obstruction on the day of his first call, May 31, 1903.

Physical examination showed a well nourished, heavy, intelligent individual, not alcoholic, symptoms of cystitis, hypertrophy of the prostate, and obstructing stricture. Operation for the stricture and the prostate refused, only dilatation of the stricture accepted.

Treatment. Filiform passed with difficulty and allowed to remain in 24 hours when dilatation with tunneled and grooved sounds was begun and carried up to 16 Fr. during the next few weeks. He then disappeared and returned with a relapse in July, 1904, which was treated in the same manner successfully. Warning was given to continue the treatment at this occasion until larger caliber was reached and maintained against relapse by regular visits. Hope was held out that if this were accomplished the prostatic symptoms might somewhat improve. Notwithstanding this warning he again withdrew from treatment until December 11, 1907. In this relapse still greater difficulty was encountered in passing the stricture. He was, however, dilated slowly from 6 Fr. up to 17 Fr. After a lapse from treatment he returned with total obstruction, due partly to the stricture and partly to the prostate. A filiform was rather readily passed and a sound threaded over it, which unexpectedly broke the filiform near the bulb of the urethra. This was discovered only upon removing the sound with the outer part of the filiform in the tunnel. It was assumed that the other half was either in the deep urethra or in the bladder itself. Before deciding upon an open operation, however, the author hit upon the following successful and simple procedure: A urethroscope was passed into the urethra down to the face of the stricture where coiled upon itself was seen a long thread-like fragment of

the whalebone guide. An ordinary woman's knitting-needle was passed down to this loop, seized it and straightened it out within the urethroscope and brought its tip so close to the eye-piece of the endoscope that it could be seized with a Kelly "mosquito" artery clamp. After this it was easy enough to withdraw clamp, urethroscope, and filiform.

F. J. Lydston[1] states that the filiform may be carried into the urethra along with the sound being brought again to light when the sound is withdrawn. This, in the opinion of the writer, is a very improper and hazardous procedure. In no circumstances should the filiform ever leave the eye or the hand of the operator. For this reason it is well to have the filiforms two feet long, part of which is coiled within the bladder and the remainder lies within and without the urethra, thus permitting testing of the freedom with which the sound slides over the filiform without ever disengaging the filiform from the cavity of the stricture or bladder. For further details as to the proper manner of passing a sound over a filiform, the reader is referred to an article of the writer[2] in the *Annals of Surgery* for 1909.

Before ever threading a sound over a filiform guide, careful palpation of the urethra should be made in order to ascertain whether or not the filiform has doubled upon itself and is beginning to turn forward toward the meatus as shown in Fig. 1. The diagnosis of this accident is always made by eliciting from the patient whether he has had the subjective sensation of the filiform sliding through the stricture and again through the sphincter of the bladder and finally of coiling within the bladder. This accident of doubling upon itself and passing forward toward the meatus is far more common than one would suppose and almost invariably the patient is able to state that all the sensation he has had is in the front part of the urethra. Objectively, this accident may be diagnosticated by making out with the finger two strands of filiform where only one should be present, or if there is doubt in palpation an urethroscopy will settle the

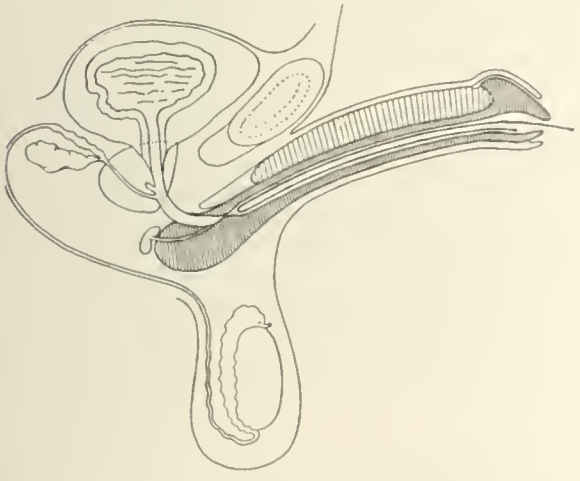

Fig. 1.—The anatomical details of this diagram are sufficiently clear and require no notation. The stricture is plainly shown just in front of the bulb. The filiform also is clearly represented doubled upon itself at the face of the stricture with the shorter element almost presenting at the meatus.

matter. It is obvious, of course, that a sound carried along a filiform so doubled will almost invariably cut through the same at the base of the loop.

Another accident which may happen to a filiform as the sound passes down it is shown in Fig. 2. This doubling twice upon itself is usually due to the fact that the operator has not held the free end of the filiform sufficiently stationary, thus the sound carries the filiform against resistance from within the bladder, making a double loop of the filiform upon itself above or on each side of the sound. The diagnosis of this condition is much more difficult than that of the foregoing. Commonly the subjective sensation of the patient is of no value whatever. The endoscopic tube cannot be used, of course, because the sound is in the urethra. Careful palpation commonly around the point of the sound will reveal three strands instead of one strand of filiform guide: one being the straight filiform as it lies in the groove of the sound and the other two being the reduplications as they lie beside or above the point. Slight rotation of the point always aids in distinguishing the one from the other. If doubt exists, only one thing remains to be done, namely, to release the free end of the filiform outside the meatus and slowly withdraw the sound. This will commonly bring to light the filiform doubled twice upon itself at the meatus exactly as it lay at the face of the stricture.

Fig. 2.—As in figure 1, the anatomical details of this diagram are sufficiently clear to need no notation. The stricture is plainly shown in front of the bulb. The filiform also is clearly diagramed doubled twice upon itself at the face of the stricture and above the sound. The straight strand of the filiform also appears leading from the urethra and again through the stricture into the bladder where the redundancy is coiled within that viscus, thus demonstrating the advantage of using filiforms two feet long.

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45 West Ninth Street.

Ichthyosis and the Thyroid Body.—E. Weill and G. Mouriquand believe in the origin of some cases of ichthyosis in a failure of the thyroid gland to act. Two cases treated by him, the histories of which are given by them, are examples of this condition. In some cases ichthyosis coincides with an absence of the thyroid gland or profound lesions of it. In others the symptoms are those of thyroid lesions, and are associated with myxedema, both in congenital and acquired ichthyosis. In others there is no manifest lesion of the thyroid, and yet the ichthyosis is cured by thyroid extract. Some cases attributed to hereditary syphilis show thyroid lesions. Since the gland presides over the nutrition of the cellular tissue beneath the skin and the derma, it is logical to admit that it acts on the evolution of the superficial cutaneous tissues.—*La Presse Médicale.*

	1898		1899		1900		1901		1902		1903		1904		1905		1906		1907		1908		1909		TOTAL		AVERAGE		%
	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	No of cases	Mortality	Mortality
JANUARY	887	74	1164	117	132	19	338	53	309	28	1303	108	608	74	343	44	1043	75	1350	129	402	69	450	50	8329	840	694 1/12	70	
FEBRUARY	681	75	1408	155	261	41	178	29	695	81	1119	94	481	60	346	38	1474	126	1495	169	685	108	270	43	9113	1019	759 5/12	84 11/12	
MARCH	333	42	1902	170	409	62	209	22	457	70	927	127	626	82	823	59	1281	164	971	172	369	54	164	23	8471	1047	705 11/12	87 3/12	
APRIL	248	47	1412	185	325	58	161	25	502	61	725	72	1719	137	977	115	866	102	600	83	358	52	124	29	8017	966	668 1/12	80 6/12	
MAY	199	24	502	79	280	36	413	38	441	64	1125	116	774	115	617	72	1110	104	375	74	238	42	252	41	6326	805	527 1/12	67 1/12	
JUNE	271	28	284	57	195	44	510	48	193	27	841	82	322	44	576	55	749	97	304	54	133	20	95	22	4473	578	372 9/12	48 3/12	
JULY	284	44	226	32	141	36	328	47	190	29	311	67	302	115	443	63	375	47	257	36	136	21			2993	527	272 1/12	47 11/12	
AUGUST	315	36	282	26	252	29	607	62	324	49	560	75	380	35	416	43	439	53	398	46	302	25			4275	479	385	43 6/12	
SEPTEMBER	1018	71	355	28	308	34	391	34	459	43	402	34	435	42	509	62	520	71	299	41	359	48			5055	516	459 5/12	46 7/12	
OCTOBER	751	78	164	22	262	29	293	42	304	32	306	41	376	41	364	40	366	43	242	30	209	33			3637	423	330 11/12	38 5/12	
NOVEMBER	471	38	166	23	165	23	193	23	624	49	431	39	239	21	413	30	557	66	243	38	109	22			3621	372	329 1/12	33 3/12	
DECEMBER	651	78	190	23	372	36	159	19	459	53	392	44	354	43	627	63	941	114	333	29	155	28			4633	530	421 1/12	48 3/12	
TOTAL	6109	645	8055	907	3122	447	3780	442	4967	586	8442	899	6616	799	6454	684	9721	1062	6867	901	3455	522	1355	208	68943	8102			

TABLE 1.—A table showing by month the number of cases of typhoid fever occurring in Philadelphia from January, 1898, to June, 1909, inclusive.

PRELIMINARY REPORT OF A STATISTICAL ANALYSIS OF OVER SIXTY-EIGHT THOUSAND CASES OF TYPHOID FEVER.

By ABDULLAH K. SALLOM, M.D.,

PHILADELPHIA, PA.

THIS report represents a study of the cases of typhoid fever which have occurred in Philadelphia during a period of eleven and a half years. The figures which form the basis of this report have been obtained from the official weekly report of the Bureau of Health, so that they may be considered quite reliable.

From January, 1898, to June, 1909, there occurred sixty-eight thousand nine hundred and forty-three (68,943) cases. Of this number eight thousand one hundred and two (8,102) died, giving a mortality of slightly over 11.75 per cent. A study of so large a number of cases is therefore not without interest.

Table 1 gives the number of cases and mortality by months, and at the foot of each column the total number of cases and deaths for each year is given. To the right of the table is given the total and average number of cases and deaths for each month. A glance at the figures will show that the greatest number of cases occurred in February, there being an average of seven hundred and fifty-nine (759) cases. January is a close second, averaging six hundred and ninety-four (694) cases. The average number of cases for each month then gradually falls, reaching its lowest ebb during July. It again rapidly rises, reaching a second maximum during September. During October and November it falls to rise again in December. This extremely interesting condition is graphically shown in Chart 1.

It is of particular interest inasmuch as it is usually stated that the disease is more common during the late summer and autumn months than at any other time of the year.

Chart 2 is of particular interest in many ways. It graphically shows the monthly number of cases and mortality during the past eleven and a half years. Marked fluctuations are noted showing beautifully the number of cases from month to month

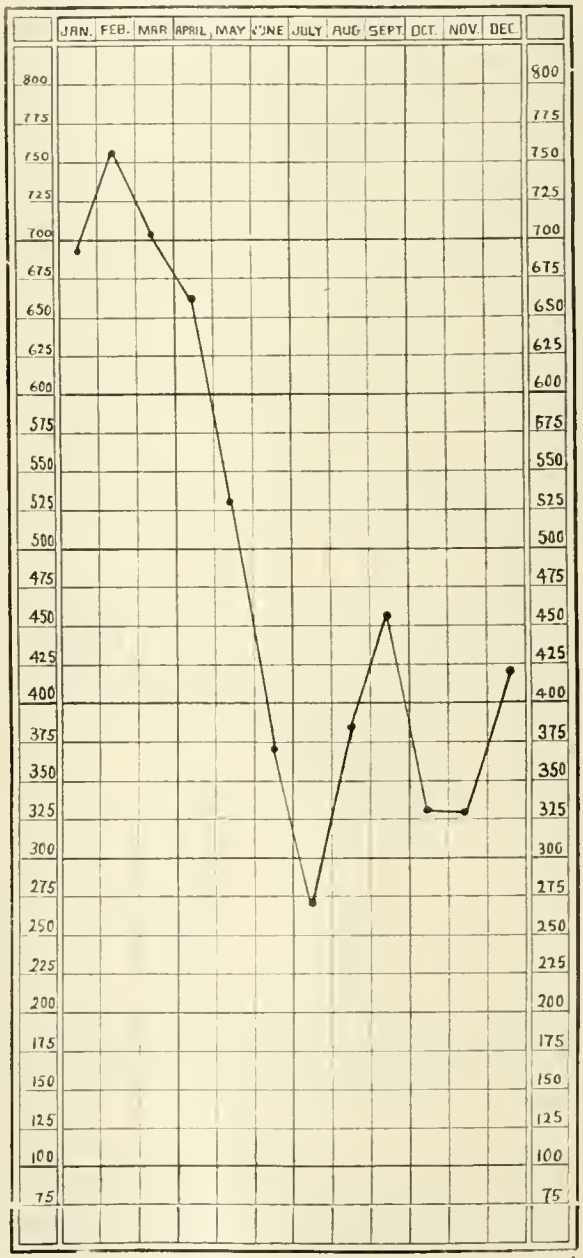

CHART 1.—Average number of cases of typhoid fever occurring during each month of the year. Statistical analysis of 68,943 cases.

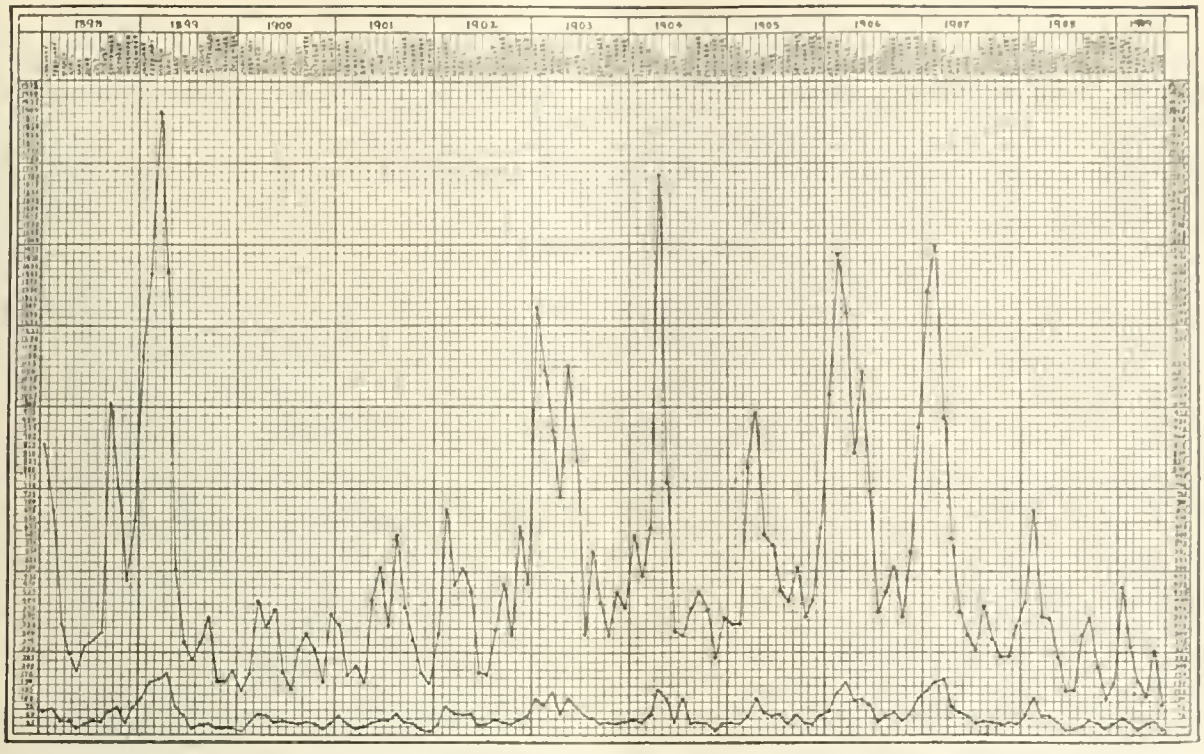

CHART 2—Showing the number of cases and mortality of typhoid fever by months; statistical analysis of 68,943 cases.

and year to year. The upper line represents the number of cases, the lower the mortality. Reading from left to right each space represents one month, and each twelve spaces are blocked representing one year.

For 1898 there was an increase of four thousand one hundred and three (4,103) cases and two hundred and thirty-eight (238) deaths over the previous year. The large number of cases for this year as well as the early part of 1899 has been attributed to the return of our soldiers. Of the total number for 1898, one thousand three hundred and forty-six (1,346) cases were soldiers who were brought to this city from the military camps throughout the country. For the next three years there was a marked diminution in the number of cases. The disease then became more prevalent, and from February, 1907, it has been gradually decreasing.

The large number of cases occurring in Philadelphia has been attributed to the polluted Schuylkill River, which is the principal drinking water supply. As early as August 12, 1902, filtered water from new filter plant was supplied to a small section of the city. Since that time the district receiving filtered water has been gradually enlarged until on February 20, 1909, the entire city was supplied with filtered water. It is of great interest and importance to determine whether the filtered water had any effect on the number of cases.

From the data which I have at hand I believe that the filtered water has been instrumental in the reduction of the number of cases of typhoid fever, for it appears that while the number of cases was greatly reduced in the district receiving filtered water, typhoid fever was still quite prevalent in the district not receiving filtered water, and in this manner increasing the general number for the entire city. On this subject I shall write in detail in the definite report.

1312 PASSYUNK AVENUE.

ACUTE GANGRENOUS CHOLECYSTITIS; GALLSTONE IN THE CYSTIC DUCT; PERFORATION OF THE GALL-BLADDER.

BY ESPY WILLIAMS, M.D.,

PATTERSON, LA.

SURGEON TO ST. MARY'S HOSPITAL.

THE report of one or a few instances of disease conditions, unless to a certain degree unusual, is hardly permissible now; overburdening, as such records do, a literature already well filled. That the instance cited here deserves some distinction from the viewpoint of its rarity in addition to the virulence of the lesion will be admitted from the following notes:

In a review of 1500 operations on the gall-bladder and bile ducts made by Wm. J. Mayo before the meeting of the American Surgical Association in 1906, there were no cases of gangrenous cholecystitis. Joseph Ransohoff reports one case occurring in his practice (*Journal of the American Medical Association*, Vol. 47, p. 395). Mayo-Robson states that the condition is one which is "seldom seen." ("Diseases of the Gall-Bladder and Bile Passages," 3d edition, page 95.) and that he has "operated upon one case in the interval between the publication of the second and third editions" of his work, a period of three years. Similar, is Moynihan's statement ("Gallstones and Their Surgical Treatment"). The findings of these latter three gentlemen, Ransohoff, Mayo-Robson, and Moynihan, are of more value than those of Mayo; their practice being found in large centers with a consequent large field for emergencies, that of Mayo being in a small town, and the majority of their cases, immense in number as they are, being "walking." In von Bergmann and Bull's "System of Surgery," gangrene of the gall-bladder is given no space; and lastly in Keen's "Surgery," perhaps one of the most valuable of all the references, the lesion is but mentioned in the chapter on the diseases of the liver and bile passages, written by the Brothers Mayo.

Case.—D. R., colored male, aged 36 years, farm laborer by occupation, was seen complaining of abdominal pain, vomiting, and fever; first by my colleague, W. D. Roussel, thereafter by us both, jointly. The family history was negative. Personally the patient had always been of a hearty disposition, having suffered from no serious illness of any sort. The present illness began three days prior to consultation with suddenly oncoming abdominal pain, accompanied with vomiting and followed by fever. Home remedies were used with the customary idea that the trouble was due to "indigestion," but without result, symptoms continuing and gradually becoming more severe. When seen the condition was as follows:

Temperature, 100° F.; pulse, 100 to 110; facies pinched and indicative of pain, dorsal decubitus, thighs flexed upon abdomen. He was vomiting constantly everything taken by mouth; and small quantities of bile and mucus with stomach empty. He complained sorely of abdominal pain. The bowels were moving very frequently, the actions being thin and yellow.

Physical examination: The tongue was coated and dry. Thoracic organs normal. The urine contained a small quantity of bile but was otherwise normal. The abdomen was slightly distended and quite rigid, especially in the right upper quadrant, and there was exquisite tenderness over the region of the gall-bladder. The pain was over the gall-bladder, extending downwards and inwards to the umbilicus and through to the back. There was no pain in the right shoulder and no jaundice. Light percussion elicited a slightly dull note over an area the size of the palm, under the right ribs. Nothing could be made out on palpation.

A diagnosis of acute cholecystitis was made. The stomach was washed out and kept empty, and an ice bag applied over the painful area. The condition of the patient remained without change during the first twelve hours after admission, except that the vomiting subsided. At the expiration of this time, however, the pain suddenly subsided—to become aggravated within the hour—vomiting recommenced and the pulse increased in rapidity; indications leading to a suspicion of rupture of the organ; thereupon operation was immediately made, as follows:

Bevan's incision was used to allow of plenty of room for working. Upon entering the cavity there was found a small quantity of thin, straw-colored fluid. The gall-bladder could not at once be seen, that area being covered by dense and greatly inflamed omental adhesions. In freeing adhesions to get at the organ a small pocket, containing about two ounces of dark fetid bile, and situated above the transverse colon, was opened. After liberating all adhesions the gall-bladder was found, deeply situated and slightly reduced in size. Its walls were deeply injected and the lower third of the organ, which had been free from adhesions, was covered by thick flocculi of fibrin. The entire fundus of the bladder was gangrenous, and near the periphery of the dead area a small opening exuded thick, black bile. The organ was emptied, through a trochar, of about one ounce of thick, black, and foul-smelling bile; the gangrenous area was pinched off with forceps and the remainder of the cavity dried out. With the finger upon the outer surface of the gall-bladder a small stone could be felt, wedged within the cystic duct, and this was pushed up without much difficulty and removed. This was the only stone present. The operation was completed by leaving several forceps attached to the half of the organ which remained, introducing a split rubber tube-gauze drain within the cavity, and surrounding the whole with a large split tube, so arranged as to protect the abdominal cavity below. The wound was closed in tier fashion. The time of operation was thirty-five minutes and patient left the table in very good condition. Ether was the anesthetic used.

Postoperative treatment: The patient was elevated in bed at an angle of 45 degrees and Murphy drip given at once. He was nourished freely as soon as possible after operation, which was not long. there being no further vomiting and but little nausea, the latter being a rather unusual feature to us, as we have as a rule been troubled quite a good deal in this way after gall-bladder work. No bile whatever was discharged from the wound for three days, after which time it began flowing freely. The forceps were removed on the third day and all other drainage on the seventh, the patient being by this time in most excellent condition. Matters then progressed uneventfully, the patient being discharged from hospital on the eighteenth day, with the wound still draining bile. Discharge of bile ceased at the end of the fourth week after operation.

The stone removed was of bilirubin-calcium, very irregular in shape, and weighed but three grains. The bile found outside the gall-bladder was evidently discharged through rupture in the gangrenous area at the time of temporary cessation of pain, the latter being due to the sudden lessening of intravisceral pressure.

In all cases of gangrene of the gall-bladder it is usual to find occlusion of the cystic duct by stone. In the case reported by Ransohoff there was no stone present, and he regarded the cause here as a possible twist of the cystic duct with occlusion of the artery of supply. Stone impaction in the cystic duct may give rise either to an hydrops of the gall-bladder or to empyema or gangrene; and it is most likely, we believe, that when the latter occurs it is due to several factors; occlusion of the artery of supply by pressure of the stone, with or without concomitant inflammatory swelling of the mucous membrane, and with or without infection of the gall-bladder itself; the ideal in this respect being the coaction of all these contributors. Gall-bladder gangrene is usually regarded as an aftermath to empyema or to phlegmonous cholecystitis; in our case there was nothing of this sort present.

In regard to technique, it would seem best to leave as much of the gall-bladder as possible. It is generally recommended that cholecystectomy be done, but the necessity for this we cannot clearly make out. Such procedure very materially increases the danger to the patient so far as the operation itself is concerned, to say nothing of the increased length of time required in its performance; and it renders drainage just so much the more difficult. In the case of Ransohoff the organ was completely gangrenous "quite to the tip," and was left, being discharged as a complete slough at the end of five weeks after operation. This is a point in technique which we believe is decidedly to be favored. In work like this is, too which has to be done with all the expedition possible, we would recommend leaving forceps attached to the gall-bladder. They provide against hemorrhage from the cut or torn mucous surface, act admirably for drainage, and do away with the necessity of fixing the tube with a suture, since the support which they give prevents possible slipping of the other drainage apparatus.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE INFLAMMATORY NATURE OF INSULAR SCLEROSIS.

MANY of the mysteries of neuropathology are disappearing as more careful diagnostic analyses permit of a clearer correlation of symptoms with the appearances found after death. Thus, in the distinctions between hysteria and the organic conditions it was thought to resemble, precision has now replaced vagueness, thanks mainly to the efforts of Babinski. Spinal commotion has disappeared from neuropathology; and the traumatic neurosis is more and more appearing as a psychological state due to a fixed idea derived from the patient's surroundings previous and subsequent to his accident. The posterior column scleroses of tabes dorsalis itself, the supposed lesions of locomotor ataxia, are now shown to be merely the secondary degenerations of inflammatory foci situated on the radicular nerves, and due to a chronic meningitis, the result of syphilis. The formerly inexplicable cavities of syringomyelia are now known to be the result of broken down gliosis, probably residual Colnheim areas of embryonic life.

And now disseminated sclerosis, cases of which are even yet so often labeled "functional," on account of the remarkable fashion in which the several symptoms may disappear for months at a time, has had its primitive lesion detected. The discovery has been made, like the preceding examples, in Paris, this time at the laboratory of the Charcot Clinic, in the Salpétrière. Working with Raymond, professor of neurology in the University, Guiéva-Rajes, had the opportunity of examining, post mortem, a case of *sclérose en plaques* during an acute exacerbation of the disease. The patient had been ill for one year, and died of an intercurrent affection. In both cord and brain the typical chondroid islands were found; but in addition to these there were certain areas of different appearance, consistency, and contour. These were less sharply defined from the surrounding tissues; they had a reddish tinge, some of them quite bright, and they were softer. Under the microscope a definite inflammatory hyperemia was seen. There was a certain amount of diapedesis, and the tissue elements were tumefied and hyperplastic; the glia in particular had reacted, while the myelin of the nerve fibers was in many cases broken down into droplets; the axis cylinders were much less touched, only a few being moniliform. Here, then, were inflammatory zones; and, although the middle stage was not present, yet the extent and distribution of these and the relative escape of the axis cylinders were of the kind shown most conspicuously in multiple sclerosis, the older lesions of which the patient also presented.

The practical importance of this discovery lies in the orientation of future research in the direction of the infective agent which it would seem must be the basis of such inflammatory appearances. It will be necessary to detect the cases in the stage of invasion as is now being done with poliomyelitis anterior acuta by the organization of the Norwegian Health Service with such remarkable fruits. To this end, however, we must supplement the defective neurological training of the general practitioner who sees the slight febrile attacks which accompany the sclerogenic process of insular type. This may be done, either by improved technique on his part, or by the collaboration of neurological consultants when he himself fails to find the clear explanation of neurotic symptoms presented by his patients. The present fashion is most reprehensible, for it consists in labeling every unknown neurotic symptom as either hysteria or neurasthenia in accordance with the predilections of the practitioner and according to the violence of the patient's reactions. One of the chief difficulties of neuropathologists has been the defective clinical histories and examinations which accompany a case to the table; and this, unfortunately, is still the case. For there is too much of a tendency among neurologists to sit at a distance and promulgate opinions *ex cathedra*, and without due care to expound their reasons; and there has been too great a reluctance among practitioners to invoke neurological assistance in an intelligent way. Perhaps there have been faults on both sides; for if the practitioner showed a more intelligent grasp of neurological problems by informing himself of a few fundamentals of diagnosis and by reflecting upon his cases, the consultant would feel that he could safely go beyond mere opinions, and that he might venture to explain without fear of being misunderstood. Such collaboration in the case of the physician and the surgeon is of every day occurrence; and were it more general where the neurologist is concerned, there would be far fewer complaints of Christian Science, mental healing, and other irregular practices.

THE STERILIZATION OF THE CONFIRMED CRIMINAL.

THE problem of what to do with the habitual criminal, the idiot, and the sexual degenerate is one that has from the beginning of civilization puzzled sociologists, philanthropists, and penologists, and it is still being discussed. In these days the problem concerns less the existence of the indi-

vidual criminal or idiot than it does the prevention of the manufacture of new generations of potential criminals and degenerates. This might be secured, it is true, by the life-long incarceration or colonization of those unfit to procreate, yet justice or expediency forbids this in all cases. Society would have the right to demand this in its own protection were there no other prophylactic available, but such a method of treatment would not always be in the interest of the State, which should not be compelled to support the individual who might, if free, be able to take this burden off the State and even be a useful citizen were his power of future harm taken from him. Long ago castration was proposed as a means of rendering the degenerate innoxious, but the thought is repugnant, for even the criminal has certain individual rights which the State cannot take from him; it may deprive him of his life or his liberty for its own protection, but it is questionable whether it would be justified in subjecting him to the cruel indignity of castration.

Some years ago, when castration was proposed for the relief of hypertrophied prostate, and was actually performed in many cases, with apparent success in some, J. Ewing Mears of Philadelphia suggested ligature of the spermatic cord as a substitute operation which would be free from the obvious disadvantages of removal of the testes. It was in a way beating the devil round the bush, for the result is the same in the end, the operation insuring an atrophy of the testes, but the mental effect on the individual is less marked, the atrophy of the glands being gradual and nearly like that which naturally comes with age. Noting the result in such cases, it occurred to Mears that the same operation might be resorted to as a means of asexualization of habitual criminals and other degenerates and so preventing them from procreating their kind. In an article in the *Boston Medical and Surgical Journal* of October 21 he says that a bill was passed by the Pennsylvania Legislature legalizing this operation in certain cases, but failed to become a law through the veto of the governor. The advocates of the measure accepted this check, not as a defeat but as a temporary setback only in the battle in what its advocates justly regard as the cause of right and justice. "Back to the people it has again gone, with the assuring hope that the *vox populi*, more forcibly pronounced, if need be, will give to the citizens the right to protect themselves against the deadening influences of degeneracy, and, through the measures sought to be applied, give to the classes of unfortunate defectives, paradoxical as it may seem, their only true protection."

While Mears was advocating this measure of protection for society against the multiplication of its degenerate and criminal enemies, Belfield of Chicago was advocating in the same cause the operation of vasectomy, or exsection of the vas deferens. The advantages claimed for this operation are that sterilization is secured with equal certainty as by castration without depriving the individual of his sexual powers or of the benefit of the internal secretion of the glands. Vasotomy, or simple division of the vas, is inadvisable as a prophylactic measure, since it is remediable by a simple operation reuniting the divided ends of the vessels. Vasotomy or vasectomy has been indorsed by the Chicago Society of Social Hygiene, it has actually been employed with legal sanction in Indiana for more than two years and in several hundred cases, and has recently been legalized also in Oregon. The Indiana law provides that in the case of "confirmed criminals, idiots, rapists, and imbeciles," confined in any institution of the State, when, "in the judgment of the committee of experts and the board of managers, procreation is inadvisable and there is no probability of improvement of the mental condition of the inmate, it shall be lawful for the surgeons to perform such operation for the prevention of procreation as shall be decided safest and most effective." In most of these cases vasectomy, as the more simple procedure, would doubtless be preferable, but in the case of rapists, the only really effective remedy would be ligation of the cord, as recommended by Mears.

The movement is a step in the right direction and one that should receive the sanction of legislators in other States. The well-known case of the Jukes family shows what evils a sexually potent criminal may inflict through the years upon society, and if the State has the right to take life for its own protection it certainly has the right to safeguard the future by preventing what Mears characterizes as "the degrading influences of the continually flowing stream of transmitted pollution which saps the mental, moral, and physical vitality of its citizens."

THE SIGNIFICANCE OF THE NASAL SECRETIONS IN THE DIAGNOSIS OF LEPROSY.

At the Second International Conference on Leprosy, held in Bergen, Norway, August 16 to 19, 1909, a discussion was had in regard to the diagnosis of leprosy from an examination of the nasal secretions. An important communication on this subject was presented by Walter R. Brinckerhoff, Surgeon P. H. and M.-H. Service, Director of the Leprosy Investigation Station at Molokai. Together with W. L. Moore he has made an exhaustive study of this subject, the result being published in a Bulletin of the Public Health and Marine-Hospital Service. Sticker is supposed to have noted the theory that the nasal septum may be the seat of the initial lesion in leprosy, but George Pernet of London writes to the *Lancet* to say that the belief that leprosy began in the nose is of very ancient origin. In a general review of leprosy contributed by him to the *Quarterly Review*, April, 1903, he drew attention to the fact that Pliny mentioned the disease as commencing in the nose. Brinckerhoff quite rightly investigated only incipient cases. The majority of investigators have based their conclusions with respect to the above theory upon the study of relatively advanced cases. No more favorable field for such an investigation could have been selected than Hawaii. It was estimated by the investigators that six of every one thousand of the natives at large were lepers, and that therefore one

might expect to find a leper for every 165 Hawaiians examined. It was felt that from statistical data one might reasonably anticipate finding a moderate number of incipient cases of leprosy by a thorough examination of a number of Hawaiians, and that if the nose were the site of a diagnosable initial lesion, such as is seen in later stages of the disease, it should be possible to discover cases of leprosy in individuals who were unaware of the infection.

Brinckerhoff and Moore in making their examinations attempted to answer the following questions: (1) Will the systematic examination of the nasal septum and the nasal secretions reveal cases of leprosy which would pass undetected by other methods of examination? (2) When an early case of leprosy is under observation, can it be said that the case could have been detected by the examination of the nasal septum and the nasal secretions alone? The material on which the paper of Brinckerhoff and Moore was based consisted in the findings in the examination of the nasal septa and the nasal secretions of inmates of seven public institutions in Hawaii. In addition to these, patients were examined who presented themselves for treatment at the Free Dispensary and at the Marine-Hospital out-patient clinic in Honolulu. Further, every opportunity was taken to examine early cases of the disease to see if there were evidences of a primary nasal lesion on the nasal septum. Four hundred and sixty-seven Hawaiians were examined and the following conclusions were reached: (1) The routine examination of the nasal septum and the nasal secretions of individuals of a race with a high incidence of leprous infection did not reveal as many cases of leprosy as would be expected from statistical data had the method been an efficient one for establishing a diagnosis of the disease in the incipient stage. (2) The examination of the nasal septum and the nasal secretions is not of dominant value in confirming a diagnosis of leprosy in the early stages of the disease. (3) The conditions found in the noses of nonleprous children of leprous parents do not differ in important respects from those found in the descendants of nonlepers. (4) When it is not practicable to make a complete physical examination of all individuals of a class suspected of leprosy, the examination of the nasal septum and the bacteriological examination of the nasal secretions will prove of value by permitting the recognition of the most dangerous type of the disease, and is therefore worth while even if it does not reveal all cases of the disease in those who come under observation.

These conclusions are in the main in accord with the results of Thompson, Macdonald, Theroux, and Kolle. Brinckerhoff and Moore do not take issue with those who emphasize the importance of the nose as a site of leprous lesions, and who draw from that fact conclusions as to the prophylaxis of the disease. They recognize that nasal lesions in leprosy are of the utmost importance in this respect, but do not consider that the presence of a lesion on the nasal septum in an advanced case of leprosy has necessarily any significance in determining the site of the initial lesion of the disease.

Tonsillectomy for Rheumatism.

For many years the close association between disease of the tonsils and acute articular rheumatism has been a well-recognized fact. The appearance of an acute polyarthritis following close upon the heels of a follicular tonsillitis has been much too common an occurrence to escape notice, and many theories have been propounded to explain this relationship of two diseases clinically so different. These theories vary from the idea that the acute illness has reduced the bodily resistance to disease to the belief that the pathogenic virus of rheumatism uses the inflamed tonsil as its portal of entry, or that tonsillitis and polyarthritis are but different manifestations of the one great rheumatic disease, including in its symptoms chorea, endocarditis, and all the other diseases of the rheumatic chain. At the recent Sixteenth International Medical Congress at Budapest, Vosanyi and Lenart presented a communication on this subject in which they emphasized the necessity of careful examination of the tonsils in all cases of acute rheumatism. The authors pointed out the fact that a cursory and superficial examination of the throat was not sufficient, as in many cases of rheumatism in which the tonsils showed no superficial exudate they had found upon removing the glands a deep-seated purulent inflammation, a lacunitis. For this reason the speakers advised in every case of acute articular rheumatism an immediate and complete removal of the tonsils. In their experience such a procedure was followed by a prompt subsidence of the symptoms in the joints and a rapid convalescence of the patient. The operation of tonsillectomy during the acute febrile period of articular rheumatism appears at first sight to be a procedure of such great risk that its performance will probably not receive very enthusiastic sanction from the internists, especially those of them who have learned to use the salicylates in sufficiently large doses and have seen this prompt subsidence of the rheumatism under this treatment. When one considers, however, the serious and lifelong sequelæ of rheumatic fever, one is tempted to give ear to any treatment, no matter how heroic, which it is claimed will abate an attack of this disease. If it could be proved conclusively that rheumatic fever is due to absorption or infection from deep-seated suppuration of the tonsils, and that it can be cured by tonsillectomy, the treatment might receive many adherents.

News of the Week.

The Conference on Prevention of Infant Mortality of the American Academy of Medicine was held at New Haven, November 11 and 12, 1909. Dr. J. H. Mason Knox of Baltimore presided, and President Hadley welcomed the delegates. Dr. Knox laid emphasis on arousing public sentiment to insist upon suitable hygienic surroundings, adequate care, and proper diet for every new-born babe. Among the most important factors in this was the question of alcoholism in the parents. Dr. Clemens von Pirquet of Baltimore spoke on tuberculosis in childhood. He said that children infected during the first year usually died. The important point in infant prophylaxis was the separation from infected parents. If this could not be done the reduction of undue fondling and kissing was of importance. Dr. J. P. Crozer Griffith of Philadelphia spoke on sum-

mer diarrhea, the importance of breast feeding, and the difficulty in obtaining a clean milk supply. Dr. Alice Weld Tallant of Philadelphia urged more thorough education of young mothers and prospective mothers in the subject of infant hygiene. Dr. Caroline Hedger of Chicago urged shorter hours for working women and better sanitation and food during pregnancy. Dr. Alice Hamilton of Chicago said that the infant mortality in families of over four children was two and one-half times as high as in the smaller families. She advocated smaller families. Mr. Edward T. Devine of New York said that in the past forty years in spite of the increase in population and crowding the infant mortality in New York had decreased 43 per cent. The social economist's work consisted in efforts to reduce that portion of the mortality due to adverse social conditions. Dr. Ira S. Wile of New York, in speaking on milk depots, said that the duty of such an institution was not only the distribution of clean milk, but also the education of the mothers, especially as to the value of breast milk. The index of the value of a milk depot lay in the number of attendants who were nursing their babies. Dr. Charles P. Putnam of Boston described at length the evolution of the orphan and infant asylum, laying especial stress upon the value of the paid agent to visit children who had been put out in homes. Miss Lillian Wald of New York described the work of the visiting nurse. Dr. H. J. Gerstenberger of Cleveland also spoke on education of the mother and advocated the German method of offering prizes to the mother whose baby showed the greatest improvement within a given period. Dr. Woods Hutchinson of New York spoke on the influence of charities on infant mortality. He said among the chief causes were poverty and its children, ignorance and dirt. The doctrine of teaching contentment to one's lot was wrong. A great danger was the working of mothers just before and after labor. The founders of crêches and day nurseries must consider whether by making this possible they were doing good or harm. The giving of prizes to encourage mothers of the working class to bear large families was equally dangerous. Dr. Herman Schwartz of New York said that the reduction of infant mortality depended upon three factors—the care of the child before, during, and for at least a year after birth; the education of the parents, and the propaganda of breast-feeding and securing clean cow's milk.

At the conclusion the following was adopted:

"The task of preventing infant mortality is second to none in importance and should engage the best attention and effort of all individuals, lay and professional, and of every commonwealth and community. As looking toward the attainment of such prevention the American Academy of Medicine records its convictions in the following resolutions:

"First—Resolved that the present high rate of infant mortality is due to inherited debility or disease, improper environment and care, improper feeding, and communicable diseases, and is to a high degree preventable.

"Second—Resolved that the breast feeding of infants is, when possible, the only proper method, and that artificial feeding should never be substituted as a matter of choice.

"Third—Resolved that the reporting of all communicable diseases, especially of those commonest in society, to health boards, should be compulsory.

"Fourth—Resolved that the scientific instruction of the young in practical hygiene and sanitation and of mothers in the care and rearing of infants is an important duty resting chiefly on physicians, sociologists, school authorities, and boards of health."

As a result of the conference the American Association for Study and Prevention of Infant Mortality was organized at special meeting on Saturday morning, November 13, in Lampson Hall. Dr. F. H. Gerrish of Portland, Me., presided, and Dr. Charles McIntire acted as secretary. A constitution and by-laws were adopted and the following officers were elected: *President,* Dr. J. H. Mason Knox, Jr., Johns Hopkins Medical School; *First Vice-President,* Prof. C.-E. A. Winslow, biologist in chief of the Laboratory Research, Mass., Institute of Technology, Boston; *Second Vice-President,* Mr. Homer Folks, Secretary of the New York State Charities Aid Association; *Secretary,* Dr. Henry I. Bowditch of the Harvard Medical School, Boston; *Executive Committee,* the officers and Dr. Mary Sherwood of Baltimore, Md.; Dr. J. S. Neff, Director of Public Health and Charities of Philadelphia; Mr. Robert W. Bruere of New York; Dr. Helen C. Putnam of Providence, R. I., and Dr. John S. Fulton, Secretary-General of the International Congress on Hygiene and Demography of Washington. Baltimore was selected as the meeting place of the society. The meeting will be held in the autumn of 1910. Dr. Charles Richmond Henderson of the University of Chicago was nominated president for 1910-1911 meeting.

College of Physicians of Philadelphia.—The dedication of the new hall erected at Twenty-second and Ludlow streets at a cost of $300,000 took place on November 10 and 11. Fellows and guests of the college and candidates for associate fellowship assembled at 2 P.M. in the First Unitarian Church, at Twenty-second and Chestnut streets, and in procession marched to the entrance of the new hall, where the presentation of the new building was made by Dr. Wm. J. Taylor, Secretary of the Building Committee, and acceptance by Dr. George E. de Schweinitz, Vice-President of the College. The College was called to order in special meeting in Weir Mitchell Hall by the president, Dr. James Tyson, and addresses of greeting and congratulation were delivered by Dr. John S. Billings on behalf of the New York Public Library, Dr. Charles L. Dana on behalf of the Academy of Medicine of New York, Dr. Reginald H. Fitz on behalf of the Boston Medical Library, Dr. Wm. S. Thayer on behalf of the Medico-Chirurgical Faculty of Maryland, Dr. Robert Fletcher on behalf of the Library of the Surgeon-General's Office, and Dr. Frederick P. Henry, Honorary Librarian of the College. Associate Fellowship was conferred upon Dr. Archibald B. Macallum by Dr. A. P. Brubaker, on Dr. Oliver F. Wadsworth by Dr. George E. de Schweinitz, on Dr. Edward G. Janeway by Dr. James C. Wilson, on Dr. Charles L. Dana by Dr. Charles K. Mills, on Dr. Frank Billings by Dr. John H. Musser, on Dr. George W. Crile by Dr. William L. Rodman, and on Dr. Franklin P. Mall by Dr. George A. Piersol. Congratulatory telegrams from the Royal College of Surgeons of Edinburgh, the Royal College of Surgeons of England, and Dr. Wm. Osler were read. The dedicatory address was delivered by the President of the College, Dr. James Tyson, and the benediction was given by the Right Rev. Ozi W. Whitaker, Bishop of Pennsylvania. In the evening

a dinner attended by nearly 500 was held in the Bellevue-Stratford and toasts were responded to as follows: "The Old College and the New," by Dr. S. Weir Mitchell; "Libraries and Their Foundations," by Mr. Andrew Carnegie; "The College Library and Its Treasures," by Dr. W. W. Keen; "The College and Its Civic Relations," by the Hon. Hampton L. Carson; "The College and Its Traditions," by Dr. Arthur V. Meigs. On November 11 the hall was thrown open to public inspection and in the evening an address was delivered by Dr. S. Weir Mitchell, who discussed "The Relations of the College to the Public," and later there was an informal reception.

German Hospital Anniversary.—The celebration of the fortieth anniversary of the German Hospital of New York City was held on November 13, 1909. The German Consul General Franksen read a letter, signed personally by Germany's Imperial Chancellor, Bethman-Hollwig, saying that "his Majesty, the Emperor, has generously deigned to confer upon the President of the Medical Board of the German Hospital, Dr. Otto Kiliani, the Order of the Crown, and upon the two other members of the board, Dr. Rudolf Denig and Dr. Louis Peiser, the Order of the Red Eagle." The Imperial Chancellor's letter also said that Emperor William presented to the superintendent of the hospital a scarf-pin in the form of an eagle, consisting of a large emerald, surrounded by diamonds and pearls. President August Zinsser of the hospital also received the degree of Honorary Doctor of Medicine from the University of Giessen.

The Second International Food Congress was held in Paris, October 17-24, 1909. It was presided over by M. Reau, the distinguished Minister of Agriculture of France, who was supported by Professor Bordas, President of the Congress, and M. Paul Bolo, one of the founders. This year's Congress was devoted to the definitions of such operations as might be recognized in the manufacture of alimentary substances. The processes of manufacture and adulteration of many food stuffs and drugs were defined, and the question of what constituted a pure food and what an adulteration determined. One thing was very noticeable, namely, that it became plainer and plainer as the Congress progressed that there was hardly a substance in connection with the food supply, which was not subjected to some kind of sophistication or adulteration, and it became evident also, that if the means could be devised to prevent frauds in food, it would be an immense gain to every nation. It appeared to be quite common in some industries to employ skilled chemists with a view to reducing the quality of the food, while preserving its external appearance, and frauds of this kind were daily perpetrated. This more especially affected the poor, who were not in a position to judge of the purity of their food, or control it in any way.

Civil Service Examinations for the State and County Service.—The State Civil Service Commission will hold examinations on December 11, 1909, for the following positions: Physician, Onondaga County Almshouse, $780. Trained Nurse, State Institutions, $420 to $600 and maintenance. Applications should be filed on or before December 4. For detailed circular and application blank, address State Civil Service Commission, Albany, N. Y.

Army Medical Corps Examinations.—The Surgeon-General of the Army announces that the first of the preliminary examinations for the appointment of first lieutenants in the Army Medical Corps for the year 1910 will be held on January 17, 1910, at points to be hereafter designated. Full information concerning the examination can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice after graduation. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible. The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools, or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School. In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of the Adjutant-General on or before January 3, 1910. Early attention is therefore enjoined upon all intending applicants. There are at present eighty-one vacancies in the Medical Corps of the Army.

Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1910, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and must be received by the Secretary of the College on or before May 1, 1910. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. Thomas R. Neilson, M.D., Secretary.

College for Emmanuel Movement.—Dr. Elwood Worcester, the founder of the Emmanuel movement, states that there is a move afoot to found a college and that $1,000,000 is desired for this purpose. The purpose is to provide a place where students of medicine, theology, and sociology may work together, and thus build up what Dr. Worcester thinks the movement proves the need for—specially trained men competent to practise. A periodical intended solely to discuss and present the movement is to be established, with headquarters in Chicago. It will be called *The Emanuel Movement Bulletin*.

New Jersey Vital Statistics.—The report of the

department of vital statistics of the State Board of Health of New Jersey for the month ending October 15 shows a startling increase in the number of infant deaths in New Jersey. From infant diarrhea the number was 362, the average from this cause during the preceding 12 months was 196. The deaths at the age of one year and less were 744. The total number of deaths in the State was 2,894. The report shows a decrease in deaths from infectious and contagious diseases and an increase in deaths from cancer. These were 147, as against 137, the average for the preceding 12 months. The suicides were 41, against the average 35 for the preceding 12 months.

The Radium Institute of America was formed at a meeting in the building of the New York Yacht Club recently. The purpose is to study radium, discover any radioferous deposits in the United States, and buy quantities of it in Europe for clinical use in the United States. It is the idea of the founders to establish a clinic in connection with some New York hospital, where radium treatment will be administered free to those needing it. The institute will take steps to protect the public from the false claims of patent medicine manufacturers that certain of their remedies contain radium, and will set a standard that those desiring to deal in radium commercially will have to live up to. Dr. Charles F. Chandler was elected *president;* Dr. Robert Abbe, *vice-president*; Prof. William Hallock, *secretary*; Prof. George B. Betram, *assistant secretary,* and Dr. Hugo Lieber, *treasurer.*

Amoy Free from Plague and Cholera.—The United States Marine Hospital Service reports Amoy free from bubonic plague and Asiatic cholera.

Dr. Charles Hoffman of New York has been elected Professor of Electrotherapeutics at the New York School of Clinical Medicine and the West Side German Dispensary.

Dr. G. H. Sumner of Waterloo, Iowa, for the past eight years health officer of that city, has been appointed Secretary of the Iowa State Board of Health.

Gifts to Charities.—The new Lawrence Hospital in Bronxville, Westchester County, N. Y., has received a gift of $150,000 from the founder, Mr. W. V. Lawrence.—By the will of Mrs. Franziska Speyer of Frankfort-on-Main, Germany, $2,500,000 was left to charitable institutions. This includes $250,000 for an institution for the study of cancer

New West Side Hospital Needed.—A committee of physicians was formed recently by the West End Association of New York to report on the need of a new municipal hospital on the west side of the city. The association also determined to bring pressure to bear upon the Board of Estimate to grant the appropriation of $32,500, voted last July by the Aldermen for the establishment of an improved ambulance service for the west side north of Fiftieth street. The bill for this improved ambulance service passed the Legislature last season and was approved by the Governor and the Mayor.

Gynecological Department for Sloane Maternity Hospital.—Through the generosity of Mr. William D. Sloane the Sloane Maternity Hospital is to have a seven-story addition to be erected on Tenth avenue and used as a gynecological department. The service will be under the charge of Dr. Edwin B. Cragin, and will be used for the purpose of instruction in gynecology in the College of Physicians and Surgeons of Columbia University.

A New Free Dental Clinic was opened on November 15 at the Worth Street Italian Industrial School of the Children's Aid Society. The clinic is under the auspices of this society and the New York Dental Hygiene Council of the Dental Society of the State of New York.

The Denver College of Physicians and Surgeons has ended its existence by the unanimous vote of the board of directors and the faculty.

The Tuberculosis "Preventorium" for Children which was opened last summer at Lakewood, N. J., announces total benefactions amounting to $700,000. The institution is intended for early cases of tuberculosis and the children of tuberculous parents in poor health. It is at present located in the cottage, the former summer home of ex-President Cleveland. During the summer ninety-two children were cared for in this building. Before next summer it is hoped that the institution will be so increased as to accommodate four hundred children. Dr. Alfred F. Hess is physician in charge.

The Metropolitan Life Insurance Co. has filed with the County Clerk, at Albany, a writ of certiorari issued by Supreme Court Justice Fitts and returnable before the Appellate Division of the Supreme Court, Third Department, in the matter of its application to Supt. William H. Hotchkiss of the State Insurance Department for approval of a plan to buy land upon which to maintain a tuberculosis sanatorium. Supt. Hotchkiss gave a decision denying the application on the ground that he had no power under the insurance law to permit such use of the funds of an insurance company.

New Dorp Infants' Hospital.—At the annual meeting of St. John's Guild, announcement was made of plans to erect a new building on the site of the guild's present Seaside Hospital at New Dorp, S. I., to accommodate the guild's larger activities in the care of sick mothers and children. About $225,000, it was said, would be necessary for this purpose. The amount will be raised by subscriptions for which appeals will be sent out in December. The report of the president was read, showing a total endowment fund of $105,083 at the end of the fiscal year, a total of 44,414 women and children carried on the guild's hospital boat, *Helen C. Juilliard,* and a total of 2,696 women and children treated at the Seaside Hospital, with but 51 deaths.

The Beth Israel Hospital of New York City has just created a separate and special Surgical Department for Diseases of the Nervous System, in charge of Dr. Ernest Sachs.

The British Medical Association will hold its next annual meeting in London, in July, 1910, under the presidency of Mr. Butlin.

The Western Illinois District Medical Society held its annual session at Quincy, Ill., Ocober 30, and the election of officers resulted as follows: *President,* Dr. J. H. Rice of Quincy; *Vice-Presidents,* Dr. Waldo Fisher of Alton and Dr. J. G. Franklin of Chandlerville; *Secretary-Treasurer,* Dr. W. P. Duncan of Jacksonville.

The Grand Traverse County (Mich.) Medical Society, at its annual meeting at Traverse City, elected the following officers: *President,* Dr. W. D. Mueller; *Vice-President,* Dr. E. B. Minor; *Secretary and Treasurer,* Dr. R. E. Wells.

The Birmingham Surgical and Gynecological Society was organized recently at Birmingham, Ala., with the following officers: *President*, Dr. B. G. Copeland; *Vice-President*, Dr. Gaston Torrance; *Secretary and Treasurer*, Dr. Edward P. Soloman.

The Alumni Association of the Lying-In Hospital.—At the stated meeting of the Alumni Association of the Lying-In Hospital of the City of New York, held November 9, 1909, at the Harvard Club, the following officers were elected: *President*, Dr. Asa B. Davis; *Vice-President*, Dr. Wm. Meloud; *Secretary-Treasurer*, Dr. Joseph E. Lumbard. Dr. Albert F. A. King of Washington, D. C., read the paper of the evening, "The Significance of Posture in Obstetrics."

Obituary Notes.—Sir William Thomson, Honorary Surgeon to the King in Ireland, died on November 14, 1909, aged 66 years. Sir William was born in Scotland, was educated at Queen's College, Galway, and Queen's University. He was created a Knight in 1897, had charge of Lord Iveagh's Irish Hospital in the South African campaign and was "mentioned in dispatches." He was an ex-president of the Royal College of Surgeons, Dublin, and held numerous official and honorary offices in connection with medical and surgical activities.

Dr. Gabriel Grant of New York City died at his home, November 8, 1909, aged 83 years. Dr. Grant was a graduate of William College, in 1846, and the College of Physicians and Surgeons of New York, in 1851. After a brief service in Panama, during which he organized the first American hospital there, he returned to New York to fight the cholera epidemic, at which time he was made Health Commissioner of Newark. For distinguished services during the Civil War, Dr. Grant was awarded the Congressional medal of honor. In 1863 he became medical director of Evansville Hospital and then surgeon in charge of the United States Army General Hospital, at Madison, Ind. He was a member of many societies, including the Medico-Legal Society.

Dr. George Seymour of Utica, N. Y., died at his home, November 8, 1909, aged 70 years. A graduate of the New York University, in 1865, Dr. Seymour spent his entire later life in Central New York, in which neighborhood he was one of the best known practitioners. He was at one time Health Commissioner of Utica, and was for many years visiting gynecologist to St. Luke's Hospital. He was a member of the Oneida County Medical Society and the New York State Medical Association.

Dr. Edward J. Hogan of New York City died at his home, on November 7, 1909, aged 71 years. He was a graduate of the College of Physicians and Surgeons in New York, in 1867, and was a member of the New York Academy of Medicine, the Medical Society of the County of New York, the New York State Medical Association, and the American Medical Association.

Dr. Cleophas Joseph Ducate of Cottonport, La., died at his home, October 26, 1909, aged 59 years. He was a graduate of the Medical Department of Tulane University in 1875, and one of the most prominent physicians in Louisiana, having been president of the Louisiana State Medical Society and a member of the Board of Supervisors of the Louisiana State University.

Dr. George Hunt of Bridgewater, Mass., died at his home, October 24, 1909, aged 54 years. He was a graduate of the Boston University School of Medicine.

Dr. Charles F. George of Goffstown, N. H., died suddenly, November 3, 1909, aged 68 years. He was a graduate of the College of Physicians and Surgeons of New York, in 1865, and was a member of the Hillsboro County and New Hampshire Medical Societies.

Dr. John Harvey Davisson of Los Angeles, Cal., died at his home, November 1, 1909, aged 60 years. He was a graduate of the College of Physicians and Surgeons of Baltimore, in 1876, and a former president of the California State Board of Health. He was a member of the Los Angeles County Medical Society, the California State Medical Society, Southern California Medical Society, American Medical Association, and was one of the organizers of the California Hospital.

Dr. Augustin F. Anderson of Lowryville, S. C., died at his home, November 2, 1909, aged 89 years. He was a graduate of the Atlanta Medical College, in 1845, and was a member of the Chester County Medical Society and the South Carolina Medical Association. In 1878 Dr. Anderson served one term in the South Carolina State Legislature.

Dr. William Thompson of Little Rock, Ark., died October 26, 1909, aged 80 years. He was a graduate of the University of Tennessee, in 1856, and a member of the Pulaski County and the Arkansas Medical Societies.

Dr. R. L. C. White of Nashville, Tenn., died at his home, October 30, 1909, aged 65 years. Graduated from the Jefferson Medical School, in 1869, he practised his profession for a few years in Lebanon, Tenn., and then retiring to become editor of the *Lebanon Herald*, he became one of the foremost literateurs of the South.

Dr. Harriette C. Keatinge of New York City died at her home, November 12, 1909. She was a graduate of the New York Medical College for Women, in 1879. After practising in Louisiana, Dr. Keatinge came to New York, in 1885. She was a member of the County and State Homeopathic Societies and the American Institute of Homeopathy.

Correspondence.

MOVING PICTURES OF MICROSCOPIC OBJECTS.

To the Editor of the Medical Record:

Sir:—In the last few weeks there have been various articles in the daily press, emanating from London and Paris, giving credit to a Frenchman for inventing a most wonderful machine—a cinematograph—by which moving microscopic pictures can be taken and then projected on the screen.

I wish to call attention to the fact that this machine is nothing new; that I invented it some thirteen years ago, and that I demonstrated the same as far back as 1897 to a private audience, among whom were Drs. Wm. N. Katzenbach, G. Lenox Curtis, E. Bradley, and J. H. Gunning, Mr. Hopkins, editor of the *Scientific American*, and many others. On July 31, 1897, the "micromotoscope," as I named the machine, was described and illustrated in the *Scientific American*, and some time later in *Photograms*, a London periodical, where due credit for the invention was given. Under my direction, the machine was later demonstrated at the Grand Central Palace at the Trained Nurses' and Pure Food Exhibition, where pictures of the circulation of the blood in the web of the frog's foot, rotifers in stagnant water, an ameboid leucocyte, typhoid germs, and many others were shown to over 10,000 people who attended the exhibition.

Since that time my original rough apparatus has been greatly improved and simplified, so that now moving mi-

croscopic pictures for scientific purposes can be easily taken. The latest demonstration of this machine took place at Chicago, June 17, 1909, when various photographs of microscopic objects taken with the micromotoscope were shown to an audience of 500 physicians of the National Eclectic Medical Association. As further evidence of my invention, I refer to the "Standard Dictionary" of the 1905 edition, where in defining the micromotoscope due credit is given me as its inventor. I, therefore, claim the credit of being the first to conceive this idea and perfect the machine.

Robert L. Watkins, M.D.
20 West Thirty-fourth Street.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE "NATION AND THE TROPICS"—ANESTHETICS—INFECTIONS OF INTESTINE—THE INDIAN CONFERENCE ON MALARIA—THE KING AT NORWICH HOSPITAL—COMMITTEE ON AFRICAN AND TROPICAL DISEASE—QUEENSLAND TROPICAL SCHOOL—MAGNIFIED MICROBES—LISTON PRIZE—OBITUARY.

London, October 29, 1909.

Your Ambassador presided on Tuesday at the opening of the session of the School of Tropical Medicine, and in introducing the lecturer, Professor Osler, spoke of him as an excellent example of what America could do with a Canadian when he was caught young. McGill University brought him out; he reached the climax of his fame at Johns Hopkins, and then retired into his dignified repose at Oxford.

Dr. Osler then delivered the inaugural address, subject "The Nation and the Tropics." He said the white man had partitioned one hemisphere, two continents, and a large part of a third. France controlled a tropical population of 36,000, Germany 12,000, the United States 800,000, the United Kingdom 330,250,000. The responsibility of empire had always been the making of a race. In dealing with subject races there were two problems—order and health. The first seemed a specialty of the Anglo-Saxon. If there were doubts about manners, morals, or religion, there were not about giving good health and freedom from pestilence and famine. Much had been done in the last twenty-five years in acquiring knowledge of the causes of diseases, but the task of prevention was only just begun. There were 400,000 deaths from fever in the Punjaub and a quarter of the total population suffered from malaria. The first clear demonstration of insect-borne disease was made by Manson and had greater significance than any other discovery. One was at a loss to know which to admire most, the accuracy of the experiments or the heroism of those who made them, all the time playing with death, some paying the penalty. In nine months Havana, the home for centuries of yellow fever, was cleared after the American occupation, and other great cities have had the same experience since. The possibility was in sight of exterminating one of the world's greatest plagues, which had cost millions of lives and at intervals stopped the commerce of half a continent. The lecturer then went on to tell the story of the Panama Canal; after which he said the three most important tropical diseases did not kill so many now as the two diseases of temperate climates—pneumonia and tuberculosis. To make our knowledge effective the problem to-day was organization. There ought to be an imperial tropical institute to look after the health of the empire with a highly trained staff ready to be sent hither and thither. This was no dream; the most useful work in British medicine during the last twenty-five years was the result of the Liverpool Tropical Missions. The possibilities existed in London for the greatest school of tropical medicine in the world if only London would rise to the occasion. For other missions millions were contributed; it was not too much to ask endowments for this. It behooved us to see that we were well equipped for the second great task of empire, to give the teeming millions that great blessing and necessary of life, health.

Your Ambassador said the lecture had impressed him with the madness of nations, which had great tropical dependencies and did not cultivate tropical medicine. They were blind to their interests—perhaps to their safety. There was no tropical sea where the British flag did not float, scarcely any land into which their people had not penetrated. Like Professor Osler, he had seen a flag which carried self-government sent to the most beautiful island of the Antilles, one of the most beautiful in the world, in danger of being driven out by the yellow flag of the pest house. To-day on the Panama there were 40,000 soldiers of industry attacking a task more colossal than any in the history of industry, working under conditions due to the study of tropical medicine. There was room for spending a good deal more money on that school.

The chairman of the committee of the school proposed a vote of thanks to the Hon. Whitelaw Reid, American Ambassador, for presiding, which was seconded by Sir P. Manson and carried with acclamation.

The paper at the Medical Society of London this week was by Dr. F. W. Hewitt, who discoursed on the need for legislation in regard to anesthetics and laid down the lines on which he though it ought to take place. I may summarize the paper as a plea that only duly qualified medical practitioners should be permitted to employ anesthetics. The contention is a reasonable one, in view of the frequent fatalities, not a few of which might, argued Dr. Hewitt, have been averted had a medical man been present. In regard to restriction, the position of dentists has to be considered and a plea has been put forward on their behalf. But Dr. Hewitt held that the restriction would raise the status of the dentist and strike a decisive blow at quack dental practice. He had made inquiries as to the conditions of dental practice in forty-eight towns, with a combined population of 2,138,130, and found in them one registered dentist to 4,435 persons. The majority of dentists had no partners nor assistants, and it is conceded generally that single-handed operating and anesthetizing is reprehensible. The only proper recourse is to call in a medical man.

There is now before the departmental committee of the Home Office a bill which deals with this subject. It proposes to make it a penal offense for any other than a registered medical practitioner to administer any drug or substance, whether solid, liquid, or vaporous, whether pure or mixed with another substance, for the purpose of producing unconsciousness during any surgical, medical, obstetrical, or dental operation. Exemption is made in favor of those acting under the immediate supervision of a registered practitioner and students under the supervision of teachers of dentistry. An outcry has been made in some quarters as to the expense which would be caused by the proposed restriction. But if the additional work were thrown on local doctors the question of fees would settle itself.

At the Hunterian Society Dr. S. Martin delivered the Hunterian lecture on the 13th inst., his subject being "Infective Processes in the Intestine." He spoke of the treatment of their effects and stated that vaccines of *Bacillus coli* gave remarkable results in some cases, but of course did not invariably succeed. He mentioned two cases of thrombosis in which excellent results had been obtained. He further said large doses were dangerous and gave rise to local reaction with swelling. His dose was from one to four million dead bacilli. Yet the rôle of *B. coli* was to counteract putrefactive bacteria. Both this and the lactic acid bacillus prevented putrefaction in boiled milk. Injected into the tissues it was pathogenic. Septicemia following enteric fever or cholera was due to *B. coli*, which set up an irregular type of illness, which might improve and relapse. Acting indirectly, it might cause disease.

The Imperial Malaria Conference which sat at Simla has concluded its work with the following recommendations: The appointment of a scientific investigation committee to be linked up with organizations in each province for dealing with (a) the distribution of malaria in India, (b) the epidemiology and endemiology of the disease, (c) the action of quinine and other remedies. 2. Determination of exact causes of death. 3. Practical measures for (a) extirpation of anopheles, (b) minor drainage operations, (c) restriction of wet cultivation near towns where a source of anopheles, (d) the introduction of fish into collections of water, (e) oiling small collections of water which cannot be filled up. 4. Detailed recommendations as to the use of quinine, with reference to which the conference advises that it be sold in quantities sufficient for a case as well as in small packets by all possible agencies, and special efforts made by a liberal commission to induce private vendors to engage in its distribution. 5. Education—(a) committees of officials and nonofficials under the new councils to spread a knowledge of the disease and the measures to take against it among the people. (b) this also to be taught in the

schools. 6. The local governments should be invited to make annual assignments of funds for malaria investigation and prevention.

The King on Monday laid the foundation stone of the new block for septic and infectious cases of the Norfolk and Norwich Hospital. This is the first of several buildings contemplated for the extension of this hospital, which dates from 1772, but the erection of the present building was begun in 1879, when His Majesty, then Prince of Wales, laid the foundation stone. The King, in reply to the address, referred to this visit and also a subsequent one in 1884, as well as his long residence in the county, and added that no greater blessings exist for the poorer classes than institutions which provide relief and care in illness, and any movements to extend them would always have his warmest support.

The Mansion House appeal on behalf of St. Bartholomew's Hospital, which was postponed in order not to conflict with the Sunday and King's Funds collections, has been issued this week. It is endorsed by the Prince of Wales, as president, the treasurer, the Lord Mayor, the Bishop of London, and many others. Old Barts is endowed and does not often ask for aid from the public, but in these sad times its investments have yielded less, while expenses have increased. We look upon it as a city institution, for it has remained within the city boundaries for 800 years, and its work is known throughout the world. The bank and the great city companies are heading the list of contributors.

The Colonial Secretary has appointed the advisory committee on medical sanitary questions connected with tropical Africa. It is to consist of Sir Patrick Manson, Sir R. Boyce, Drs. W. T. Prout,. Theodore Thompson, W. J. Simpson, and J. K. Fowler, with three civil servants from the Colonial Office, though of what use these three may be, except the one to be secretary, it is not easy to guess.

The Medical Officer of the London County Council, in a further report on the epidemic of scarlet fever last June, says no reasonable doubt can be entertained that it was due to the milk of a particular farm. But how that milk became infected is not quite so clear. It has, however, been shown that when the milk began to show infectivity there was added to it the milk of three recently calved cows, the calf of one of which died after being suckled by the mother for three or four days. Further, all three of these cows and some others on the farm were at the later inquiry shown to be affected with the condition known as "Hendon disease," since that eruption on the udder and teats was described in 1885 on some cows at Hendon by Sir W. Power.

Dr. Anton Breinl of the Liverpool Tropical School, who was a member of the yellow fever expedition to Brazil of 1905, has been selected to go to Queensland and take charge of the newly formed tropical school of medicine there.

The Liston prize of the Edinburgh Royal College of Surgeons has been awarded to Mr. Robert Jones of Liverpool Royal Infirmary.

A Paris correspondent writes that M. Comandon (whose work on the ultramicroscope is well known) has reproduced magnified images of microbes on the cinematograph and shown them "moving, feeding, and fighting." The trypanosomes of sleeping sickness "were displayed on the screen as large as eels."

Dr. Edward Clapton, who died in his eightieth year on September 28, had been retired for several years, but had filled during a long life a great position in the world of medicine and letters. He was a St. Thomas's student. In 1857 he took the M.D. Lond. and F.R.C.P., but the following year, having been appointed assistant physician to his hospital, he joined the sister college, of which he was elected Fellow in 1870. He remained on the staff of his hospital and a teacher in the school until his retirement, and elder members of the profession retain his memory as a successful and reliable consultant and an amiable, most lovable man. Besides medicine he was deeply interested in Biblical studies and wrote on some abstruse questions which critical authorities considered he decidedly elucidated. He published a volume on the "Precious Stones of the Bible," of which he made a collection of specimens, as well as other interesting articles, for his museum. He also published a "Life of St. Luke," a subject most congenial to him. He was a member of various learned societies and consulting physician to many hospitals and other charitable institutions.

THE EIGHTY-FIRST CONGRESS OF GERMAN NATURALISTS AND PHYSICIANS.

(From Our Vienna Correspondent.)

POSTAPPENDECTOMY SYMPTOMS—TUBERCULIN IN PROGRESSIVE PARALYSIS—RETROGRADE AMNESIA—CEREBRAL ARTERIOSCLEROSIS—THE OLFACTORY CENTER—ALCOHOL IN FACIAL NEURALGIA—CENTRAL VISION AND THE CORPUS CALLOSUM—CHEMISTRY OF THE BRAIN—NODULAR KERATITIS—RECESSUS ETHMOLACRYMALIS—OTITIS MEDIA AND THE SENSE OF SMELL—INFECTION OF LABYRINTH—OTOSCLEROSIS.

SALZBURG, September 26, 1909.

In the section for surgery the Vienna surgeon, Dr. M. Jerusalem, spoke on discomfort following appendix operations and said that the patients often complained afterwards of serious discomfort similar to that from which they had suffered before the operation. We were in the habit of blaming all postoperative discomforts in the region of the wound to peritoneal adhesions. By means of painless manipulation of the abdomen the peritoneal adhesions might be broken down and firm, hard scars softened. There could, however, be no doubt that nervous and vasomotor injuries occurred from the insult to the peritoneum and might result in the most anguishing postoperative symptoms. The redness of the skin remained, in the right renal region pain was felt, and without there being any evidence of disease of the right kidney blood was found in the urine. These postoperative symptoms were found more often after the mild interval operations with relatively few appendicial symptoms than after operations during an acute attack of appendicitis. The routine excision of the healthy appendix "when the abdomen is open" might better be omitted. The chief point was prophylaxis. Modern functional after-treatment (early getting up) might prevent the formation of adhesions, as well as nervous and circulatory lesions.

In the section on neurology and psychiatry Professor Wagner-Jauregg of Vienna reported on the injections of tuberculin in progressive paralysis. Basing his work on the long-known fact that chronic brain diseases might be improved by an intercurrent acute febrile infection, for example by a sudden erysipelas, Professor Wagner made a systematic study of the effect of injecting large doses of tuberculin into paralytics and as a result saw the process come to a standstill.

Dr. K. Neisser, director of the Bunzlaw Provincial Sanitarium, reported two mental cases. The first case was in a woman of sixty, whose severe psychosis dated back eight years to the bite of a viper. This was the first case of the kind known. Considering, however, that the symptoms were such as one saw as a rule only following intoxications, the etiological connection could be stated definitely and on these grounds she had received accident insurance. The second case was one of epileptic stupor with retrograde amnesia in a case of combined hysteria and epilepsy and was of interest in that memory was lost, not only for the time of the attack but during the time immediately preceding the same. Cases had often been observed with retrograde amnesia for a few hours or days. In this case, however, the loss of memory was complete for a period of two and a half years.

Arteriosclerosis and its relation to brain disease was the subject on which Dr. Alfred Lustig of Franzenbad spoke. He called attention to the unquestionable increase in brain diseases resulting from arteriosclerosis. This fact was of especial significance, as cerebral arteriosclerosis was not merely the physiological representation of a malady peculiar to men of advanced age, but also attacked men in the best years of their usefulness. Sudden affections of the power of speech, even complete dumbness, word deafness, mind blindness, loss of the power to read or to write, even outspoken psychoses usually associated with paralysis of various members, sudden death from apoplexy, as they appear daily in the reports of the newspapers, were the disastrous sequellæ of cerebral arteriosclerosis. Early diagnosis, as it is possible to make it in this day, and proper scientific prophylaxis and therapy, were able not only to relieve but to postpone the onset of these conditions for many years.

The olfactory center was the subject of an address by Dr. Halsehek of Gräfenberg. He said that this center was much less developed in man than in many mammals, and that there existed a great difference of opinion as to where the sense of smell was located in the human cortex. In order to clear up this uncertainty he had studied with care the olfactory lobes of

many mammals, and had discovered a new cerebral center for smell in the anterior end of the so-called lobus pyriformis. This olfactory center was absent in the lower mammals among which other portions of the brain were greatly developed for the sense of smell, as, for example, the hippocampus. Among the higher mammals, however, as in the dog, and especially in many bears, it was present. The same structure could be found in the human brain, in the so-called uncus of the temporal lobe. The author considered this portion of the brain to be the olfactory center in man as well as in the lower animals and pointed out that this fact coincided with previous clinical and anatomical observations.

Privat Dozent Dr. A. Blum of Vienna spoke on the subject of alcohol injections for facial neuralgia and reported the results of four years' experience with the injection of 80 per cent. alcohol, sometimes at the point of exit of the trigeminal nerve from the base of the skull, sometimes in the peripheral nerve itself. The results were more lasting than either excision or tearing out of the nerve, the relief having lasted in his twenty-four cases from ten to seventy-two weeks.

In the section on physiology Professor S. Exner of Vienna spoke on the association between the corpus callosum and central vision. The Japanese student, Kisaku Yoshimura, had carried out some investigations under Professor Exner's directions in the Vienna Physiological Institute in order to learn the connection between the corpus callosum and central vision. It had already been shown by Imamura that the hemianopsia caused by destruction of one hemisphere in a dog would disappear again in the course of days or weeks under the mediation of the fibers in the corpus callosum. It did not disappear, however, if, besides destroying the hemisphere, the corpus callosum was cut through and the returned vision again disappeared when the corpus was cut. Yoshimura had now shown that it was the posterior fibers only which were involved in this and that the action was absent if the anterior part of the cortex only was injured. The fibers were recognized as belonging in all probability to those running to the occipital lobes and not those from the optic ganglia to the corpus callosum.

In the section for applied chemistry S. Frankel spoke on the chemistry of the brain. By extraction experiments the author had learned that the human brain was two-thirds composed of extractive substances, and but one-third of albumin. The former varied in the same species of animal with the development of the individual, and in different species it differed tremendously; the youthful brain was relatively poorer than the adult one. The great variety of these extractives (lipoids) and their variations in different organs and animals, might possibly throw some light on their significance for specific immune sera.

In the ophthalmological section Dr. E. Wahli of Frauenfeld reported on nodular keratitis, which he said his researches proved was tuberculous. He made this statement on the grounds of exact histological and clinical investigations and positive general and local tuberculin reactions, from which he stated that this previously obscure disease was proved to be tuberculous. He reported a case.

In the section of diseases of the nose and throat, Professor Dr. L. Grunwald of Munich, by means of many drawings, photographs, and anatomical preparations, described the discovery of the recessus ethmolacrymalis, a previously unknown cavity between the anterior part of the ethmoid bone and the orbit, and explained its development. From the history of a patient the author demonstrated the significance of this cavity in diseases of the neighborhood and for the proper interpretation of a previously obscure syndrome.

The influence of otitis media on the sense of smell was the subject of a report by Professor Viktor Urbantschitsch of Vienna in the section on diseases of the ear. He stated that loss of olfactory sense could follow abscess of the temporal lobe following otitis media. In such a case he found a continuance of the olfactory lesion after healing of the abscess, from which he sought to learn to what extent ear inflammations and the sense of smell were associated. In thirty cases of unilateral otitis media he found twenty-two to have affections of the sense of smell in the nostril on the side of the diseased ear, in sixteen a decrease and in six an increase of olfactory sensitiveness. That there was a real association was shown by two patients in whom the loss of smell sense noted during the otitis media improved when the latter healed.

Dr. Otto Mayer of Gratz demonstrated by many pictures of histological preparations that an inflammation of the labyrinth could occur during the course of an otitis media by diffusion of metabolic products found in the middle ear through the fenestal membrane. This was quite similar to the spread of a conjunctivitis to the eye through the cornea.

Dr. Emil Fröschels of Vienna reported the discovery of a new symptom which appeared to serve for the diagnosis of otosclerosis, a condition which previously it had often been difficult to diagnose definitely. The symptom depended upon the observation that otosclerotics stood delicate manipulations of the external auditory canal much more easily than other patients. Careful investigation of many of these cases showed that the ticklishness was much reduced. The author believed that with the aid of this new symptom it would be possible often at the very first examination to differentiate otosclerosis from harmless forms of ear disease.

Progress of Medical Science.

Boston Medical and Surgical Journal, November 4, 1909.

Prognosis and Treatment of Renal Tuberculosis.—R. F. O'Neil says that the prognosis depends considerably on the promptness with which the diagnosis is made and the accuracy with which the indications for operation are met. Statistics of various authors are presented. It would seem that the prognosis in early unilateral tuberculosis is very good, and also very good in advanced cases when confined to one side. Mere climatic and hygienic measures are of value only if after nephrectomy, cystitis persists. Before operation they are a waste of time. At autopsies caseous nodules are found which may never have given symptoms, but they are latent and the cases cannot be considered as cures. There is no evidence that tuberculin is of value, though it may prove a useful weapon in bilateral tuberculosis. In general, the condition should be treated by removal of the kidney and the ureter if involved, assuming that there are no contraindications in the condition of other organs. Obstinate secondary bladder involvement calls for the use of the Roosings method of instilling 50 c.c. of a 6 per cent. aqueous solution of carbolic acid at 95° F. after the bladder has been cleaned of pus. Morphine is called for, as the pain is intense. Instillations are made daily at first, but the interval is gradually lengthened as the urine gets clearer to every three or four days.

Direct Transfusion of Blood.—A comparison of methods is made by J. C. Hubbard and A. B. Kinpton, who commend the cannulæ of Levin and Elsberg. In general, they find the operation conditioned in difficulty on the situation of the arm. After the cannula with the radial artery has been introduced into a slit in the side of the vein and tied in place, the authors find it advantageous to divide the vein distal to the cannula to give more slack and to prevent the bending of the vessels at an acute angle as they come out of the two incisions. The disadvantages of the Crile method are that the vein is generally of greater caliber than can be used. The walls of the veins have to be folded on themselves in order to pass through the cannula, thus reducing the size of the opening through which the blood is to flow. The great objection of this latter fact is the difficulty of determining whether or not blood is actually passing from donor to recipient.

New York Medical Journal, November 6, 1909.

Intramuscular Injections in the Treatment of Syphilis.—V. C. Pedersen prefers a 66 2-3 per cent. of the salicylate of mercury in liquid albolene combined with an hydrous lanolin. The mixture is of a molasses consistency, and does not require to be shaken before using. One c.c. of this solution contains 10 grains of the salt. The less the bulk of the fluid injected the less is the pain. The gluteal muscles should be relaxed before the injection is made. Embolin will be less common with the mixture advocated because it is semisolid and coheres strongly. A larger needle is necessary, however, and this increases the tendency to bleeding, but this is a trivial matter.

The Influence of Hydrogen Peroxide on Hydrochloric Acid Secretion.—E. H. Goodman finds this remedy an excellent one in hyperchlorhydria. From one to two drams of a 3 per cent. solution in a glass of water. Weaker solutions seem to be inefficient. The remedy is best taken after meals. The above dose may be doubled if necessary. The claim of the author as to the reduction of acid excess is substantiated by the results of chemical tests of stomach contents before and after taking the remedy.

Attic Suppurations.—M. J. Ballin makes a plea for the more frequent employment in suitable cases of intratympanic operations in chronic middle ear suppurations. Cases which are complicated with the formation of granulations and polypi arising from the upper tympanic space, and in which the probe reveals the presence of necrosis of the ossicles or of the surrounding bony walls, usually require operative interference. In the chronic suppurations in which granulations and polypi are seen to protrude into the tympanic space, it is most essential that they be removed. For this purpose, one may resort to the wire snare, to the various sized ring knives, or to the small spoons or curettes bent at different angles. As these various manipulations cause quite some pain, it is generally advisable to instill a few drops of a 10 or 20 per cent. solution of cocaine into the ear for from five to ten minutes. Or if the growths are very large we may inject a 1 per cent. solution of cocaine directly into them. The writer has also found the injection method of Neumann, for local anesthesia, most excellent for the removal of these polypi, as well as for all intratympanic operations. Having thoroughly removed the granulations of polypi, it is well to touch the roots with a little trichloracetic acid, and then to allow the patient to use a mild antiseptic instillation such as hydrogen peroxide for some time. In some cases in which the granulations are very small, touching them with trichloracetic acid, pure carbolic acid, etc., is sufficient to make them shrink. If the growths have disappeared and the discharge still continues we must resort to the local medication of injection as already detailed. The author is convinced that attic suppuration is the causal factor in keeping up many ear discharges. If after the exenteration of the upper tympanic space the discharge continues unabated for several months, resort to the radical mastoid operation may be called for.

Journal of the American Medical Association, November 6, 1909.

Gastric Cancer Diagnosis.—P. K. Brown, San Francisco, says that it is surprising that the fact presented by Rudolf Schmidt from Neusser's clinic in 1906, regarding the presence of the Boas-Oppler bacillus in the stools in cancer of the stomach, has excited so little attention in the profession. Schmidt found that the bacterial examination of the stools by the Gram stain under normal conditions revealed very few organisms, the Gram-negative colon group vastly outnumbering any Gram-positive organisms. A stool that with Gram's method showed bacilli of uniform size far outnumbering other organisms, he regarded as Gram-positive. Occasionally a stool is encountered in which Gram-staining organisms, chiefly cocci and nonuniform bacilli, are found in large numbers, and these are not Gram-positive in the sense that the predominating organism is a well-staining uniform one. He claims that many organisms have been mistaken for the Boas-Oppler one, which has served to put the relation of the Boas-Oppler organism to cancer in a considerable doubt. Certainly hereafter all the deductions about the relation of the organism to cancer must be made on an absolute determination of what is the Boas-Oppler bacillus. Brown's own findings thus far in a series of cases of cancer of the stomach, in which the diagnosis was confirmed by operation or autopsy, have failed to show any cases in which the stools were other than Gram-positive, and in no case of acute or chronic ulcer has the stool been other than Gram-negative on repeated examination. He gives a brief abstract of four cases in which the bacteriological examination was made, but not depended on, in the clinical diagnosis of ulcer of the stomach, but in each of which the operation or autopsy confirmed the finding of the diagnosis which would have been made by trusting in the bacteriological examination. The clinical diagnosis of ulcer was entirely justifiable from the symptoms and hereafter he will take more interest in this test than heretofore.

Serum Diagnosis of Syphilis.—Hideyo Noguchi presents the analysis of 2,406 blood serums by the complement fixation test. The main difference between his system and the Wassermann system lies in the use of a known quantity of amboceptor in his test, while in the Wassermann method we meet the difficulty that human serum may contain anywhere from 0 to 20 units of natural hemolysin (amboceptor) capable of inducing hemolysis with the sheep's corpuscles. With his method also he claims it is possible to preserve the various reagents, such as antigen, amboceptor, and, if necessary, complement, in stable form dried on filter paper and then titrated ready for use. The quantity of blood necessary for the test is very small, only a few drops, inactivation is not necessary, and the blood must not be fresh. The ease with which certain of the reagents can be produced is the factor; in his system human corpuscles are used and the patient's own cells can be utilized. In all other methods it is necessary to have a fresh supply of corpuscles always on hand. He shows the results in 244 cases of known syphilitic or metasyphilitic conditions in which the Wassermann method and his are contrasted, which he thinks prove his test as reliable as the other and its greater delicacy. The greater percentage of positive reactions which his tables show is not due to undue sensitiveness of the method, but to the elimination of the error of using too great a quantity of amboceptor.

The Precipitin Tests for Syphilis.—H. S. Wieder and E. M. L'Engle have studied the precipitin reaction tests which have been proposed as substitutes for the Wassermann and other deviation of complement tests, and report their experiments. Five different sets of experimnts were performed on 54 individuals. The following aqueous solutions were employed: 1 per cent. aqueous taurocholate of sodium, 1 per cent glycocholate of sodium, 1 per cent. lecithin, 1 per cent. taurin, and distilled water. Eleven patients suffered from secondary syphilis, 5 from tertiary syphilis, 17 from paresis, 1 from tabes, and the rest were divided nearly equally between sufferers from various nonspecific disorders and practically normal individuals. Altogether 253 observations were made, but only those made before the end of 18 hours were utilized, the others being found unreliable. The experiments consisted in adding one drop of serum to seven drops of the reagent and observing the effects some hours later. In the majority of cases the experiments were set up alternately by one of them and the observation made by the other, the one observing having no knowledge of the case studied. With the taurocholate, glycocholate, and taurin solutions a positive reaction consists in the formation of a flocculent tenacious precipitate, not dissolving on agitation, while with the lecithin the positive reaction is one in which the emulsion separates with dense central clumps and clear or almost clear supernatant liquid. In all the series the parasyphilitic cases gave most positive results, but the differences in other respects were not such as to indicate any great diagnostic value for the tests. This conclusion is also reached by the authors, as they say none of these tests give the practitioner a short road to the diagnosis of syphilis. They may be of some scientific interest, especially on account of the high proportion of positive results in parasyphilitics, but the proportion in nonsyphilitics is too high to make the test of any value.

Pyloric Stenosis.—S. Stillmann gives an analysis of the reported cases of pyloric stenosis in infants which he has collected as occurring on the Pacific Coast. He does not entirely agree with Koplik in classing it so closely with pyloric spasm. The latter, he thinks, occurs later than the hypertrophic stenosis and is the condition present in those cases of alleged hypertrophic stenosis in which the symptoms begin after the first two months or so of life and in which the patients recover under medical treatment. True stenosis is, he thinks, the result of a congenital abnormality of development. It is incomprehensible that such a tumor should be the result of any postnatal irritation in the first two or three weeks of life. He believes that in true stenosis there is always, or almost always, a tumor, and if more frequently sought for, especially with an anesthetic, it will be found. Infants stand an anesthetic as well as adults if not better. In the less-pronounced cases, however, in which the lumen of the pylorus is less altered, the tumor may not always be felt and may disappear under an anesthetic. It is not well enough appreciated also that infants stand surgery very well, especially in the first six weeks of life, and he disagrees with those who would reduce the child's vitality by starvation and trust to lavage, etc. The total number of cases he has to report is 27. The records were obtained by letters sent to representative physicians and surgeons who have favored him with the history of their cases. None of the cases dated prior to that of Barbat in 1904. Of these 27 cases the diagnosis was verified by post mortem or operation in 15. Of the remaining 12, the diagnosis in 7 was made by men of the highest standing and experience; in one of these operation was urged, but re-

fused, and the child died. In 2 others a tumor was present. The remaining 4 he classes as doubtful. One of the infants is dead and one is a very recent case. Eleven patients were operated on, of whom 9 recovered and 2 died; 16 were treated medically, with 9 recoveries and 7 deaths. Subtracting the 4 doubtful cases and 1 in which no tumor was found at operation, there are left 22 undoubted cases of hypertrophic stenosis. Of these, 15 infants recovered and 7 died; 10 were operated on and 12 were treated medically. Of those operated on 8 recovered and 2 died. Of those treated medically 6 recovered and 6 died. Of those recovering after operation all are now healthy children. Of the 6 survivors of medical treatment 1 at the age of 5 years is compelled to live on liquid diet, 2 are very recent cases, having been under treatment, 1 one month and 1 ten days. One child at the age of 5 months weighs 7½ pounds and operation has been considered but not advised. One at 6 months weighs 13½ pounds, and 1 at 7 months weighs 9 3-7 pounds. The 10 patients treated surgically were operated on by seven different surgeons, none of whom, he feels sure, would lay claim to more than average skill and experience. The results are less the sequel of surgical technique than of intelligent and enlightened judgment on the part of medical practitioners. So far as the operation of choice is concerned it seems to Stillman to need no argument to prove that posterior gastrojejunostomy, while not ideal, succeeds and can be done more safely and quickly by the average surgeon than any pyloroplastic operation. Whether the pylorus in some cases recovers its patency and the artificial opening closes or not does not affect the main issue in his opinion. The babies so treated are within a month in normal condition, while most of the medically treated ones are still suffering. Stillman believes that cases of pure pyloric spasm ought to be in most cases differentiated from all but the mildest cases of hypertrophic stenosis and that they should probably never be treated surgically. He says: "I think that medical treatment should be given while there is a reasonable doubt as to the diagnosis, in cases of hypertrophic stenosis plus spasm, in which no tumor can be demonstrated, but thereafter medical treatment should not be persisted in if the infant is losing ground; that control of vomiting in these cases does not mean cure, and that gastroenterostomy does not mean cure in at least nine out of ten cases, and that it is not so much a question of necessary operation as of unnecessary suffering, danger, and death."

The Lancet, October 30, 1909.

A Recent Case of Typhoid Spine.—C. J. Arlson reports the case of a man of 28 years who went through a typhoid course and who three months later was seized with severe pain in the back. The pain returned three days later, and during subsequent days he suffered from pain in the back in getting out of bed each morning, the pain wearing off after exercise. The condition grew steadily worse, and he was finally readmitted to hospital. In the next few weeks there were two periods of high fever. In three months the pain had practically ceased, but there was a marked rigidity over the dorsilumbar spine, pain on jarring the spine, and deep tenderness over the transverse processes of the first and second lumbar vertebræ. A radiograph showed much thinning of the intervertebral disk, with signs of necrosis in the vertebræ and many osteophytes around them. There was a marked Widal reaction. He eventually recovered completely. The author describes the general symptomatology of the typhoid spine, and says the conditions can be explained only by the invasion of the spinal tissues by the typhoid bacillus. The chief symptoms—pain and rigidity—must be due to acute inflammation of the periosteum and spinal ligaments, hence the name perispondylitis. In other instances there may be also an osteomyelitis of the vertebral bodies, sometimes causing a permanent kyphosis.

On Certain B. Coli Infections.—J. C. Briscoe says that various organisms, among them the *B. coli,* can leave the body by the urine without impairing the vitality of the genitourinary tract. The route by which these bacilli gain access to the urine is still a matter of dispute. Most of the *B. coli* cases occur in constipated patients, and most of them are in women. In these cases the urine is paler than would be suspected from its specific gravity, is often strongly acid, and is not clear and translucent. If it filters clear there is no appreciable quantity of *B. coli* present, but under technical methods described by the author many specimens will be found to contain it. Most of the instances occur in women, and some pathologists go so far as to say that in women the condition is of no importance. At times constipation is the only abnormality noted, but at other times there may be headache, slackness, and malaise. Confinement to bed may cause the passage of the bacilli. They may occur at times in a condition of health, and again be absent in the same subject. The author gives a series of histories of cases illustrating clinical variations in these respects. Treatment in the milder cases calls for the relief of any fever if present, a hot bath, a mercurial purge, rest in bed, and reduced diet. In more obstinate cases an intestinal antiseptic should be given, such as creosote or minute doses of calomel (1/20 gr.). Some prefer the lactic acid bacillus given internally. The urine should be kept alkaline. In the most obstinate cases the vaccine treatment is recommended.

The Selection of Patients for Spa Treatment.—N. Wood passes in review the most notable of the French and German spas and compares the two classes. The principal aim of the spa treatment is the furtherance of metabolism and the promotion of exertion. The treatment consisting as it does of the specialized use of what are known as natural remedies, is to be considered in relation to patients who cannot or will not employ these remedies at home, or who for some reason are not amenable to drug treatment. Though spa treatment is often only an alternative for other methods, it is preeminently suitable for cases on which it is desirable to concentrate a number of differing influences. Spas may be used for prophylaxis, but climatic stations are to be preferred for convalescence. Whenever there is a suspicion of visceral disease a reexamination of the patient should be made immediately before his departure. The best results from balneotherapy are obtained in the middle-aged and in young adults, while children and old people are more benefited by climatic influences. Only by the most careful application of general principles can patients be properly selected for spa treatment, for though it has contributed much to the art of healing, it has not added a single specific to the science of medicine. The maxim *noncurative qui curati* applies with special force to those who are sent away from home. Full benefit can be expected only when the patient can leave business and domestic worries behind and can face with equanimity the cost of treatment and of the amenities of spa life.

British Medical Journal, October 30, 1909.

Congenital Pyloric Stenosis Successfully Treated Without Operation.—The child whose case is recorded by E. M. Pearse came under observation when she was three weeks old. All food disagreed with her, and after examination a diagnosis of congenital pyloric stenosis was made on the following grounds: (1) vomiting of a projectile nature almost immediately after food was taken with the absence of any gastric disturbance; (2) loss of weight; (3) constipation; (4) visible peristaltic movements in the epigastrium culminating in a vomit; (5) relief of the symptoms for a day or two after a change of food. She was placed on the following treatment: (1) daily washing out of the stomach; (2) small feedings, an ounce and a half at a time, of peptogenized milk and water, half and half; (3) half a teaspoonful of "purgen" at night to relieve the constipation. She was also given daily a small amount of Keeler malt extract with cod liver oil. From this time the child began to improve. By the end of fifteen months she had gained from 7 lbs at birth to 15½ lbs. At the end of the time mentioned she was doing well in every way, though she could not quite manage the diet of the ordinary child for the corresponding age. The author thinks the points of interest in the case are: first, most, if not all, the recorded cases of the lesion named have been in male children; second, the case was under medical observation from birth; third, definite improvement did not permanently set in till the child was six months old, although the spasm usually passes off at an earlier date; fourth, there were never any convulsions due to the absorption of stagnant material in the stomach; fifth, the child was kept out doors constantly, and, sixth, she slept from 18 to 20 hours out of the twenty-four.

Seven Cases of Appendicostomy for Various Forms of Colitis.—The series of cases detailed by F. C. Wallis comprised three of ulcerative colitis, two of membranous colitis, and two of mucomembranous colitis. All but one of hemorrhagic colitis recovered. This case died after some weeks, and the author does not believe that the operation in any way benefited the patient. There was marked ulceration of the small as well as the large bowel. A fact generally borne out by autopsies is that the continuance of fluid motions largely composed of blood after appendicostomy and after the large bowel has been irri-

gated means that there is some ulceration of the small bowel as well. All the three cases of ulcerative colitis were greatly benefited. The first case got well right away. The second was entirely cured in a few weeks. The third, which was of some years' standing, eventually got practically well, but has to be very careful as to her mode of life. Otherwise there is some return of the former trouble. The two cases of mucomembranous colitis were greatly benefited.

Fulminating Appendicitis.—H. R. Butler bases his statements on the findings in four out of 52 cases of appendicitis seen in a little more than three years. The first two cases were operated on after signs of peritonitis had set in, in both cases just under 48 hours after the first symptom had occurred, and both died. They had absolutely general peritonitis, and in the first case the appendix was found broken off from its attachment to the cecum. The last two cases were operated on as soon as the arrangements could be made after seeing the patients—about six hours after the first symptom. In these the operations were simple enough, and the patients made uninterrupted recoveries. In each the appendix was just short of gangrenous. The author believes that volvulus is the cause of gangrene in all cases when it happens in so short a time after the first attack. The gangrene forms very rapidly, and there is not time for adhesions to form to shut off an abscess. If an operation is not performed in the first few hours we shall surely have general peritonitis. Volvulus may develop in any case in which the appendix lies free in the abdomen, but not when it lies in the rectocecal fossa. In doubtful cases the absence of the ordinary cecal sounds are suspicious, indicating that the ileocecal sphincter is held in a state of chronic contraction owing to powerful irritation in its immediate neighborhood. Another significant sign is the failure of flatus to pass with an enema. On opening the abdomen in these cases the appendix is found greatly swollen, congested, and plum colored, quite free from adhesions, except at its junction with the cecum, where it is constricted. It lies transversely under the cecum so that the mesoappendix is twisted on itself, and has to be manipulated with great care to avoid rupture while the cecum is being brought around into the wound so as to allow the removal of the appendix.

Pneumococcus Invasion of the Throat, Followed by Pleuropneumonia and Appendicitis; Operation; Recovery.—W. E. Peacock and W. Osler report the case of a boy aged 11 years with a sore throat and fever. There was a slight irregularity of the heart and a faint bruit. The tonsils and pharynx were congested, and the former enlarged, as were also the glands at the angle of the jaw. A swab culture revealed many pneumococci. The boy did well for a week, when he relapsed, and a pleurisy was detected at the base of the right lung. There was also much radiating abdominal pain. Later on appendicular abscess formed, and the dullness reached over to the left side. An opening was made in the right flank, and a counter-opening in the left. Much foul pus escaped, and the wounds were drained. The patient was kept in the open air. He did well for a while, but later there were evidences of pus accumulation somewhere, though under anesthesia only a fluctuation could be discovered high up in Douglass's pouch. On the night before the day on which an operation was to be done there was a bursting of the abscess into the rectum. From this time on recovery was uninterrupted. The entire duration of the illness was twenty weeks.

Berliner klinische Wochenschrift, October 18, 1909.

Proteolytic Ferment in Infant's Feces.—Czekkel studied the stools of a series of healthy and ill infants for the presence of proteolytic ferment. Healthy children, cases of acute indigestion, chronic indigestion, and premature infants were studied on various diets, and with normal, slimy, mucopurulent, and soapy stools. In every case proteolytic ferment was present. In a series of specimens of meconium also the ferment was always present.

Deutsche medizinische Wochenschrift, October 21, 1909.

The Westphalian Epidemic of Acute Infantile Paralysis.—Krause has studied over one hundred cases of anteriopoliomyelitis with eight autopsies in the recent epidemic in the neighborhood of Hagen. The youngest case was four and a half weeks old, and the oldest fifteen years. More than 90 per cent. showed initial gastrointestinal symptoms. Two-thirds began with severe diarrhea; vomiting was rare. Three times the onset was with angina, twice with pneumonia, and once with measles. Only twice did the paralysis appear without constitutional symptoms. The urine was normal except for once albuminuria and twice indicanuria. The cerebrospinal fluid was always under high tension, clear, alkaline, and containing albumen. There were but few cells, mostly lymphocytes. Three times there was a hypoleucocytosis in the blood, with a mild lymphocytosis. There was frequently a history of other cases of diarrhea in the family. The diagnosis in this stage is very difficult, but in many of the cases there is a definite tenderness over the spine, neck, and legs. The stage of paralysis begins at the time that metastatic inflammatory foci appear in the central nervous system, the virus having been carried through the blood. The first paralysis is usually of the neck, preventing the child from holding up its head, then the muscles of the abdomen and back, and finally the limbs are affected. In the severe fatal cases there is respiratory paralysis. During the initial fever the children perspire profusely. The sensorium is usually clear. Certain cases recover completely, leaving no paralysis. The tendon reflexes are lost, but the skin reflexes remain. There is occasionally an anesthesia. In the eight autopsies there was in each case a mild leptomeningitis. In every case there were extensive changes in the intestines, reddening and swelling of the mucous membrane, especially in the Peyer's patches, and follicles, most marked in the region of the ileocecal valve. Besides this the mesenteric glands were markedly swollen and the spleen was enlarged. The disease is unquestionably an infectious disease, and in certain cases has definitely been carried by a third party. It has distinct locality distributions. No special infecting class of food could be discovered; many cases were breast-fed exclusively. No relation to insects could be found. At the time of the epidemic there was a high mortality among young chickens in the neighborhood, some dying with definite symptoms of paralysis. Hens were not attacked. Some of the chickens when killed showed no pathological changes. This relation to the chickens will be studied further. The treatment during the acute febrile period should consist of calomel and castor oil to eliminate the infecting material from the intestines. The stools should be disinfected, and the cases isolated. The general infection should be attacked with Credé's silver ointment in injunctions. Following lumbar puncture there was often a rapid subsidence of the paralysis. Later electricity, hydrotherapy, and massage are advisable. Passive motions and orthopedic treatment are necessary later.

The Etiology of Acute Epidemic Infantile Paralysis.—Paul Krause and Meinicke studied the autopsies of eight fatal cases of anterior poliomyelitis, as well as blood, lumbar fluid, tonsil scrapings, stools, and urine of living patients. Smears were stained and cultures on many media were made, but nothing suggesting the etiology of the disease was discovered. Many animal experiments were made. Intestinal contents, lumbar fluid, and emulsions of spinal cord were fed and injected into mice, guinea-pigs, chickens, pigeons, and monkeys, without results. Subdural injections of emulsion of the cord of a child into rabbits caused in many cases death with symptoms of cerebrospinal disease and paralysis.

The Treatment by Tuberculosis Immune Blood.—O. Roepke has carried out Spengler's treatment of tuberculosis by injection of immunized blood corpuscles into the blood of the patients in sixty-seven cases, and concludes that the procedure, both for diagnosis and therapeutics, in tuberculous people is equally worthless, and is so absolutely indifferent that physiological salt solutions could be substituted for it with equally good results.

On Tuberculosis Immune Blood.—Weicker and Bandelier carried out Spengler's technique for fifteen months on 200 patients, and conclude that in all the cases treated by them by this method there was no evidence of the favorable action which Spengler claimed for the method.

So-Called Climatic Buboes.—Umberto Gabbi describes a condition of bubo accompanied by fever, without any traces of syphilis, or gonorrhea, which seems to be due in some way to the semi-tropical climate of the countries where it is seen. There are no tuberculous, or skin lesions present. The fever occurs before the inguinal enlargement. The author gives the histories of two cases recently observed, and refers to others related by various other authors. There is little tendency to softening of the bubo; the type of the fever is very irregular; the duration is long, and treatment of little value. There is present a certain amount of lessened resistance due to the hot climate. Only pus cocci were found in the discharge from the bubo seen by the author.—*Rivista Critica di Clinica Medica.*

Book Reviews.

Children in Health and Disease: A Study of Child-life. By David Forsyth, M.D., D.Sc., Physician to the Evelina Hospital for Sick Children; Assistant Physician (Late Physician in Charge of the Children's Department) and Joint Pathologist, Charing Cross Hospital. Philadelphia: P. Blakiston's Son & Co., 1909.

In reading the preface of this book the first impression is that one is bound to be disappointed in the text, as it would seem quite impossible in a book of 350 pages to cover child life in health and disease with even an approach to adequacy, and the perusal of the text is begun in a strong spirit of scepticism. Before many pages have been read, however, this fear is forgotten and a sincere admiration takes its place. The problem before the author was enormous, but he solved it with exceptionally good results. The important facts of the child from intrauterine life to puberty are well covered. The first two chapters are on the physiology of children. Antenatal and natal physiology are succeeded by discussion of growth, digestion, metabolism, feeding, and puberty. As an example of the thoroughness of all this may be mentioned a comprehensive discussion of heat loss and calorie requirements of the infant. The third and fourth chapters discuss the psychological development, and it is rare indeed that one sees so interesting and absorbing an exposition of this fascinating subject. This chapter might well be read by every young mother. School life, its hygiene, medical aspects, and inspection are briefly but well covered. The chapter on training of children deserves special comment. The author shows remarkable insight into the child mind. So far the book has considered the healthy child. It now takes up the child in disease. Mentally defectives and their care are touched upon. General discussion of the sick child and of infant mortality are given, and to round the little book into a complete whole the methods of examining, diagnosis, and treatment of sick children are considered. These are necessarily brief and only such points as are especially applicable to the child are considered. But so far as it goes it is good. The book deserves careful reading from cover to cover by every one who is in any way associated with child life, physician, nurse, or teacher.

Fünfzig Jahre laryngologischer Arbeit auf dem Gebiete der Kehlkopftuberculose, von Dr. R. Imhofer, Prag. Halle a S.: Carl Marhold, 1909.

In this interesting monograph the author discusses the tuberculosis question as affecting the larynx entirely from the historical standpoint, relying almost entirely on continental literature for his extensive study. The bibliography contains 225 references. The work does not purport to be a merely descriptive one, but is, as said, of special value from its historical manner and method, and may well be in the library of every laryngologist. The two most interesting chapters are the first and last respectively. In the former the author discusses the knowledge of the lesions as known to the earlier laryngologists, and in the latter the work of the immediate future as applicable to this special organ. It is a pity that our continental friends so entirely overlook in their contributions the work of the English-speaking races.

Principles of Pharmacy. By Henry V. Arny, Ph.G., Ph.D., Dean and Professor of Pharmacy in the Cleveland School of Pharmacy, Western Reserve University, Cleveland, Ohio. With 246 Original Illustrations. Philadelphia and London: W. B. Saunders Company, 1909.

This new work on Pharmacy consists of seven parts: The first deals with pharmaceutical processes; the second, with the galenical preparations of the pharmacopœia; the third, with inorganic chemistry; the fourth, with organic chemistry; the fifth, with chemical testing; the sixth takes up the prescription, and the seventh contains laboratory exercises. It will be seen that the book is on the same general plan as the standard work of Remington, to which, however, the author makes no reference, not even mentioning that work in his list of books for collateral reading. "The frank intention of this book," as stated in the preface, "is to explain the pharmacopœia from its pharmaceutical standpoint, and if that standard says that a certain chemical is a dextrogyrate ketone, or that a certain drug is a sclerotium, the writer believes that the average student should be able to learn what such terms mean without having to search through a dozen books." Such "intention" is excellent; on the strength of it we looked in the index for "ketone," and on referring to the page indicated found four lines on the subject; we then selected a dextrogyrate ketone, namely camphor, and failed to find an explanation of the term. The references are not always as definite as they might be; for example, "Details in Part V" is somewhat vague, especially as Part V contains more than one hundred pages; if there is any objection to giving the exact page, it would be better to refer to the index at the end of the book. A useful feature of the work is the introduction of paragraphs dealing with the arithmetic of pharmacy and of chemistry.

The Open-air Treatment of Pulmonary Tuberculosis. By F. W. Burton-Fanning, M.D. Cantab., F.R.C.P. Lond., Physician to the Norfolk and Norwich Hospital, Honorary Visiting Physician to the Kellogg Open-Air Sanatorium. Second Edition. New York: Paul B. Hoeber, 1909.

The author of this little book is most enthusiastic about the open-air treatment when combined with all the minute details that accompany it. He acknowledges the incompleteness of his title but in the text we find fresh air by no means the only part of his system. He deals especially with the significance of fever and accelerated pulse rate, and points out where rest should end and exercise begin. The infinite care with which he states these details and the insistence with which each command is ordered to be followed up by the one in authority are praiseworthy points; for eternal vigilance during and after the "cure" alone will make a good showing in the treatment of real pulmonary tuberculosis; that is, real clinical cases where the suspicion of the disease has not grown to the size of a confirmed diagnosis on insufficient evidence such as the recent tuberculin tests so often considered as final proof. The questions of diet and after-treatment are well considered. The final chapter gives the requisites for the open-air treatment accompanied by some illustrations of shelters such as are of practical use. The author takes up the opsonic theory of Wright and some of the more recent methods of diagnosis, but otherwise his book is eminently practical, sensible, and sound.

A Text-Book of Physiological Chemistry for Students of Medicine. By John H. Long, M.S., Sc.D., Professor of Chemistry in Northwestern University Medical School. Second edition, revised; with 42 illustrations. Philadelphia: P. Blakiston's Son & Co., 1909.

This volume on Physiological Chemistry forms a useful companion to the author's other works, namely, General Chemistry, and Analytical Chemistry, both of which have been noticed in these columns. The author has succeeded in keeping the present volume within very reasonable limits; yet it covers the ground usually gone over in the medical schools. In this revision some important changes have been made: the new protein classification of the American societies has been adopted; a much fuller discussion has been given to the subject of the urine, and a new chapter has been added on the methods of urine analysis. As the work is intended for beginners, references to the literature are not given.

Dorland's American Illustrated Medical Dictionary. A new and complete dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, and kindred branches; with new and elaborate tables and many handsome illustrations. Fifth Revised Edition. By W. A. Newman Dorland, M.D. Philadelphia and London: W. B. Saunders Company, 1909.

It is really unnecessary to do more than chronicle the appearance of a new edition of this well-known dictionary. The work does not differ from the fourth edition except in the additions which the constant advance in medicine and the allied sciences renders necessary. There are forty more pages in this edition than in the last, but owing to the use of thinner paper the book itself is no thicker. The faults that have characterized the former editions are present in this, especially the very annoying one of defining by synonyms and not explaining. For example, one wants to know what is Magendie's foramen: he looks under *Magendie* and is referred to *foramen;* under *foramen* he looks for Magendie's f., and finds the definition: "Same as Arachnoid f."; he turns back to *Arachnoid* and finds no mention of it, then he goes again to *foramen* and looks for Arachnoid f., which is defined: "the foramen of Magendie." The claim made in the preface that the BNA anatomical terminology has been included is not substantiated by a search for the new BNA terms; some are there and some are not. However, with all its faults, and they are many, this is the best, because the most recent, of the medical dictionaries.

Society Reports.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-seventh Annual Meeting, Held at Richmond, Va., October 19, 20, and 22, 1909.

THE PRESIDENT, DR. GARDNER T. SWARTS, PROVIDENCE, R. I., IN THE CHAIR.

The Second Decennial Revision of International Classification of Causes of Death.—Dr. CRESSY L. WILBUR of Washington, D. C., stated that the second decennial revision was the most important event that had occurred affecting vital statistics during the past year, and the possibility of twenty-three nations joining in this revision reflected much credit upon the American Public Health Association, which recommended at its Ottawa meeting, in 1898, the Bertillon classification. While the second revision was not radically different from the first, we were at the beginning of a great undertaking, namely, the preparation of a national nomenclature of diseases and causes of death, conducted by a committee of the American Public Health Association. The international classification was somewhat elastic, so that the titles of the tabular list could be subdivided readily to meet special requirements. The section on vital statistics appeared to be ready to approve certain changes in the present standard certificate of death with reference to obtaining better information as to the cause of the death and the occupation of decedent. He believed that the most important practical measure which could come up for consideration next year would be the preparation of a series of uniform statistical tables relating to births, still-births, deaths, sickness, marriages, and divorces for use in the federal, state, and municipal reports and bulletins. He proposed to the officers of the association and also members of the councils of the section on vital statistics that they cooperate by the appointment of special committees, whose work could be aided by the Census Bureau in the preparation of uniform tables to be used in registration reports. Great progress had been made in the last few years in the registration area, yet so far, with the exception of North Carolina, there was no registration state in the South.

Dr. H. W. HILL of Minneapolis asked Dr. Wilbur how he attempted to phrase that part of the death certificate which asked for the cause of death.

Dr. M. L. PRICE of Baltimore asked what numbers in the International Classification of Deaths were changed in the last decennial revision; what the present numbers were, and what they were intended to mean in their classifications.

Dr. WILBUR, in closing the discussion, said that there was a joint meeting of the committee on form and council of vital statistics section, and a complete agreement was had as to the form of questions for the cause of death. The note printed on the face of the blank was as follows: "State the disease causing death, or in deaths from violent causes, state, first, the means of injury; second, whether accidental, suicidal, or homicidal." In answer to Dr. Price's question, he had received a communication stating that Census Bulletin No. 104 had been printed and two copies had been sent to him. This contained the title of the classification, and each title which had not been changed or modified from the former series was noted by an asterisk. Dr. Price could see what changes had been made.

The Management of Milk-Borne Outbreaks of Typhoid Fever.—Dr. C. V. CHAPIN of Providence, R. I., referred to an outbreak of typhoid fever among the customers of a certain dairy in Providence. The only evidence that the milk supply was the cause of typhoid fever was in the excess of patients among the persons supplied. Out of 600 dealers in Providence, 155 had had one or more cases of typhoid fever during the last four years. In a study of sixteen outbreaks the distribution of the cases in point of time suggested that the infection was not continuous, but depended on a single distribution of the milk. As shown by Davies, Craig, and others, carriers caused infection only in an irregular and intermittent manner. The occurrence of two or three cases in a route of from 100 to 1,000 families within a week required careful investigation. When the milk supply was found to be defective, and the source not determined, it should be shut off or pasteurized, and when typhoid was found among those who handled the milk the patient should be removed from all contact with it. Precautionary measures should be carried out for three or four months from the beginning of the last case.

The Utility of the Domiciliary Visit in the Struggle Against Yellow Fever.—Dr. CARLOS MANUEL GARCIA of Mexico stated that the slight epidemic of yellow fever which suddenly broke out at the end of May last year in the Port of Leguana del Carmen furnished an opportunity to say a few words about the utility of the domiciliary visit, that is to say, the isolation of confirmed or even suspected cases, the detruction of the larvae and the infected mosquitos. This constituted the most practical application of the immortal discovery of Dr. Finlay. These cases had given rise to the doctrine that in those places in which yellow fever was endemic, it was maintained by the children under 10 years of age, who were natives of the locality. It was supposed that these children were attacked by very mild forms of the disease and were susceptible of propagating it by means of the mosquito. They had not obtained experimental sanction of this doctrine, but we could understand the absolute necessity of isolating at the earliest possible moment every nonimmune, among whom he would include children under ten years of age who presented any of the initial symptoms. This practice led to the successful termination of the epidemic in Leguana del Carmen.

The Campaign Against Yellow Fever on the Isthmus of Tehauntepec.—Dr. FRANCISCO VALENZUELA of Mexico stated the importance of the international traffic across the Isthmus had brought to that territory a great number of nonimmunes, which had led to a great increase in the number of victims. The campaign, according to the doctrines of Finlay, was organized under Dr. Garcia at the city of Tehauntepec in May, 1904, and subsequently extended to the whole of the Isthmus. The excellent results obtained were a matter of congratulation to all. The passenger traffic was under the charge of sanitary agents on board the cars of the Tehauntepec Railway. When a passenger was found to be sick the agent investigated the case, taking into consideration the sanitary condition of the country from which the sick persons came. A report was forwarded to the sick man's destination, as well as given to the agent on the train with which the passenger desired to connect. This traveling agent collected all the news possible, thus it enabled the chief of the service to receive daily and timely reports of all cases of an alarming character. Isolation of the sick, destruction of the mosquitos by fumigation, and the covering of ponds and swamps with oil to destroy the larvæ were the three principal factors in suppressing yellow fever.

Dr. WALTER WYMAN of Washington, D. C., said that when we think that only a few years ago Vera Cruz was one of the worst infected ports of the Western continent, that it was a constant menace to the United States, but now it was free from that infection and that through the scientific and sanitary efforts of the Mexican Government, represented by Dr. Liceaga and backed by President Diaz, he thought it was a remarkable tribute to the intelligence and energy of our southern neighbors. Not only had they eliminated yellow fever from the Mexican Republic, but

the forces which they were now using were turned against malaria and they expected to eliminate malaria from Mexico. It looked very much as though they had conquered in the Western Hemisphere the disease called yellow fever.

Dr. Peter H. Bryce of Ottawa, Ontario, said that we could not only congratulate ourselves in the northern States for the fight which was being waged against typhoid fever, but also because of the magnificent task that Dr. Liceaga and his board had taken in hand and accomplished in stamping out disease. It made no difference whether it was typhoid fever, smallpox, yellow fever, or tuberculosis which we were all fighting against to-day. He could not withhold his tribute to the splendid example set by Dr. Licéaga and the Board of Health of Mexico City.

Dr. Frederick Torralbas of Havana, Cuba, said that Havana was to-day in such a condition that they could control entirely the history of any case of yellow fever which might become developed from its very beginning. For this purpose they had this year sixty district inspectors who were in charge, visiting each house in Havana and making an average of 20,000 houses every ten days, which would cover the whole town a little less than three times during the month.

Scope and Value of Lectures.—Dr. Herbert D. Pease of New York City said our form of government placed the responsibility of government upon the citizens as a whole. Never in our history had the public been more alive to the details of administration than at present. Everywhere we found this reaching out on the part of the populace for a more direct remedy. Truth generally made for simplicity, ignorance for complexity. In his opinion, we might say that the cardinal principles in education work in hygiene were as follows: A simpler statement of the known, the unknown, and the debatable. The manner and method of expression must be secondary, and they were, nevertheless, of vital importance for success. The speaker must insist upon getting the audience and then he must hold it or he was inefficient. Without money the task was greater, but was by no means hopeless. In the pioneer work against tuberculosis those who had the least money made greatest progress because lack of means necessitated more volunteers. To be assured of an audience one must advertise and continue to advertise by special letters, handbills, and multiple letters, and even newspaper advertisements. In advertising, the subject of a lecture should at all times receive the greatest emphasis, then follow with the names of the speakers, allowing the time and place to come after this. Every epidemic should be used as an opening gun in the campaign against that particular disease. The larger advertisements should be put on first and later be followed with the cards, multiple letters, etc. First presented in the lecture were the problems already solved, next those not entirely solved, and third topics about which there was controversy. Pictures or lantern slides should be used in effective lectures on certain subjects. These slides might be interspersed with moving-picture slides, which added a certain amount of interest to the program.

Teaching Hygiene in Elementary Schools.—Miss Isabelle F. Hyam of Dorchester, Mass., stated that the State had taken upon itself to educate the children, and it seemed reasonable that as much attention should be given to the child's body as to its mind. Children could rarely change their own environment, but in many ways they could control their lives in an effort at better living if they were properly prepared. The schoolhouse and schoolroom should be examples of cleanliness, and afford every means to help the child to live. It seemed hopeless to teach hygiene when the child had but to look about and see filth. The child was the center of his little world, and was more closely concerned with the home. The facts in the home were care of the home, furniture, food and its preparation, hygienic clothing, and personal hygiene. The first lesson in ventilation was that there must be an outlet for the foul air at the top of the room, which could be illustrated and emphasized in a cardboard or block house. Scientific impersonation played a large part in the education of the child. For some children who were physically unfit, only the open air school was proper. They learned to love the open air, and the benefits of such a school were obvious. Health was fundamental, and in the school the child should be trained in habits of health. In order to accomplish this end conditions in the schoolroom must be wholesome. The school should be well lighted and the air fresh. There should be time for play out of doors and facilities for bathing.

School Instruction in Hygiene and Sanitation.—Dr. John W. Richie of Williamsburg, Va., stated he would refer only briefly to hygiene, limiting the scope of his remarks to the public school, between the fifth grade and the high school. The teaching of sanitation had proved a great success because it was made so simple that it could be taught to pupils below the high school age. They forced the pupil to examine everything and state the conclusions to be drawn from the evidence, and when the pupil accepted as facts what his own reason told him was true, that was called the open-mindedness of youth. Much good could be done by teaching the facts as to a few specific diseases. Pupils needed to be taught about the microscope, plants, and animals that grew in the body and caused disease. They needed to be taught something of the defense of the body against germs in order that it might not seem a monstrous thing to put matter from a cow into the human body. They must be made to understand that food and fresh air were more important than patent medicine. His whole experience had been that it was a perfectly simple matter to give the theoretical background to children, and he who would shorten the subject by omitting the simple remedy was in danger of breaking the circuit altogether. Everywhere we found intelligent people who believed in sanitation, but even among these people ignorance of the simplest principles of bacteria was really disgusting. They seemed to have no idea of what a real disease germ was, but burdened themselves with useless precautions. For instance, they filtered the water from the roof to free it of typhoid fever germs, overlooking entirely the closet in the back yard. The subject of sanitation should be allowed sufficient time to give pupils some understanding of the subject, and the pupils should be liberally supplied with printed matter for study. Bulletins should be sent to the teachers as well as the pupils. This teaching had a decided effect in educating the parents as well as the children. The public drinking cup disappeared quickly where sanitation was taught. The old hygiene was not practicable, but the new hygiene was practicable, and we should see to it that in teaching hygiene the conditions should be hygienic in the schoolroom.

The Way to Study Hygiene in the Normal Schools.—Dr. Adrian De Garay of Mexico City stated that the difficulty in this matter had always been as to the manner and form in which such knowledge is promulgated. It was very necessary to give the very best instruction to all the world, but above all in the primary schools. It was in a condition of health that the citizen became of value to the country. There should be two courses of hygiene, one general and the other special hygiene, each taught with thoroughness. In hygiene, as well as in other studies, we should try to make it as practical and interesting as possible. Practical instruction could be given in three ways: by means of the chemical and bacteriological laboratory, by means of excursions and study in such places as theaters, water supply houses, public buildings, and so on, and by means of hygienic amusements. Hygiene should be one of the principal subjects taught in normal schools; it should be studied during the last part of the term; instruction

should be given in an entirely practical and agreeable manner, laboratories established, and hygienic trips organized.

Instruction in Personal and Public Hygiene in the Medical College.—Dr. F. F. Wesbrook of Minneapolis stated that those in public health work were hard on the doctor, although they realized his difficulties, and they recognized that he had perhaps been the leading spirit in all of the advances of hygiene. He was a teacher, and not a practitioner, yet he wished to pay his tribute of respect to the medical profession. The medical profession, through the American Medical Association, was doing its best to raise the standard of the profession by seeing that none may enter who were not well prepared. It was the desire to prepare the medical man to regulate matters, in conjunction with other forces with which he would come in contact, very much more than he had done in the past. While they did not expect to make them all medical hygienists, they did expect to prepare them to work with such forces as they had represented there.

Results of Federal Control of Viruses, Serums, Toxins, and Analogous Products.—Dr. John F. Anderson of Washington, D. C., stated that the results of Federal control have been (1) that manufacturers had been required to put their barns, stables, and laboratories into sanitary condition. (2) Complete separation of tetanous and tuberculosis work from the work of producing diphtheria antitoxin. (3) All establishments were required to be equipped with proper laboratory facilities. (4) Each lot of virus was required to be examined bacteriologically, and a special test made for tetanous bacilli, and detailed records kept of such examination. (5) The sale of the old-style "dry" lymph points was no longer allowed. (6) All animals used for propagation of vaccine virus were required to be autopsied, and if the animal had been suffering from an incurable disease the virus was not allowed to be sold. (7) All sera were required to be examined where standards had been established for toxic contamination, and correctly labeled, and to state the date beyond which they could not be expected to yield their specific effects, and to contain no excessive amount of preservatives. (8) Standards for diphtheria and tetanous antitoxins had been established.

How an Enlarged and Uniform National Health Administration May Be Secured.—Dr. Joseph Y. Porter of Florida stated that the phantom of offended dignity had often arisen in the past to arouse suspicion of improper interference when the Federal Government had through Interstate Commerce stopped to interpose authority, even in an advisory manner in the management of public health matters. It was apparent that this was true to-day, particularly in Massachusetts, Ohio, and Illinois in reference to sanitary matters, and the control of disease producing conditions within their confines. By advocating an enlargement of the powers of the general government in health control throughout the country which should be uniform and impartially administered in all sections of the country, excepting none, it was not herein desired that the arguments advanced or the opinions expressed should be understood as recommending or advising that the health police powers of a state should be abridged or superseded by the general government, but rather that some of the difficulties in the present system of administration might be remedied and the awkwardness of many existing conditions corrected.

Tuberculosis from a Maritime Prophylactic Point of View.—Dr. Antonio Matienzo of Mexico City stated that it had been demonstrated that tuberculosis was a social danger, and that it found at sea excellent conditions for the breeding of the germ which propagated it. He proposed that an office for medical inspection be established in the principal ports under the control of the sanitary authorities, fully authorized to examine every passenger; to require the great steamship companies to establish in all their ships a special department with berths for tuberculous children. The infection of the air having been proven, this is all which should occupy the attention of the hygienist. All people should be prevented from expectorating on the floor and in the berths, and for all tuberculous passengers there should be placed some concise precepts in the room relating to the danger of expectoration to the patient himself as well as to everybody else.

What May Be Done to Improve the Hygiene of the City Dweller.—Dr. S. A. Knopf of New York read this paper (to be published later).

Prophylaxis in Exanthematic Typhus.—Dr. Genaro Escalona of Mexico stated that in the central tableland of the Mexican Republic this disease assumed an endemic form. The mortality reached a very high figure. The physicians of Mexico agreed that Mexican typhus presented certain characteristics that were different from the European type. The disease did not have a sudden development. There was a period of ascension and descension through irregular manifestations. Three important points might be considered: (a) The sanitation of the town; (b) the disinfection of the premises occupied by the patient; (c) the disposal of articles coming in contact with the patient. The patient should be isolated and his bed clothing disinfected by means of boiling or destroyed by fire. All the toilet utensils should be well disinfected and the excreta should be carried off through the drain by an abundant amount of water. The skin should be bathed and the hair cut, as well as the mucous membrane disinfected.

Some Consideration Relative to the Tansmission of Syphilis by Vaccine.—Dr. Francisco de Bernaldez of Mexico stated that the Jenner or arm-to-arm vaccination against smallpox had been discredited by almost all nations because of the possibility of syphilitic inoculation. They were now well aware that in order that this might take place it was necessary to have well-studied conditions, but much care must be used in collecting the lymph. From observations already made, it was stated that the lymph must be taken from persons over three years of age, that being the age at which hereditary syphilis made itself apparent. The vaccine pustules must be of seven days' growth because the contagious infiltrations had a longer period of incubation. The transmission of syphilis through the agency of humanized vaccine could easily be avoided if we knew the conditions under which such transmission was possible. The Jennerian vaccine was recommended because it conferred a greater degree of and a more lasting immunity.

Report on Yellow Fever in the Mexican Republic from August 25, 1908, to Date.—Dr. Eduardo Licéaga of Mexico stated that this was his sixteenth annual report as to the general conditions of Mexico regarding the presence of yellow fever. The paper was accompanied by diagrams, and he referred to the number of isolated cases in different parts of the country, mentioning a current supposition in Cuba to the effect that native children contracted yellow fever in a mild form and infected mosquitos which thereby gave rise to isolated cases of yellow fever. The covering with oil of standing water, filling up holes, fumigation of dwelling houses and surveillance of railway passengers constituted some of the means at present employed in fighting this disease. In the ports of Coatzacoalcos, on the Gulf Coast and Salina Cruz on the Pacific it was nearly four years since a single case of yellow fever had been observed.

The Necessity of Isolated Syphilitic Prostitutes to Prevent the Propagation of the Disease.—Dr. Joaquin Huici of Mexico said the prophylaxis of syphilis was a most serious and interesting question, and had given rise

to a division among scientific men. The disease had caused more ravages in the human race than any other transmissible disease, not only rendering the individual useless for work, but endangering those with whom he came in contact. A uniform set of regulations to control prostitutes should be adopted. Governments were under obligation to enact provisions tending to prevent the transmission of disease, and syphilis and gonorrhea, being continually transmitted, should be included in that obligation, as public women were the principal sources of those diseases and they were the ones to whom such provisions should be applied.

Some Sufficient Means of Checking Syphilitic and Gonorrheal Contamination.—Dr. JUAN BRENA of Zacatecas, Mexico, said the efforts of an association like this would be fruitless without the cooperation of the social classes. In the effort for the extermination of leprosy and tuberculosis the people joined spontaneously, but the same was not true with reference to venereal disease. Fortunately the conviction had grown as to the practical utility resulting from giving universal publicity to clear rules establishing the conditions which rendered immune communications between the healthy and venereal subjects. Pupils in school were taught the evils resulting from the use of tobacco and alcohol, and it would be a meritorious work to instruct the older pupils as to the deadly action of impure pleasures. Literature should be distributed explaining the gravity of these diseases, and means of prevention. Municipal doctors and others appointed for the purpose should attend these patients free of charge and lectures on the subject be provided for. Inexperience was the cause of great harm to the young, and let us not fear to help them over the thorny road.

The Scope of Public Hygiene in the Betterment of the Home Life in Towns and Cities.—Mr. ROBERT W. BRUERE of New York stated that everyone seemed to take it for granted not only that disease was curable, but that it was the business of the medical profession to cure it or prevent it. It had been many years since the medical profession was regarded as a dispenser of medicine, and not as a preventer of disease, more particularly social disease. Last year there were 10,147 deaths from tuberculosis in New York, and about the same number the year before. The death rate from other diseases had greatly decreased during the past seven years in New York, but this had not been the case with tuberculosis. Last year our association had charge of 4,000 infants, and everything was done that was possible by simple education and the teaching of hygiene to reduce mortality. The great difficulty we encountered was that the mothers were not able to purchase the food that those children required. Ten per cent. of them were forced to earn wages away from home, and over 73 per cent. of the mothers belonged to families where the income was less than $15 a week, some three and four hundred dollars less than the Committee on Standard of Living maintained was necessary for the average family. The medical profession had done much to teach the world that disease could be successfully prevented only when it was attacked by an organized community, but he believed that we could not cut the death rate below ten per cent. until we attacked the problem of the poverty of the worker.

The Scope of Public Health Work in the Prevention of Dependency.—Mr. HOMER FOLKS of New York said that the public health work included both the education of the individual and the community, and if the work could be carried on comprehensively, efficiently, and adequately the number of dependents would be greatly reduced. Ill health was a very prolific cause of poverty, whether due to individual or social causes. The first strong movement in New York for the prevention of tuberculosis was organized by a society concerned with the relief of the poor. Much remained to be done in the prevention of typhoid fever, while diphtheria, whooping-cough, and scarlet fever were gradually being brought under control. We should not make prominent headway against alcoholism until we had the support of public health authorities. The movement for the prevention of venereal diseases, from which the public health authorities could not much longer hold aloof, must ultimately result in a great lessening of the demand upon our hospitals, institutions for children, institutions for the blind, and insane asylums.

The Sanitary Requirements of Ventilation.—Dr. W. A. EVANS of Chicago said that good air was the most important problem before the Health Department. Ten thousand deaths a year from bad meat, bad water, or bad milk would produce a world-wide scandal, yet we accepted 10,000 deaths from bad air with complacency. The following were the basic principles of ventilation: 1. Attention must be concentrated on the habitual zones of a room, meaning a space from four feet above the floor to six and a half feet above. 2. Dead zones and corner eddies must be encouraged as settling places for bacteria. Such spaces must be cleaned daily with moist methods. 3. The breathing zone must be occupied by an even-up current of air, moving at the rate of at least sixty feet a minute from multiple floor inlets to multiple floor outlets. The temperature of the air reaching the breathing zone should never be higher than 80° F. and was better if it was under 70°. 4. The ventilating air should never enter the room at more than 40° below body temperature. 5. Air ducts must be short. 6. No particular attention should be paid to humidity. 7. The volume of air per quiet person per hour should be five hundred feet. 8. Under no circumstances should the windows be fixed, but a gale of wind should be allowed to blow through each twenty-four hours.

The Ventilation of Industrial Establishments.—Dr. C. T. GRAHAM ROGERS of New York stated that the Department of Labor of the State of New York had done much toward the betterment of public health in that State, besides which the Commissioner of Labor had sent a representative of the department to participate in this meeting. Some 430 separate air tests were made during six months of the fiscal year 1908, and a complete tabulation of the results might be found in the Eighth Annual Report of the Commissioner of Labor. Great strides had been made in improving the ventilation of schools and dwellings, but comparatively little progress had been made with the factories. It was to be hoped that some means would be secured to impress the laity with the importance of the subject. Inspections had been made of the New York bakeries, potteries, polishing and buffing rooms, tailor shops, cigar factories, clothing shops, jewelry stores, department stores, and others. The cry in the past had been for more light, but now it was for more air. We needed both, increasing the resistance of the body to disease, and making the nation stronger physically, mentally, and morally.

Cooperative Efforts in Supervision and Control of Milk Supply.—Dr. F. D. BELL of New York said the Board of Health of New York City required a permit from every milk dealer in the city, and if the dealer did not conduct his business in accordance with the requirements he was brought into court. The average milk dealer knew little about chemistry or bacteriology of milk, and an absolutely sterile milk was almost impossible to obtain because the public was not sufficiently educated to exact this quality of milk. The public was unwilling to pay for such a grade of milk, and the dealer and the average producer were not of a type capable of producing this quality. The average dairy farm was too small to produce milk economically and the dealers were unable to afford any systematic laboratory supervision or proper building and apparatus which they had come to believe were necessary for the production of milk. Regulations had been promulgated with the

health authorities, which, if rigidly enforced, would mean that the towns would be without any milk supply at all. The dealer and health officer should consider themselves friends, and such a feeling could be brought about only by the gradual process of developing mutual confidence.

An Investigation of the Extent of the Bacterial Pollution of the Atmosphere by Mouth Spray.—Mr. C. E. A. Winslow of Brookline, Mass., said that with the progress of exact knowledge sanatoria had been led to place less and less emphasis upon the part played by the atmosphere in the spread of zymotic disease. It had been shown that quietly inspired air was germ free and most of the particles in the mouth spray were rather coarse and settled rapidly. It was not intended to minimize the real danger from mouth spray, as large numbers of bacilli were discharged in coughing by some consumptive patients. Ziesche found in one case 20,000 tubercle bacilli on a glass plate of fifty square inches in area when exposed for half an hour at sixteen to thirty-two inches in front of the mouth of a tuberculous patient. In work rooms, offices, and such places the space between the heads of the workers should be at least three feet. This furnishes no basis for a belief that tuberculosis or any other disease was contracted to an appreciable extent through the inspired air, as the spray quickly settled and the conviction was not generally gaining ground that aerial infection of any sort was a minor factor in the spread of zymotic disease.

The Sex Problems in Industrial Hygiene.—Mrs. Florence Kelley of New York stated that it was more than one hundred years since the working people of England first began in the name of public health to get a shorter day for women. In 1847 a bill was passed in England limiting woman's labor to ten hours, but in 1895 in the enlightened state of Illinois, the Supreme Court held that it was unconstitutional to grant to women the same degree of protection. In the majority of our states it was lawful to require women to work in a factory or laundry or store any number of hours that a rush order might require. Our legal procedure was very curious. The Supreme Court was presumed to know only those items of common knowledge specifically laid before it, and it was necessary to collect some one hundred and sixty-two pages of common knowledge. For some time there was a law in New York that girls should not work in the stores after ten o'clock, but it was not enforced because of the claim that there were more important matters to look after. About twelve years ago the miners of Utah secured an eight-hour day because they worked underground, but the bakers of New York, who also worked underground, failed in their efforts.

The Relation of Life Insurance to Public Hygiene.—Dr. Lee Frankal of the Metropolitan Life Insurance Co. read this paper in which he contended that in no other country in the world would it be necessary to explain the relation of insurance to industrial and social hygiene. In Europe insurance was compulsory, and in the larger European cities the great mass of citizens were insured along the line of prevention. Their company distributed four million pamphlets, entitled, "The War on Consumption," calling attention to the fact that there were places where the individual might obtain treatment. They desired to cooperate with any agency in the community towards the prevention of tuberculosis and other preventable diseases. In Chicago they were asked to distribute copies of the ballot, which enabled them to secure a municipal sanatorium. They were now making experiments of sending a nurse to every sick policy holder, which had been successful so far. Their policy holders were being visited weekly, and if desired this association might make use of their organization in the promotion of public health.

Scope and Value of the Daily Press and Press Bureaus.—Dr. John V. Kingsbury of New York stated that the scope of publicity in public health was as broad as the scope of publicity in politics, and in order to be effective it must be made as striking as it was possible to make it. It was our problem in public health to arouse slumbering humanity to a full realization of the meaning of the frightful fact that disease germs caused the death of over fifty per cent. of the human race, and that in addition to this suffering and poverty which could hardly be imagined, they must convince the public that this great sacrifice was almost wholly needless. It was only within the last few years that there had been any considerable demand for the knowledge given the world almost a quarter of a century ago by Koch. They must learn from the patent medicine man his secrets of publicity. The trouble thus far was that all the money that had been given in this field of work had been put into the manufactory department and the advertising end of the business had been almost entirely neglected. They must get their goods into circulation. Moreover, there was a lack of proper cooperation between the producing and developing departments of their work. The American Public Health Association had long been in the business of producing knowledge of inestimable value. If advertisements could create new wants and new desires the satisfaction of which built up business for others, surely practical publicity could create a demand for such knowledge, and the nature and scope of such work would be limited only by its ability to get results.

The Physiological Aspects of Ventilation.—Dr. Theodore Hough of the University of Virginia said there was no argument against the hygienic importance of ventilation. The history of the subject showed that it was not so simple as often supposed. The poisonous material in the air of the room did not come from the lungs, but from the skin, clothing, decaying food particles in the mouth, or catarrhal exudates from the air passage. It was important to distinguish between the acute effects which were produced by prolonged exposure. The toxic material, so far as it was a factor, did harm chiefly when it acted over a comparatively long period, and they must seek elsewhere the explanation of the acute effect. While the introduction of fresh air was of great importance in removing the unfavorable physiological factors, it was even of more importance to maintain an even temperature of 68° to 70° since at that temperature the humidity was almost negligible, while the other ill effects, especially on the nervous system, seemed to be less noticeable and less important.

Age Problems in Industrial Hygiene.—Dr. Owen R. Lovejoy of New York said that in many States they were embarrassed by the attempt to secure the enactment, and after that the administration of laws regulating the ages at which children should be employed, because of the fact that it was impossible to tell when the ages began. The relation of age to industrial employment needed no discussion, yet they constantly met ignorant people who thought that a child was a small man, and that burdens which were proper for the man were proper for the child, if measured according to the child's age. There was a period between ten and sixteen that was so revolutionary in its nature as scarcely to be exceeded by the needs of the infant. It might be safely predicted that the awakening to the dangers of typhoid and other diseases would in another decade make the health department one of the most important, if not the most important department in any of our city governments. It had been assumed that the best employment for the child was agricultural, but it had been shown recently that on many truck farms conditions prevailed that were seriously detrimental to the child. Health officers should study carefully the relation of the industrial education of the community to the development of the physical life of the child.

Resolutions.—The following resolutions were introduced and adopted:

Resolved, That the American Public Health Association appoint a conference committee of five members to meet with the conference committee of the American Medical Association and with the conference committee from the Conference of State and Provincial Boards of Health with a view to considering the matter of cooperative work in public health with instructions to report at the next meeting of the American Public Health Association.

Resolved, That a committee of seven be authorized to arrange, if feasible, for the maintenance by the Association at the Fifteenth International Congress of Hygiene and Demography to be held in Washington in 1910, of headquarters, an exhibit, participation in meeting, official recognition, and such other matters as the committee deems proper.

Officers.—The following officers were elected: *President,* Dr. Charles O. Probst, Columbus, Ohio; *Vice-Presidents,* Dr. Charles A. Hodgetts, Toronto, Ont., Dr. Ernst C. Levy, Richmond, Va., Frederico Torralbas, Havana, Cuba; *Secretary,* Dr. William C. Woodward, Washington, D. C.; *Treasurer,* Dr. Frank W. Wright, New Haven, Conn.; *Executive Committee,* Drs. Eugene Buehler, Indianapolis, Marshall L. Price and Cressy L. Wilbur, Washington, D. C.

It was decided to hold the next annual meeting in Milwaukee.

Philadelphia County Medical Society.

At a stated meeting held October 27 Dr. T. Turner Thomas read a paper entitled "Capsulorrhaphy for Recurrent Dislocation of the Shoulder." He presented three patients on whom this operation had been performed successfully and he reported a fourth in addition. In three there was almost perfect restoration of function, while in the fourth, in which an earlier operation had been undertaken but without success, there was some tardiness in the final result on account of infection from a ligature and close approximation of the rent in the capsule. Dr. Stricker Coles read a paper entitled "The Frequency and Prevention of Puerperal Sepsis." He cited the infrequency of the complication under existing conditions, especially in private practice, and even when the surrounding conditions were bad. This result had been secured through asepsis and infrequency of examination during labor. Dr. J. J. Gilbride read a paper entitled "Starchy Food as a Factor in Some Cases of Dyspepsia." He referred to the fact that some persons are unable to take such articles of food as bread and potatoes without suffering epigastric distress and other related symptoms. Tincture of nux vomica before meals is a useful therapeutic agent in this connection. Dr. Oscar H. Allis read "A Memorial Sketch of the Late Dr. Richard J. Levis."

Maxillary Sinusitis and Osteitis.—E. J. Moure and Brindel emphasize the fact that osteitis often accompanies chronic suppurations of the maxillary sinus, and is found to be a benign complication. There is much importance attached to the diagnosis of the cause of the suppuration and the pathological conditions found in the bone. In many cases this osteitis is the result of a general infection by syphilis, often many years previous to the suppuration, and of which there has been no previous diagnosis. In some of these cases the syphilis was hereditary. In such cases antisyphilitic treatment brings about a rapid cure of the condition. In these syphilitic cases the bone is found to be spongy and bleed easily and profusely, so that the operation may have to be stopped to control the hemorrhage. In other nonsyphilitic cases there is an edematous and degenerated condition of the antral lining, with polypi, periostitis, and necrosis of the bone. The treatment, aside from general measures, demands a wide opening of the antrum into the nasal fossa, so as to keep up efficient drainage.—*Journal de Médecine de Bordeaux.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

North Carolina Board of Medical Examiners.

June, 1909.

ANATOMY.

Answer only ten questions.

1. Name the bones of the head and describe the frontal bone.
2. Where does abdominal aorta commence and where does it terminate? Name its branches.
3. Name the principal lobes of the brain and the fissures dividing them.
4. Give the origin and function of the trigeminus (fifth cranial) nerve, and name the divisions of the same.
5. With what bones does the astragalus articulate?
6. Describe the stomach, give its average size, attachments, regional location, gross structure, blood and nerve supply.
7. Give origin, insertion, and action and nerve supply of the following muscles: deltoid, soleus, and quadratus lumborum.
8. Give the surgical anatomy of femoral hernia.
9. Locate and describe the ovaries.
10. Give a histological description of an artery.
11. Describe the rectum.
12. Describe the iris, give its blood and nerve supply.

PHYSIOLOGY AND HYGIENE.

1. What evidence is there that the secretion of urine is not a simple process of filtration from the blood? State the probable nature of the stimulation controlling the secretion of urine.
2. Explain the structure and use of each of the three coats of blood vessels.
3. Name the principal centers of organic function situated in the medulla oblongata.
4. Give the teachings as to the (*a*) origin, (*b*) functions, (*c*) variations in number of leucocytes.
5. Define the functions of carbohydrate foods.
6. Discuss enzymes, giving (*a*) their general character, (*b*) six principal ones, where chiefly found, and their respective actions in the process of digestion.
7. What is the significance of (*a*) nitrates and (*b*) nitrites found in drinking water?
8. Give the prophylaxis of uncinariasis.
9. Discuss municipal supervision of a city's milk supply.
10. Discuss the contamination of air in dwellings consequent upon improper lighting, heating, and ventilation.

MATERIA MEDICA.

1. Name the organs influenced by (*a*) a cholagogue, (*b*) a sialogogue, (*c*) an oxytoxic, (*d*) a diaphoretic, (*e*) a mydriatic.
2. Give the official name, using the correct Latin terminations, of (*a*) Epsom salts, (*b*) Dover's powder, (*c*) calomel, (*d*) salol, (*e*) Fowler's solution, (*f*) Hoffman's anodyne, (*g*) cod liver oil, (*h*) sulphonal, (*i*) aristol, (*j*) spirit of nitroglycerin.
3. Define a tincture. Name four of the most important official tinctures and state per cent. strength of each.
4. Give the dose of (*a*) apomorphinæ hydrochloridum, (*b*) arseni trioxidum, (*c*) chloralum hydratum, (*d*) atropinæ sulphas, (*e*) hydrargyri chloridum corrosivum, (*f*) strychninæ sulphas, (*g*) hexamethylenamine, (*h*) tinctura aconiti, (*i*) tinctura gelsemii, (*j*) glandula suprarenalis sicca.
5. Give specific treatment for diphtheria and state (very briefly) how the remedy is obtained.
6. Give specific remedy for myxedema.
7. Write a prescription for dysentery.
8. Name four drugs which might be useful as local applications in tonsillitis (official remedies only).
9. Name five agents (not official drugs) which frequently cause poisoning.
10. Give specific antidote for poisoning by (*a*) bichloride of mercury, (*b*) arsenic, (*c*) iodine, (*d*) opium (emetics, stomach pump, etc., being taken for granted).

CHEMISTRY AND DISEASES OF CHILDREN.

1. A patient is found with a temperature of 104° Fahrenheit. Express this in Centigrade. (*b*) Express the equivalent of one grain (decimally) in grams.
2. Methyl alcohol: give (*a*) common name, (*d*) uses, (*e*) dangers.

3. Define combustion, and state what takes place when coal is burned.
4. What is fractional distillation?
5. Name four mineral acids used in medicine and give formula of each.
6. Ophthalmia neonatorum: (*a*) etiology and symptoms; (*b*) Credé method of prophylaxis; (*c*) treatment, general and medicinal.
7. Describe Kernig's symptom of cerebrospinal meningitis.
8. Give diagnosis and treatment of acute intussusception.
9. Describe the eruptions in (*a*) chickenpox, (*b*) smallpox, (*c*) measles, (*d*) scarlet fever.
10. Give most common complication in scarlet fever and treatment of same.

OBSTETRICS AND GYNECOLOGY.

1. Describe the uterus, its normal position, its relationship to other organs, and means by which it is held in place.
2. Give symptoms and treatment of placenta prævia.
3. What is phlegmasia alba dolens? At what time does it occur? What is the treatment?
4. What are the danger signals of impending eclampsia? Give treatment of eclampsia at eighth month of pregnancy.
5. Define abortion, miscarriage, and premature labor. Give treatment of an incomplete abortion.
6. Give the etiology and treatment of an acute general cystitis.
7. Define plastic operations as applied to gynecology.
8. What is the differential diagnosis between ascites and ovarian cyst.

PRACTICE OF MEDICINE.

1. Give differential diagnosis between peptic ulcer and carcinoma of stomach.
2. Give physical signs in croupous pneumonia—in the stage of solidification, and differentiate from pleurisy with effusion.
3. In aortic and mitral insufficiency, where is the murmur heard most distinctly, and its direction of transmission?
4. Give etiology of cerebrospinal meningitis, (epidemic) and characteristic symptoms.
5. Define arteriosclerosis, and give chief causes producing it.
6. Give symptoms of hemorrhage in typhoid fever, and treatment.
7. What is the chief cause of locomotor ataxia? Give symptoms briefly in initial and ataxic stages.
8. What conditions are found in examination of urine and circulation in chronic interstitial nephritis?
9. Give briefly treatment for acute articular rheumatism.
10. Write one prescription for local treatment of erysipelas.

SURGERY.

Answer only ten questions.

1. What is pathology and treatment of paronychia?
2. What is pathology and treatment of osteomyelitis of tibia?
3. Describe operation for radical cure of oblique inguinal hernia.
4. Describe operation for acute catarrhal appendicitis.
5. How would you treat a patient who had suddenly ceased to breathe while inhaling chloroform?
6. Describe method of preparing hands for a surgical operation or obstetrical examination.
7. Why do we have abscess of the liver following purulent appendicitis?
8. What is the rule as to fixation of joints above and below a fracture?
9. How do you differentiate between chancre and chancroid? What is period of incubation for each treatment?
10. Describe operation for talipes equinovarus.
11. For the diagnosis of what disease is the Wassermann reaction used?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

NORTH CAROLINA BOARD OF MEDICAL EXAMINERS.

June, 1909.

ANATOMY.

1. *Bones of the head:* Occipital, two parietal, two temporal, ethmoid, sphenoid, frontal, two lacrymal, two malar, two nasal, two palate, two superior maxillary, inferior maxillary, vomer, and two inferior turbinated.

The frontal bone consists of a vertical and a horizontal portion. The external surface of the vertical portion is convex, and presents the frontal eminence on either side of the median line; the superciliary ridges, produced by the frontal sinuses, beneath, below which is the supraorbital arch, forming the upper boundary of the orbit, and terminating on either side in the external angular process, articulating with the malar bone and the internal angular process, articulating with the lacrymal bone, and having at its inner third a notch or foramen, the supraorbital foramen, for passage of supraorbital artery, nerve, and vein. Ascending from the external angular process is the temporal ridge for attachment of temporal fascia. Between the internal angular processes is the nasal notch, for articulation with the nasal bone, and nasal process of superior maxilla, terminating below in the nasal spine, and above it projects the nasal eminence, or glabella, marking the location of the frontal sinuses. The posterior surface lodges the anterior lobes of the brain. In the median line is the frontal crest, which gives attachment to the falx cerebri, and terminates below in the foramen cecum. The crest is grooved for longitudinal sinus, and has on either side of it depressions for the Pacchionian bodies. This surface is also grooved for anterior meningeal arteries. The external surface of the horizontal portion is concave, to form the roof of the orbit, and separated from the opposite side by the ethmoidal notch. To the outer side is a depression for the lacrymal gland, and to the inner side one for the pulley of superior oblique. On the margin of the orbital plate are two notches converted into foramina by articulation with the ethmoid, the anterior ethmoidal canal, for passage of nasal nerve and anterior ethmoidal vessels, and the posterior ethmoidal canal, for passage of posterior ethmoidal vessels. The internal surface is marked by the convolutions of the anterior lobes of the brain. Between the two plates of the vertical portion are the frontal sinuses. It articulates with the parietal, sphenoid, ethmoid, nasal, superior maxillary, lacrymal, and malar bones. Its muscular attachments are three pairs—corrugator supercilii, articularis palpebrarum, and temporal. It is developed from membrane.—(After Young.)

2. *The abdominal aorta* commences at the aortic opening in the diaphragm, in front of the lower border of the body of the twelfth dorsal vertebra; it terminates at about the body of the fourth lumbar vertebra, where it bifurcates into the two common iliac arteries. Its branches are: Phrenic, celiac axis (gastric, hepatic, and splenic), superior mesenteric, suprarenal, renal, spermatic (or ovarian), inferior mesenteric, lumbar, and sacra media.

3. *The principal lobes of the brain* are: Frontal, parietal, occipital, temporosphenoidal, Island of Reil, and limbic lobe. The *principal fissures* are: The great longitudinal (separating the two cerebral hemispheres); the great transverse fissure (between cerebrum and cerebellum); the Sylvian fissure; the fissure of Rolando; the parieto-occipital fissure.

4. TRIGEMINUS (fifth cranial nerve). *Origin: Superficial*, from side of pons Varolii; *deep*, from medulla, and floor of fourth ventricle. *Divisions and Functions: First*, ophthalmic; sensory to anterior half of scalp, conjunctiva and skin of upper eyelid, cornea, skin of nose, mucous membrane of nose, lacrymal gland. *Second*, superior maxillary; sensory to conjunctiva and skin of lower eyelid, nose, cheek, upper lip, palate, upper teeth, and alveolar processes. *Third*, inferior maxillary; sensory to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower lip, teeth and alveolar processes of lower jaw. It is also motor to the muscles of mastication (temporal, masseter, two pterygoids), mylohyoid, and anterior belly of the digastric.

5. *The astragalus articulates* with: Tibia, fibula, os calcis, and scaphoid (or navicular).

6. STOMACH is conical, with base to left side; the upper border is concave, and is called the *lesser* curvature; the lower border is convex, and is named the *greater* curvature. The left extremity is known as the *fundus*, above and to the right of which is the *cardiac* orifice, and the right or small end is termed the *pyloric* extremity. It occupies left hypochondriac and epigastric regions. Its *orifices are cardiac*, above, communicating with the esophagus; *pyloric*, at the right extremity, passing into the duodenum. It is 10 to 12 inches long, 4 to 5 inches in diameter at widest part. Its *left* or *cardiac end* is fixed by esophagus and gastrophrenic ligament to diaphragm, lying beneath the seventh left costal cartilage, one inch from sternum; it is connected with the spleen by the gastrosplenic omentum. The *right* or *pyloric end* reaches the gall-bladder, touching under part of quadrate lobe of liver; is very movable; when stomach is empty is in midline four inches below tip of gladiolus. *Anterior surface*, which also looks upward, is in contact with, from left to right, diaphragm, abdominal parietes (epigastric region), under surface of

liver. *Posterior surface* is separated from pancreas, crura of diaphragm, aorta, vena cava inferior, and solar plexus, by lesser sac of peritoneum. *Superior border* is attached to liver by small omentum. *Inferior border* gives attachment to great omentum. *Coronary* and *pyloric* arteries run along lesser curvature; *right* and *left gastroepiploic*, along inferior or greater curvature; *vasa brevia*, from the splenic to fundus. *Right pneumogastric* nerve supplies to posterior surface; *left pneumogastric*, the anterior surface; *sympathetic*, from the solar plexus, both surfaces.—(*Aids to Anatomy.*)

7. Deltoid. *Origin:* From the outer third of anterior border and upper surface of the clavicle, from the outer margin and upper surface of the acromion process, and from the lower edge of the spine of the scapula. *Insertion:* Into the deltoid impression on the middle of the outer side of the shaft of the humerus. *Action:* It raises the arm from the side so as to bring it at right angles with the body; its anterior fibers draw the arm forward; its posterior fibers draw the arm backward. *Nerve supply:* The circumflex.

Soleus. *Origin:* From back of head of the fibula, and upper part of the posterior surface of shaft of fibula; from oblique line of tibia, and middle third of internal border of tibia. *Insertion:* Into lower part of posterior surface of os calcis. *Action:* To extend the foot, raise the heel; also in walking, standing, dancing. *Nerve supply:* Internal popliteal and posterior tibial.

Quadratus lumborum. *Origin:* From iliolumbar ligament, crest of ilium, and transverse processes of three or four lower lumbar vertebræ. *Insertion:* Into lower border of twelfth rib and transverse processes of four upper lumbar vertebræ. *Action:* It draws down twelfth rib, flexes spine laterally. *Nerve supply:* Anterior branches of lumbar nerves.

8. *Femoral hernia* leaves the abdomen through the femoral ring and descends into the femoral canal; this canal is funnel-shaped, is about half an inch in length, and ends at the saphenous opening. Femoral hernia is always *acquired*, and has a sac. Its course is first vertical, then forward, then upward over Poupart's ligament. Its coverings, from without inward, are: Skin, superficial fascia, cribriform fascia, crural sheath, septum crurale, subserous tissue, and peritoneum. The neck of the hernia is situated at the femoral ring; to its outer side lies the femoral vein, and to its inner side is Gimbernat's ligament; in front of it is Poupart's ligament, and behind it are the pubis, the Pectineus, and the pubic portion of the fascia lata. In the immediate neighborhood of the femoral ring are: Anteriorly, the communicating branch between the deep epigastric and the obturator arteries; externally, the femoral vein and deep epigastric vessels; superiorly, the spermatic cord (or round ligament) and the deep epigastric vessels.

9. The *ovaries* are two in number, and correspond to the testes in the male; they are of a flattened ovoid form, vertically placed in the posterior part of the broad ligament. By its anterior border the ovary is connected to the broad ligament, and by its lower pole to the uterus by a proper ligament, extending to the superior angle of the uterus, and called the *ligament of the ovary*. The lateral surfaces and posterior borders are free. The superior pole and posterior border are embraced by the Fallopian tube; on its inner surface it is in relation with small intestine in Douglas' pouch, and externally lies in a peritoneal fossa between the external and internal iliac vessels as they diverge. The vessels enter the hilum at the attached anterior border.—(*Aids to Anatomy.*)

10. An *artery* consists of three coats: The tunica interna, or internal coat; the tunica media, or middle coat, and the tunica adventitia, or external coat. The internal coat consists of a basement membrane, on which is a layer of endothelial cells. The middle coat consists of involuntary muscle fibers, between the layers of which are some elastic fibers. The external coat consists of connective tissue (white fibrous and yellow elastic). Between the two outer coats is an elastic membrane.

11. The *rectum* is the lowest part of the alimentary canal, and extends from the sigmoid flexure to the anus. It is about six inches in length, and is divided into three portions. The upper half only is invested with peritoneum. The upper third rests upon the sacral plexus and the pyriformis muscle; the middle third is in relation with the bladder, prostate, and seminal vesicles (in the female with uterus and vagina); the lower third is surrounded by the sphincters. It is not sacculated; the arteries are the hemorrhoidal branches of the inferior mesenteric, internal iliac, and internal pudic; the veins form the hemorrhoidal plexus, and empty into the inferior mesenteric and internal iliac veins.

12. The *iris* is a thin, circular, colored membrane suspended in the aqueous humor, behind the cornea and in front of the lens. It is perforated by a circular aperture—the pupil. It is connected with the choroid, the sclerotic, and cornea. It consists of a stroma of connective tissue, with blood vessels, nerves, pigment cells, and also two groups of involuntary muscle fibers—circular and radiating. *Blood supply:* Long and anterior ciliary arteries, and short ciliary arteries. *Nerves:* Ciliary, from lenticular ganglion and nasal branch of ophthalmic division of fifth cranial nerve.

PHYSIOLOGY AND HYGIENE.

1. Evidence that the secretion of the urine is not a simple process of filtration from the blood rests mainly on the following facts:

"1. It has been shown that the renal epithelium does excrete indigo carmine from the blood when a solution of this material is injected into the veins; by dividing the spinal cord to prevent the excretion of water, which would wash away the indigo carmine, after allowing an appropriate time to elapse before killing the animal, the epithelium of the convoluted tubules will be found loaded with the indigo carmine.

"2. In the amphibia (frogs, newts, etc.), the kidney has a double vascular supply; the glomeruli of the Malpighian bodies are supplied by the renal arteries, and the capillaries of the renal tubules by veins called renal portal veins. By tying the one or the other set of vessels and injecting various materials into the blood it has been shown that urea is only excreted by the cells of the tubules, and that sugar, peptones, and albumins are only excreted by the glomeruli."—(*Aids to Physiology.*)

The nerves are both *vasodilator* and *vasoconstrictor:* true secretory nerves have not yet been discovered.

2. For structure of the three coats of an artery, see above, Anatomy 10. Veins also have three coats, arranged similarly to those of arteries, but the middle coat possesses less elastic and muscle tissue and more fibrous tissue, hence the tendency of veins to collapse when empty. In veins the external coat is the thickest; in arteries the middle coat is the thickest. Veins have valves, as a rule. Functions of the endothelial lining of the inner coat is to make a smooth surface for the circulation of the blood with as little friction as possible. The muscular fibers supply contractility. The elastic fibers supply elasticity. The connective tissue fibers supply strength and support.

3. The principal centers of organic function situated in the medulla are: (1) Center for mastication; (2) for secretion of saliva; (3) for sucking; (4) for deglutition; (5) for vomiting; (6) for voice; (7) center for expression; (8) cardiac centers; (9) respiratory centers; (10) vasomotor centers.

4. Leucocytes. (*a*) *Origin:* Supposed to be formed in the spleen, lymph glands, and lymphoid tissue. (*b*) *Functions:* (1) To serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma. (*c*) *Variations in number:* Normally between 7,000 and 10,000 or 12,000 in each cubic millimeter of blood.

5. The *function of the carbohydrate food* is to supply animal heat and energy; also to form fats and possibly to help form proteids.

6. *Enzymes* (*a*) are substances formed by living cells, which act specifically upon definite substances, and which themselves remain unchanged during this action. Their specific action is shown in the following table. Enzymes are generally soluble in water or saline solution; they act best at about the body temperature, and are destroyed by high temperatures; excess of alcohol tends to precipitate them from their solutions; the enzymes can act almost indefinitely, but the products of their activity must be removed. (*b*) *Six principal enzymes:*

ENZYMES	ORIGIN	ACTION ON FOOD MATERIALS
Ptyalin.	Saliva.	Changes starches into dextrin and sugar.
Pepsin.	Gastric Juice.	Changes proteids into proteoses and peptones in an acid medium.

ENZYMES	ORIGIN	ACTION ON FOOD MATERIALS
Trypsin.	Pancreatic Juice.	Changes proteids into proteoses and peptones, and afterward decomposes them into leucin and tyrosin; in an alkaline medium.
Amylopsin.		Converts starches into maltose.
Steapsin.		Emulsifies and saponifies fats.
Invertin.	Intestinal Juice.	Converts maltose into Glucose.

7. (*a*) *Nitrates* are generally due to oxidation of organic matter of animal origin. A trace of nitrate, not exceeding N = 0.35 per 100,000, would not suffice to condemn a water otherwise pure. (*b*) *Nitrites* are due to sewage contamination; their presence should condemn the water. They indicate more recent and therefore more dangerous contamination than nitrates.

8. *Prophylaxis of uncinariasis* consists in: (1) Boiling the drinking water; (2) washing of the hands before meals; (3) not going barefooted; (4) disinfection of the stools of all infected persons.

9. *Municipal supervision of a city's milk supply.* Theoretically, this should be desirable, because: (1) Milk is adulterated very frequently; (2) diseases are conveyed through milk; (3) cowsheds, dairies, and milkshops are often in a most unsanitary condition; (4) persons suffering from infectious diseases are occasionally employed in the milking or storage or distribution of milk. Municipal supervision *might* prevent all of this. But experience shows that municipal authorities are not always any more keen than others in doing their duty; graft, persecution, and tyranny might result; the price of milk would be unduly raised, and every political evil might reign supreme. If these evils can be prevented, municipal supervision would be most desirable.

10. The air is contaminated by *combustion* (in which oxygen is decreased, and there are given off: Nitrogen, carbon dioxide, ammonia, sulphur dioxide, and carbon monoxide); *respiration* (in which oxygen is decreased, carbon dioxide is increased, ammonia and organic matter are produced). *Improper ventilation* increases all these evils. Various diseases are directly produced, or indirectly induced.

MATERIA MEDICA.

1. (*a*) *Cholagogues* influence the liver; (*b*) *sialagogues*, the salivary glands; (*c*) *oxytocics*, the uterus; (*d*) *diaphoretics*, the sweat glands; (*e*) *mydriatics*, the eye.

2. (*a*) *Epsom salts* is Magnesii sulphas; (*b*) *Dover's powder* is Pulvis ipecacuanhæ et opii; (*c*) *calomel* is Hydrargyri chloridum mite; (*d*) *salol* is Phenylis salilylas; (*e*) *Fowler's solution* is liquor potassii arsenitis; (*f*) *Hoffmann's anodyne* spiritus ætheris compositus; (*g*) *cod liver oil* is Oleum morrhuæ; (*h*) *sulphonal* is Sulphon-methanum; (*i*) *aristol* is Thymolis iodidum; (*j*) *spirit of nitroglycerin* is Spiritus glycerylis nitratis.

3. A *tincture* is an alcoholic solution of a medicinal substance. (1) Tincture of aconite, 10 per cent. (2) Tincture of nux vomica, 2 per cent. (3) Tincture of iodine, 7 per cent. (4) Tincture of digitalis, 10 per cent.

4. Doses. (*a*) Apomorphinæ hydrochloridum, gr. 1/10, as an emetic. (*b*) Arseni trioxidum, gr. 1/30. (*c*) Chloralum hydratum, gr. xv. (*d*) Atropinæ sulphas, gr. 1/60. (*e*) Hydrargyri chloridum corrosivum, gr. 1/20. (*f*) Strychninæ sulphas, gr. 1/64. (*g*) Hexamethylenamine, gr. iv. (*h*) Tinctura aconiti, ♏x. (*i*) Tinctura gelsemii, ♏viii. (*j*) Glandula suprarenalis sicca, gr. iv.

5. Specific treatment for diphtheria is diphtheria antitoxin; dose, 3000 units; immunizing dose for well persons, 500 units.

The serum of the blood of the horse, immunized by repeated injections of diphtheria toxin from cultures of the bacillus.

6. Specific remedy for myxedema—dry thyroid of the sheep.

7. *Prescription for Dysentery:*

℞ Acidi sulphurici aromatici, ℥jss.
Spiritus chloroformi, ℥ij.
Tincturæ opii camphoratæ, ℥ij.
Syrupi zingiberis, q.s. ad ℥iv. Misce.
Signa: Dessertspoonful in water every two hours.

8. For local applications in tonsillitis. Alum, guaiacol, hydrogen peroxide, nitrate of silver.

9. Poisoning may be produced by: (1) Illuminating gas, (2) headache powders, (3) ptomaines, (4) snake bite, and (5) fungi (mushrooms, toadstools).

10. *Antidote* for (*a*) bichloride of mercury is white of egg or milk; (*b*) for arsenic, is freshly prepared solution of ferric hydroxide; (*c*) for iodine, is starch paste; (*d*) for opium, is caffeine, or strychnine.

CHEMISTRY AND DISEASES OF CHILDREN.

1. Since C = 5/9 (F − 32), C = 5/9 (104 − 32) = 5/9 of 72 = 40°.
Therefore 104 Fahrenheit = 40° Centigrade.
(*b*) One grain = 0.005 gram.

2. Methyl alcohol. (*a*) *Common name:* Wood spirit. (*b*) *Uses:* Solvent of resins, sulphur, phosphorus, potash, soda, and volatile oils. (*c*) *Dangers:* It should not be used in pharmacy, or taken internally, even when purified, for it has caused blindness and death.

3. *Combustion* is rapid oxidation with the giving off of light and heat. When coal is burned, the carbon unites with the oxygen of the air, producing carbon monoxide and carbon dioxide; other gases and liquids are also given off, and the coal is decomposed and gradually disappears, only some ashes being left.

4. *Fractional distillation* is a process by which liquids with different boiling points may be separated in a pure condition; it is largely used in the separation of coal tar products. The temperature of the mixture is gradually raised, so that the components are distilled off successively in the order of their volatility.

5. *Four mineral acids:* Hydrochloric acid, HCl; nitric acid, HNO_3; sulphuric acid, H_2SO_4; phosphoric acid, H_3PO_4.

6. Ophthalmia neonatorum. *Causes:* The gonococcus or some other pyogenic microorganism; the secretions of the mother contain the infecting agent, and transmission may occur directly during parturition, or indirectly by the fingers of physician or nurse, cloths, instruments, etc. *Symptoms:* Swollen eyelids, with copious purulent discharge; ulceration of the cornea may ensue. *Prophylaxis:* Whenever there is the possibility of infection, or in every case, wash the eyelids of the newborn child with clean warm water, and drop on the cornea of each eye one drop of a 1 per cent. solution of nitrate of silver, immediately after birth. *Treatment:* Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a 2 per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

7. Kernig's symptom of cerebrospinal meningitis consists in the fact that if the thighs or legs are flexed they cannot then be fully extended, owing to the contracture of the muscles on the posterior of the thigh.

8. Acute intussusception. *Diagnosis:* Sudden onset, severe localized pain, vomiting, tenesmus, and passage of bloody mucus. There is a sausage-like tumor in the abdomen; sometimes it can be felt in the rectum. Fecal impaction or appendicitis may simulate it, but in the former the swelling is less tender and is on the left side; in the latter there is fever, and the tumor is on the right side. *Treatment:* Laparotomy and reduction of the bowel as soon as possible. Gentle manipulations, enemata, and opium have been suggested, but these should be adopted only when surgical relief is not available.

9. (*a*) *In chickenpox:* The eruption usually appears first on the trunk, is evident on the first day, comes in successive crops, is not shotty, and disappears on stretching the skin; the spots are unilocular, and collapse on being punctured. (*b*) *In smallpox:* The eruption usually appears first on the forehead and wrists, and on the third or fourth day; it is first macular, then papular, then vesicular, and finally pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin. (*c*) *In measles:* Eruption appears on fourth day as small dark red papules with crescentic borders, beginning on face and rapidly spreading over entire body; desquamation is branny. (*d*) *In scarlet fever:* Eruption appears at end of twenty-four hours, as a scarlet puncture rash, beginning on neck and chest then covering face and body; desquamation is scaly or in flakes.

10. Most common complications of scarlet fever are: Arthritis, endocarditis, bronchopneumonia, ear troubles (perforation, deafness), facial paralysis or meningitis.

suppuration of cervical glands, nephritis. *Treatment,* as a rule, same as in nonscarlatinal cases; warm and sedative applications, with cotton wool for arthritis, also alkalies; for the throat, ice to suck, warm applications externally, antiseptic sprays; tonics and stimulants. A minimum of nitrogenous food to avoid irritating the kidneys. For the nephritis: The patient should be kept in bed, kept quiet, and kept warm. Milk diet should be the rule; the milk can be diluted with limewater or Vichy. Salines, as potassium bitartrate or magnesium citrate or sulphate, and diaphoretics, as sweet spirit of niter, or pilocarpin, may be administered. Warm baths are helpful, and infusion of digitalis should be given.

OBSTETRICS AND GYNECOLOGY.

1. In the nulliparous adult the uterus is about three inches long, about two inches wide at the upper part, and about one inch thick. The uterus lies between the rectum behind and the bladder in front; it is below the abdominal cavity and above the vagina. Its position is one of slight anteflexion, with its long axis at right angles to the long axis of the vagina. The anterior surface of its body rests on the bladder, and the cervix points backward toward the coccyx. The uterus is not fixed, but moves freely within certain limits. It is held in place by ligaments—broad ligaments, round ligaments, vesicouterine, and rectouterine.

2. The *symptoms* of placenta prævia are: Sudden hemorrhage, accompanied by syncope, vertigo, restlessness, and feeble pulse. *Treatment:* Stop the hemorrhage by a vaginal tampon; this must be tight and thorough. *Accouchement forcé* is indicated; this consists of dilatation of cervix, version, and immediate extraction of the child.

3. *Phlegmasia alba dolens* is a form of manifestation of puerperal sepsis in which there is a thrombosis of the iliac or femoral vein. Sometimes it occurs after a uterine phlebitis, in which clots are carried from the uterine sinuses to the hypogastric veins, where they cause obstruction to the blood flow in the crural veins. The trouble may also begin as a crural phlebitis. It is thus due either to cellulitis or to thrombosis. It usually appears about the third or fourth week of the puerperium. *Treatment:* Liquid and nutritious diet, tonics, stimulants, mild laxatives, opiates, or hypnotics, absolute rest in bed; the affected limb should be slightly elevated; laudanum or belladonna poultices may be applied. An elastic bandage should subsequently be worn.

4. *The danger signals of impending eclampsia* are: Headache; tinnitus aurium; dizziness; pain over stomach; digestive, visual, and nervous disturbances; general debility; insomnia, vomiting, and vertigo. For *preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ. The *curative treatment* includes: (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

5. *Abortion* is delivery of the product of conception before the twelfth week.

Miscarriage is delivery of the product of conception between the twelfth and twenty-eighth weeks.

Premature labor is delivery of the fetus between the twenty-eighth week and full term.

Treatment of an incomplete abortion: Anesthetize the patient, dilate the cervix, with finger or curette remove all débris, irrigate with saline or antiseptic solution, and keep in bed.

6. ACUTE CYSTITIS. (*a*) *Etiology:* Various pathogenic bacteria, foreign bodies, traumatism, retention of urine, unclean catheters, cold. (*b*) *Treatment* includes: Rest, administration of plenty of cold water or milk, diuretics, bland and mild food, laxatives, hot sitz baths or vaginal douches, irrigation of the bladder with antiseptic solution followed by solution of nitrate of silver.

7. *Plastic operations in gynecology* are such as are done: (1) for the repair of lacerations of the perineum or cervix; (2) for vaginal fistulæ; (3) for the narrowing of the vagina, and the treatment of cystocele or rectocele; and (4) various other operations on vulva, urethra, or anus.

8.

ASCITES	OVARIAN CYST.
1. Previous history of visceral disease.	1. No such history.
2. Enlargement comparatively sudden.	2. Gradual.
3. Face puffy; color waxy; early anemia.	3. Facies ovariana. Anemia absent, or later.
4. Patient on back, enlargement symmetrical; flat in front.	4. Asymmetrical until tumor is quite large; prominent in front.
5. Sitting up, abdomen bulges below.	5. No appreciable change.
6. Navel prominent and thinned.	6. Navel usually unchanged.
7. Fluctuation decidedly clear, diffuse throughout abdomen, but avoids highest parts in all positions, and always has a hydrostatic level.	7. Less clear; limited to cyst; not modified by change of position. No hydrostatic level.
8. Intestines float on top of fluid; hence percussion gives clear tympanitic note over the highest parts of abdominal cavity, and dulness in lowest parts for all positions—*i.e.* areas of resonance and dullness change with position.	8. No change in areas of dullness and resonance with change of position. Dullness over cyst. Clear resonant note in all parts beyond cyst limits, *i.e.* in flanks and toward the diaphragm.
9. Vaginal touch detects fluctuation, bulging into vagina.	9. Vaginal fluctuation less clear or absent.
10. Uterus in prolapsed location, but position unchanged. Size and mobility unchanged.	10. Uterus displaced forward or backward, or laterally by pressure of cyst.
11. Hydragogues and diuretics temporarily remove the fluid.	11. Medicines have no effect.
12. Fluid light straw color and thin. Coagulates spontaneously.	12. Fluid light or dark and of varying consistency: albuminous, but does not coagulate spontaneously; may contain colloid matter.

—(From Dudley's *Gynecology.*)

PRACTICE OF MEDICINE.

1. *Peptic ulcer* is generally caused by injury or bacteria; is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating; hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl.

Carcinoma of the stomach does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious, and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; severe anemia and cachexia are also present.

2. In croupous pneumonia, in the stage of solidification, the physical signs are: Diminished chest movement; increased vocal fremitus; absence of vesicular breathing, presence of tubular breathing, increased vocal resonance, bronchophony, or pectoriloquy; dullness on percussion.

ACUTE PNEUMONIA.	EXUDATIVE PLEURISY.
Onset very sudden and symptoms severe—convulsions, etc., cough first, followed by pain in the side.	Onset moderately sudden, and symptoms not severe—chilliness and pain in the side, followed by cough.
Temperature very high, 104° or often 105° F.	Temperature not high, 101.5° or 102° F.
Pulse-respiration ratio greatly disturbed.	Pulse-respiration ratio not disturbed.
Bright crimson flush on the cheeks, and the muscular prostration is considerable.	Face is pale, and there is little loss of muscular power.
Cough is short and hacking or in paroxysms; and the sputum, when brought up, is rusty and tenacious.	Cough is dry and painful, and patient tries to repress it.
Organs not displaced.	Organs displaced.

ACUTE PNEUMONIA.	EXUDATIVE PLEURISY.
Dullness on percussion not complete, and the sense of resistance almost nil.	Dullness complete, with sense of great resistance.
Respiratory sounds tubular, and fine crepitation heard at border of consolidation.	Respiratory sounds much diminished, and friction heard at upper margin of effusion.
Vocal resonance increased.	Vocal resonance greatly diminished.
Vocal fremitus increased.	Vocal fremitus diminished or absent.
The physical signs are limited to the front or back of the chest.	The physical signs are found both at the back and front of the affected side

3.

	MURMUR HEARD BEST.	TRANSMITTED.
Aortic Insufficiency..	Second right intercostal space.	Down sternum, and towards apex.
Mitral Insufficiency..	At apex.	Left axilla and angle of scapula.

4. CEREBROSPINAL MENINGITIS. *Etiology:* The diplococcus intracellularis of Weichselbaum, or streptococcus pyogenes, or pneumococcus.

Characteristic symptoms: Sudden onset, very severe pain in neck, back of head and spine, head is strongly retracted, causing opisthotonos, Kernig's sign (see above, CHEMISTRY, No. 7) is present; delirium may be present; the diplococcus may be found in the cerebrospinal fluid.

5. *Arteriosclerosis* is a condition in which the walls of an artery, especially the intima, become hard, dry, and thickened.

Etiology: Syphilis, alcoholism, gout, Bright's disease, overeating, and excessive muscular exertion. It is most liable to occur in old age.

6. *Symptoms of hemorrhage in typhoid fever:* Sudden drop in the body temperature, dark red or tarry stools, collapse.

Treatment: Absolute rest; elevate the foot of the bed: ice, morphine, and ergot have all been used with satisfaction.

7. *The chief cause of locomotor ataxia* is syphilis.

Symptoms: Loss of coordination; characteristic and unsteady gait; tendency to stagger when standing up with feet together and eyes closed; sharp and paroxysmal pain, called *crises;* girdle sensation; loss of knee-jerk and other reflexes; Argyll-Robertson pupil.

8. In *chronic interstitial nephritis* the *urine* is increased in quantity, is of low specific gravity, a few hyaline casts may be present, albumin is present in small amount or is absent, and urea and salts are diminished.

Circulation: Heart is generally hypertrophied and dilated; arteries are sclerosed and thickened; pulse is hard and there is increased arterial tension.

9. *Treatment of acute articular rheumatism:* The patient must lie in bed, between blankets, and in flannel; the affected joints and limbs must further be covered with warm flannel or cotton wool. Sodium salicylate or oil of wintergreen must be administered, and oil of gaultheria may also be applied locally to the affected parts. Acetate and citrate of potassium are also useful. For the pain, Dover's powder, or phenacetin, or morphine may be necessary. A cold bath is probably the best thing for the high fever. The diet should be liquid, and simple but nourishing; milk being the best.

10. *Prescription for local treatment of erysipelas:*

℞ Ichthyol, gr. xxxv.
Resorcin, ʒss.
Unguenti hydrargyri, ʒiv.
Adipis lanæ hydrosi, ʒv. Misce.
Signa: Apply freely, and cover with lint.

SURGERY.

1. *Paronychia* is a cellulitis beginning at the end or side of the finger and involving the parts around and below the nail. The pus organisms enter through a puncture, an abrasion, or an ulcerated hang-nail. *Treatment* is free and early incision, drainage, antiseptic dressings, tonics, and stimulants. The nail may or may not have to be removed.

2. OSTEOMYELITIS OF TIBIA. *Pathological Changes:* "The area of the medulla affected becomes hyperemic; exudation occurs in the cancellous spaces, Haversian canals, and under the periosteum. Pus soon forms in these three situations. If the disease begins in the superficial part of the bone, the pus may only be subperiosteal, the deeper part of the bone escaping, though large areas of the superficial portion may die from the combined action of (1) stripping up of the periosteum by the pus, (2) strangulation of the vessels in the bone by the pressure of the exudation, and (3) the toxic action of the bacterial products. . . . When the disease begins in the deeper layers of the bone, the pus may reach the periosteum, or extend along the medullary cavity, so that the veins become filled with septic thrombus, which may be disintegrated and carried off as septic emboli (pyemia). There is profound toxemia, and necrosis of the whole diaphysis may occur. . . . If the infection is mild, a chronic abscess may be formed in the cancellous tissue. The usual course of an acute case, if a patient survives, is that there is some necrosis of the shaft of the bone. The abscess bursts externally, and there are numerous openings in the skin leading through openings (cloacæ) in the periosteum and involucrum down to the sequestrum. The sequestrum becomes loose in six weeks to six months." (From *Aids to Surgery.*)

Treatment is immediate incision down through the periosteum; the surface of the bone must be opened with gouge or chisel, pus evacuated, and drainage instituted; irrigation with hot bichloride solution and packing with gauze. The medulla of the bone must be freely exposed, and any suppurating material removed. Constitutional treatment and rest are, of course, indicated.

3. "Many operations are practised, but Bassini's is the most useful. An incision 2½ inches long is made over the inguinal canal, exposing the structures of the cord and the external oblique. The external oblique fibers are split from the apex of the external ring to expose the canal. The sac is found, opened, emptied of its contents, and isolated from the structures of the cord up to the internal ring. If the hernia is irreducible, the intestine is freed and returned to the abdomen, omentum being ligatured and removed. The neck of the sac is then transfixed and tied with silk, and the fundus removed. The stump returns to the abdomen, three or four stitches are then passed through the conjoined tendon and arched fibers of the internal oblique and transversalis muscles above, and the deep part of Poupart's ligament below. These are tied behind the cord. The external oblique is then sutured in front of the cord, leaving just sufficient opening for it to pass through without pressure. The skin is then closed by a continuous stitch. The patient should be kept in bed for three weeks, and should not exert himself for at least six weeks. If the wound has suppurated, or if the case is one in which the abdominal muscles are weak, it is advisable that a light truss should be worn afterwards for six months." (From *Aids to Surgery.*)

4. For operation, see any text-book on Surgery.

5. Stop the administration of further chloroform, open the patient's mouth, draw out his tongue, start artificial respiration. Mouth and throat must be sponged out if necessary; a hypodermic injection of strychnine, ether or brandy may be given, but the artificial respiration must not be stopped.

6. *To prepare the hands:* The hands and forearms should be rubbed with spirits of turpentine; then scrubbed with castile soap, hot water, and a sterilized nail brush; this should continue for several minutes; thorough rinsing must follow; the hands are then to be soaked for two minutes in a 1:1,000 bichloride of mercury solution. Care must then be taken lest the hands touch anything that is not sterile.

7. Abscess of the liver may occur after purulent appendicitis, owing to the possibility of infection from the appendix reaching the liver through the portal vein, or through the lymphatics.

8. The joints both above and below a fracture should always be immobilized.

9.

CHANCRE.	CHANCROID.
First lesion of a constitutional disease, viz., syphilis.	A local disease.
Due to syphilitic infection.	Due to contact with secretion from chancroid.
Generally a venereal infection.	Always a venereal infection.
May occur anywhere on the body.	Nearly always on genitals.

CHANCRE.	CHANCROID.
Period of incubation never so short as ten days.	Period of incubation always less than ten days (generally about three).
Generally single.	Generally multiple.
Not autoinoculable.	Autoinoculable.
Secretion slight.	Secretion profuse and purulent.
Slightly or not at all painful.	Generally painful.
As a rule only occurs once in any patient.	May reoccur in same patient.
Buboes are painless and seldom suppurate.	Buboes are painful and usually suppurate.

The period of incubation of *chancre* is anywhere from two to six weeks after infection; of *chancroid* is about two to five days after infection.

10. PHELPS' OPERATION. *Step* 1.—Render limb bloodless by elevation and apply tourniquet. Place the foot, with outer side downwards, on a sand-bag. Have the heel held firmly. Grasp the distal portion of the foot and make the plaster tissues tense. *Step* 2.—On the inner side of the foot make an incision beginning directly in front of the malleolus and ending one-fourth of the distance across the sole of the foot. Divide *all* resisting structures, penetrating to the bone if necessary. *Step* 3.—By manipulation complete the overcorrection of the varus. *Step* 4.—Correct the equinus by achillotomy. *Step* 5.—Pack the wound with iodoform gauze. Dress. Immobilize, in a position of overcorrection, by a plaster-of-Paris bandage, which reaches well up the calf. While the plaster is hardening, hold the foot in its new position by means of a flat board laid against the sole. *Step* 6.—Remove the tourniquet. Elevate the limb for twenty-four hours.

11. The Wasserman reaction is used for the diagnosis of syphilis.

BULLETIN OF APPROACHING EXAMINATION.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. —
Arizona*	Ancil Martin, Phoenix	Phœnix	Jan. 3
Arkansas*	F. T. Murphy, Brinkley	Little Rock	May 10
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 7
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 4
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Mar. 8
Delaware	J. H. Wilson, Dover	Dover	Dec. 14
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Jan. 11
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	
Georgia	E. R. Anthony, Griffin	Atlanta	Apr. —
Idaho*	W. F. Howard, Pocatello		Apr. 5
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 11
Iowa	Louis A. Thomas, Des Moines	Des Moines	Dec. 7
Kansas	F. P. Hacfield, Olathe	Kansas City	Feb. 8
Kentucky	J. N. McCormack, Bowling Green	Louisville	Dec. 14
Louisiana	P. A LaRue, 211 Camp Street, New Orleans	New Orleans	May 17
Maine	F. W. Searle, Portland	Portland	Mar. —
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 14
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Mar. 8
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 14
Minnesota	W. S. Fullerton, St. Paul	St. Paul	May 10
Mississippi	S. H. McLean, Jackson	Jackson	May 10
Missouri	J. A. B. Adcock, Warrenshurg	Jefferson City	Dec. 7
Montana*	Wm. C. Riddell, Helena	Helena	Apr. 5
Nebraska	C. A. Carr, Lincoln	Lincoln	Feb. 2
Nevada	S. L. Lee, Carson City	Carson City	May 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 4
New Jersey	H. G. Norton, Trenton	Trenton	June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jan. 10
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	Feb. 1
N. Carolina	B. K Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 4
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 14
Oklahoma*	F. P. Davis, Enid	Guthrie	Jan. 11
Oregon	B. E. Miller, Portland	Portland	Jan. 4
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	Dec. 14
Rhode Island*	G. T. Swarts, Providence	Providence	Jan. 6
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	Jan. 12
Tennessee	C. A. Abernathy, Pulaski	Memphis Nashville Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Austin	June 28
Utah	P. W. Pisher, Salt Lake City	Salt Lake City	Jan. 3
Vermont	W. Scott Nay Underhill	Montpelier	Jan. 11
Virginia	R. S. Martin Stuart	Lynchburg	Dec. 15
Washington*	T. C. McFadden, Seattle	Spokane	Jan. 4
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg	
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 11
Wyoming	S. B. Miller, Laramie	Cheyenue	Feb. 16

* No reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of November 13, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	538	179
Diphtheria	324	38
Measles	197	3
Scarlet Fever	191	15
Smallpox	1	—
Varicella	130	—
Typhoid Fever	59	19
Whooping Cough	28	3
Cerebrospinal Meningitis	5	4
Malarial Fever	—	—
Totals	1,473	261

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended November 12, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Alabama, Mobile	Oct. 17–23	1	..
Georgia, Macon	Oct. 16–31	3	..
Illinois, Chicago	Oct. 24–30	2	..
Indiana, Muncie	Oct. 1–31	9	..
Kansas, Labette County, Parsons	Sept. 1–30	1	..
Scott County	Sept. 1–30	1	..
Shawnee County, Topeka	Sept. 1–30	2	..
Louisiana, New Orleans	Oct. 1–30	1	..
Michigan, Saginaw	Oct. 10–16	3	..
Montana, Dawson County	Sept. 1–30	2	..
Silver Bow County	Sept. 1–30	1	..
New York, Buffalo	Oct. 24–30	2	..
Ohio, Springfield	Oct. 17–30	6	..
Oregon, General	July 1–31	21	..
"	Aug. 1–31	15	..
Portland	Sept. 1–30	8	..
Texas, San Antonio	Oct. 1–30	1	..
Utah, General	Sept. 1–30	59	..
Wisconsin, La Crosse	Oct. 24–30	1	..

SMALLPOX—FOREIGN.

Brazil, Bahia	Sept. 25–Oct. 8	25	15
Pernambuco	Aug. 16–31	..	11
Rio de Janeiro	Sept. 27–Oct. 10	3	..
China, Shanghai	Sept. 25	Present among natives	
Great Britain, London	Oct. 3–9	1	..
India, Bombay	Sept. 29–Oct. 5	..	4
Madras	Sept. 25–Oct. 1	..	2
Rangoon	Sept. 19–25	..	1
Italy, General	Oct. 11–17	37	..
Genoa	Oct. 1–15	1	..
Naples	Oct. 11–17	4	..
Mexico, Medellin	Oct. 18–24	Present in vicinity	
Monterey	Oct. 18–24	..	1
Soledad	Oct. 18–24	3	..
Veracruz	Oct. 24–26	10	1 case from Orizaba. Oct. 26 1 case on s.s. Montevideo
Russia, Moscow	Oct. 3–9	2	..
Odessa	Oct. 3–9	12	5
Riga	Oct. 3–10	1	..
Warsaw	Sept. 5–11	..	2
Spain, Almeria	Sept. 1–30	..	3
Barcelona	Oct. 12–18	..	4
Huelva	Sept. 1–30	..	14
Valencia	Oct. 9–16	1	..
Vigo	Oct. 9–16	..	1
Uruguay, Montevideo	Aug. 1–31	..	8

CHOLERA.

Belgium, Boom	Oct. 26–30	9	6 Vicinity of Antwerp
China, Amoy	Sept. 19–25	..	22
Shanghai	Sept. 25	Present among natives	
Germany, Andreischen	Nov. 1	3	..
Heydekrug	Nov. 1	1	..
Lalian district	Nov. 1	3	..
Neiderung district	Nov. 1	3	..
India, Bombay	Sept. 29–Oct. 5	..	6
Rangoon	Sept. 12–25	..	10
Java, Batavia	Sept. 12–25	200	100
Russia, St. Petersburg	Oct. 9–15	266	111
Moscow	Oct. 3–9	..	1
Riga	Oct. 10–16	4	2

YELLOW FEVER.

Brazil, Para	Oct. 9–16	4	2
Pernambuco	Aug. 16–31	..	1
Mexico, Merida	Oct. 20–21	2	1

PLAGUE—UNITED STATES.

California, Contra Costa County, Oakland	Oct. 26	1	..

PLAGUE—FOREIGN.

Brazil, Bahia	Sept. 25–Oct. 8	18	13
Rio de Janeiro	Oct. 3–10	1	..
China, Amoy	Sept. 19–25	..	38
Japan, Kobe	Sept. 26–Oct. 2	7	3
India, General	Sept. 19–25	4,657	3,595
Bombay	Sept. 29–Oct. 5	..	15
Rangoon	Sept. 12–25	..	5

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Original Articles.

THE TREATMENT OF PULMONARY TUBERCULOSIS BASED ON THE ASSUMPTION THAT THE DIETETIC CAUSE OF THE DISEASE IS LIME STARVATION.

PRELIMINARY REPORT OF RESULTS.

By JOHN F. RUSSELL, M.D.,

NEW YORK

LIME forms about three-quarters of the total mineral solids of the body. It is found in all tissues and fluids and certain of its salts are necessary for physiological activities. Because of this widespread occurrence and specific influence on body processes, and because certain conditions of ill health are associated with a lessened amount of lime in the organs, it has naturally been a subject of speculation whether disease may not be the result of a deficient supply of this element.

The chief lime-bearing food is milk which has been prescribed in the treatment of the tuberculous since the earliest times. Next to milk, eggs contain the greatest amount of lime. Milk and eggs are largely employed in the modern dietetic treatment of tuberculosis.

The most important salt of lime is the insoluble phosphate. How is this salt rendered absorbable in a form available for use by the tissues?

The manner of the absorption of phosphate of lime is not explained by physiologists. It is however, stated that its absorption in an assimilable form is best assured when it is administered in combination with proteid substances.[1] In other words, when phosphate of lime is in chemical union with proteid, this combination is acted upon by the gastric enzymes and prepared for absorption in a condition suitable for nutrition.

Because phosphate of lime is soluble in acid solutions it has been suggested that after being brought into solution by the acid gastric contents it is absorbed without further change as an inorganic salt. The correctness of this conception has been denied on the ground that the salt would remain in solution only so long as the fluid remained acid; that it would at once be precipitated by the alkaline fluid of the intestines, or, if it succeeded in reaching the blood, by the alkaline serum containing dibasic sodium phosphate.[2] On the other hand it has been demonstrated that the alkaline blood-serum has the property of holding earthy phosphates in solution.[3]

Inorganic material occurs in the body partly dissolved in the fluids and partly combined with organic substances. It appears not to be certainly known in which of the two states these substances are assimilated by the tissues. It is conceivable that insoluble salts like phosphate of lime, unless in chemical combination with proteid, circulate and are eliminated unused by the tissues, because presented to them in an unsuitable form. Lime phosphate in the blood serum is found in combination with albumin and circulates as lime albuminate.[4]

It is a matter of common observation that the outcome of treatment in a given case of pulmonary tuberculosis cannot be predicted with certainty, far-advanced, extensive disease, often clearing in the most surprising manner while, on the other hand, cases are occasionally seen in which the lesion localized within narrow limits, remains unchanged after years of treatment, or, becoming active, extends and finally overwhelms the patient. The difference in outcome of these cases cannot always be explained by differences in age, sex, habits, occupation, or surroundings.

Since the beginning of my dispensary work in the treatment of pulmonary tuberculosis, March 14, 1898, milk has formed a large part of the diets. Eggs were added a few years later. During this time a number of patients have been apparently cured; a number have failed to receive substantial benefit; a number have failed to receive any benefit at all. How can these differences be explained by the supposition that lack of lime is a dietetic cause of tuberculosis?

In the summer of 1906, while speculating on the manner of the absorption of the lime in milk it occurred to the writer that if the gastric secretion lacked rennet, combination of lime and casein would not take place and the lime would not then be absorbed in a form suitable for tissue nutrition. That is, without the action of rennet it would not be brought into proper combination with proteid. This suggested a possible explanation of the failures above mentioned. The successes were explained on the assumption that either the gastric secretion of these patients was normal and they had, previous to treatment, received an insufficient supply of lime-bearing food which would yield this combination or, their gastric secretion not being quite normal, due to an inconstant secretion of acid in amount necessary to produce rennet, these patients had received sufficient acid in the food prescribed (raw milk for example) to activate rennet-zymogen and thus insure the lime combination necessary.

Two ways by which lime starvation may be produced were therefore suggested: First, as a result of lack of supply, gastric secretion being sufficient. Secondly, supply being ample, as a result of failure to form proper combination with proteid during digestion because of an inefficient gastric secretion.

The treatment about to be described was worked out from two purely hypothetical considerations, viz., First, that lime starvation may be the dietetic cause of tuberculosis. Secondly, that the action of rennet in the stomach is necessary in the prepar-

ation of lime for absorption in a form suitable for the growth and repair of tissue. The treatment and its results will first be described. The discussion of the hypotheses will be considered in another article.

The separation of tuberculous patients into two classes, (1) those whose disease is the result of a deficient supply of proper food and (2) those whose disease is the result of a deficient production of rennet, can only be made by observing the results of treatment. Upon examination there are no signs by which one can certainly say that a patient falls into one or the other class. Again, it is improbable that digestion is perfectly normal in patients of the first class named. The probabilities are all in favor of the view that the two conditions, viz., lack of supply of proper food and lack of adequate rennet production, often exist together in the same patient and in varying degree. While the disaster may be as great in the one case as the other, it is obvious that the difficulties of treatment are much increased when the fault lies with digestion. The treatment of the latter condition fulfills the requirements of the former so that the treatment of all patients is conducted on the assumption that their lime starvation is due to the imperfect action of rennet in the stomach.

The daily amount of lime required to maintain the body in health presumably varies with different periods of growth and development. It has been calculated that an infant requires about five grains daily.[5] The amount required by an adult, whether healthy or diseased, is unknown. In these investigations it was at first assumed that one quart of cow's milk, which contains about 23 grains of lime salts of various kinds, plus the usual number of eggs, would provide a plentiful daily amount of lime phosphate.

As the result of this speculation, the investigation here described was begun Sept. 12, 1906. All patients under treatment at the writer's dispensary were directed to drink one quart of junketed milk daily. The method of clotting was demonstrated to each patient who was then given a quantity of commercial rennet and instructed to clot and drink the milk at home.* Milk to be clotted as soon as received in the morning and at once put in the ice chest. When about to drink, the quantity to be consumed, whey and clot together, to be poured into a bowl and the clot beaten into small particles by an egg beater, and drunk. No additional milk was prescribed. The only change in treatment from that heretofore employed was that the daily amount of milk was restricted to one quart which was clotted by rennet.

During the following December and January the occurrence of fibrinous or plastic pleurisy about the site of disease was noted. Observed first in a few patients the number increased as time went on to such an extent as to suggest that these attacks were produced by, or were in some way connected with, clotted milk. It was further observed that, after an uncertain time, the pleurisy was followed by marked improvement and final disappearance of all signs of the original disease. All patients, however, did not develop signs of plastic pleurisy and the amount and extent of effusion varied in those who did.

This effusion came to be regarded as a manifestation of a healing process—a plastic effusion. It, therefore, became of the greatest importance to determine, first, whether its occurrence was certainly due to the intake of clotted milk; secondly, the means by which it could be produced in sufficient quantity in all patients. These investigations consumed more than a year (Nov. 25, 1907) before the first question was answered positively in the affirmative, and eight months additional (July 21, 1908) before the method as at present practised was reached. A great many experiments were tried without success in both instances, a description of which is omitted (with one exception) because of lack of space. This experiment was as follows.

Thinking that the failure to develop plastic effusion more certainly might be due to an insufficient amount of combined lime phosphate and proteid in the diet the administration of ground chicken bone* was begun. This substance was selected for two reasons: First, because a small amount (one drachm twice daily) contained a large extra amount of combined lime without proving a burdensome addition to the bulk of the diet. Secondly, while it is not stated that the combination of lime and the organic material of bone is chemical I think the feeling generally is that it is most probably so though the union is very loose. The administration of this substance extending over many months gave no noticeable result.

As before stated the use of clotted milk instead of plain milk was the only radical change in treatment, except that the daily amount was limited to one quart. Failure to show effusion was noted particularly among pateints who had been under treatment a long time previous to the use of junketed milk. A number had been under treatment for years as will be seen on consulting the table. Though the general improvement in these patients was marked their lung lesion remained unhealed. Obviously the production or non-production of plastic effusion in these patients became the test of the efficiency of any measure tried. These patients were regardd as xamples of deficient rennet secretion because it was certain an ample supply of lime had been provided in their previous treatment.

Experiments were continued until all patients, old and new, showed signs of plastic effusion. Briefly, this result followed the administration of dilute hydrochloric acid (U.S.D.) in conjunction with plain milk, and rennet-clotted milk was discontinued. The dose of acid and the best method of administering it was determined only after long experimentation, as before stated.

The symptoms of plastic effusion are the symptoms of acute pleurisy and vary in intensity in different patients. They begin with pain, temperature, and physical signs of pleurisy. Pain may be slight or severe, temperature may be only slightly elevated or in some cases reach 102° and higher. The acute

*The greater number of patients clotted and drank the milk at home: two glassful after morning and evening meals. Many patients, particularly those without family, found it convenient to have the junket made at the dispensary and drank it there. This was required of a few who, it was suspected, failed properly to prepare it at home. It was finally found necessary in order to insure accuracy, to administer at the dispensary everything which was being experimented with. This was inauguarated July, 1907.

*Ground chicken bone was prepared as follows: Uncooked plucked chickens were plunged into boiling water and held there for a few moments in order to clean the skin, and then placed upon a table where the bones were dissected out and ground to a pulp. These operations were conducted with the greatest care as regards cleanliness. The pulp was then mixed with sterile glycerine and enough pepsin worked into the mass to yield five grains to each dose. The mixture was then put into glass-stoppered sterile bottles and a few drops of oil of peppermint added.

symptoms may last a week, more or less. Physical signs vary in intensity. As a rule the more marked the lung lesion the more marked the physical signs of pleurisy. After the acute symptoms subside and the effusion begins to organize, creaks and dry rubs are marked. Most râles gradually disappear.

As the original lesion heals the most marked signs of effusion may either disappear altogether or persist for some time after. As a rule the more extensive the original lesion the longer the signs of organized effusion remain. This is true particularly over and about cavities. Serous effusion has so far never been noted. The time at which these symptoms first make their appearance varies. Broadly speaking, it may be put for the majority at between the sixth and sixteenth week after beginning treatment. Plastic effusion occasionally occurs in situations where no lesion had previously been noted. It may occur more than once in the same patient. In a few instances the effusion has been accompanied by signs of a pneumonia.

The use of hydrochloric acid was begun Nov. 25, 1907. Every patient then under treatment and every patient since admitted who has remained a sufficient length of time, has developed plastic pleurisy. Because of this experience its appearance is now confidently predicted in every new patient. The result is that such patients look forward to its occurrence and regard the first attack of pain as evidence of progress toward cure.

Treatment.—The special aim of treatment is to supply lime phosphate, casein, and hydrochloric acid together. Neither alone will answer. They must all be present in the stomach at the same time. The addition of dilute hydrochloric acid to milk and eggs accomplishes this endeavor. With the exception that vegetable juice is no longer prescribed and that the total amount of food consumed is less, the use of this acid is the only notable change made in the treatment heretofore employed.* The treatment has been published so often that it is not necessary to describe it further here.

Preparation of the milk-egg-acid mixture. At the dispensary two eggs are beaten, strained and mixed with sufficient milk to make one quart. To each quart of this mixture four drachms of dilute hydrochloric acid (U.S.D.) are added and stirred until thoroughly mixed. The mixture is then bottled and put in the ice chest. Patients drink one pint at the morning hour and one pint at the evening hour. The appearance of the curd varies. The warmer the milk and egg mixture when hydrochloric acid is added the thicker the curds. The curds are, therefore, sometimes thicker and more noticeable than at others but are always soft, rather fine, and in no way disagreeable to drink. Unlike rennet-clotted milk this mixture does not require beating before being drunk. The taste of raw egg is much improved by the acid.

Dose of acid. The dose given above was adopted after experiments which consumed a long time. The largest dose administered was nine drachms fifteen drops in each quart. This amount was continued from April 15, 1909, to June 5, 1909. No better effects were observed during this period than when the smaller dose was employed. It was, therefore, reduced in amount.

*Vegetable juice, glycerin, and calcium chloride have been discontinued. It is now probable that the good effects of vegetable juice were chiefly due to its acidity; of glycerin to its power of extracting enzymes. Calcium chloride is formed in milk when hydrochloric acid is added.

There are three reasons for the administration of hydrochloric acid: First, to activate rennet zymogen. Secondly, to activate pepsin zymogen. Thirdly, to stimulate the secretion of pancreatic juice by means of secretin. After the combination of lime and casein has been brought about by rennet the action of pepsin is necessary in order to prepare this combination for absorption in an assimilable form. If it is true that the tuberculous suffer from lack of free rennet in the stomach secretion it must be true also that there is a deficient secretion of free hydrochloric acid, as will be shown later. In such case pepsin will not act. Clearly, therefore, the administration of rennet-clotted milk does not meet all the requirements. It is thought that this is the explanation of the failure of certain patients to develop plastic effusion while taking rennet-clotted milk.

Pancreatic juice contains rennet and its action clots milk. It was found by experiment extending over a long period of time that the administration of milk previously clotted by pancreatin produces plastic effusion. Two experiments were tried, one in which whole milk clotted by pancreatine was administered, the other in which skim milk digested by pancreatin was administered. In both experiments plastic effusion developed but its occurrence was less certain and less extensive than resulted from the employment of rennet-clotted milk. The use of pancreatin was, therefore, discontinued. Nevertheless the fact that the administration of milk clotted by pancreatin was followed by plastic effusion is an additional reason for desiring the complete action of pancreatic juice.

The reason for thoroughly mixing the acid and food before introduction into the stomach, instead of administering each separately, is suggested by the lack of equable intermixture of the stomach contents. It has been demonstrated on animals that food remains in separate, distinct layers in the stomach, nearly to the end of digestion.[6] This is true of both solids and liquids. In the experiments just mentioned it was found that the degree of acidity was greater at the periphery of the mass than at the center, the latter portion often showing no acid reaction to litmus. In case of deficient secretion of acid it is doubtful, therefore, whether the separate administration of acid in water during the meal would accomplish the purpose intended, that is, acidification of the whole stomach contents.

The selection of milk and eggs as a vehicle was made, First, in order to insure acidity in the presence of lime and casein. Secondly, milk is known to absorb large quantities of hydrochloric acid and its acidification previous to introduction must spare whatever there may be of acid secreted in the stomach. Thirdly, hydrochloric acid has a marked solvent action on casein at body temperature.[7]

All patients take two of the whole number of eggs prescribed daily in the milk-egg-acid mixture at the dispensary. The remainder are taken at home immediately after meals as heretofore. Weight gaining is insisted upon in all cases until in the judgment of the physician the total amount gained is sufficient. This weight is then maintained. Most patients who have been under treatment a long time are forbidden to increase their weight because the maximum amount has been reached. Long experience has taught that patients who fail to gain, unless undergoing exacerbations, are either disobedient or too poor to provide proper food. Such are dismissed. As has been stated so often before by the

writer, the systematic employment of cathartics is necessary to insure continuous gain in weight.

After the results which followed the use of dilute hydrochloric acid were observed, ground chicken bone was again administered. It was thought that the failure to obtain results in the first trial might have been due to imperfect peptic action because of lack of sufficient acid in the gastric secretion. No results followed the second trial. Another method of administering extra amounts of lime phosphate tried was to dissolve one grain of precipitated lime phosphate (U.S.D.) in each drachm of dilute hydrochloric acid before its addition to the milk-egg-mixture. No results followed this experiment.

The final method used to hasten the development and increase the amount of plastic effusion, is to give each patient an extra amount of milk without the addition of eggs, to which dilute hydrochloric acid in the proportion of four drachms to the quart is added. This extra milk is prepared at the dispensary, taken home by the patients, and drunk during the day. As a rule men take one quart and women one pint of extra milk. This method has proved entirely successful.

The administration of acid caused such decided general improvement, ascribed to a more complete digestion and, therefore, greater absorption of all food constituents, that the question arose, cannot the quantity of food be further reduced without checking the healing process? This question was the more reasonable because the necessary daily amount of lime phosphate would presumably be supplied by a much smaller number of eggs, particularly. As everyone knows the consumption of raw eggs is a great burden for most patients, and any relief in this direction would both increase the comfort and reduce the cost of treatment. To answer this question the daily quantity of all food (with the exception of milk which at the time of this experiment was one quart daily) was reduced. The maximum number of eggs prescribed in addition to those taken at the dispensary, for men was six, for women, three. The dose of emulsion was reduced one-half and patients were told to eat as much or little of other foods as desired. With few exceptions weight gaining ceased. The large majority lost weight. The most striking effect was observed in connection wtih the lung lesion. All progress toward healing apparently ceased, and this was more convincingly manifest after the experiment was abandoned and patients were again made to gain weight. This experiment, however, was most unsatisfactory. It is impossible to determine accurately the daily intake of all food in dispensary patients because the statements of the patients themselves are the only source of information. Again, among patients who have been receiving a certain quantity of food for a considerable time the processes of metabolism have adjusted themselves to this quantity and the administration of a less amount, even though ample for their needs, will result in loss of weight until metabolism has adjusted itself to the new order of things. The tendency of the body is toward nitrogenous equilibrium. It is evident, therefore, that information regarding the minimum quantity of food required must be obtained from observation of new patients at the dispensary and patients undergoing rest treatment when the daily intake may be absolutely controlled.

Six patients at the dispensary and two patients at rest have so far been observed. Of the dispensary patients three are women. The women receive one pint of extra milk and three extra eggs daily. The men one quart of extra milk and three extra eggs daily. All receive full doses of emulsion. Gain in weight has been continuous and all have developed plastic effusion. More impressive results have been observed in the treatment of patients at rest. Two cases, a woman and a man. The small number of patients who received rest treatment is due to the fact that there are no beds in connection with the dispensary and the patients are too poor to provide reatment in a private hospital.

The history of the woman (case 135) is briefly as follows: Patient under treatment at dispensary from October 24, 1908, to February 15, 1909, when she was operated upon for adenoids and enlarged tonsils. Ether was employed as the anesthetic. Up to the time of operation her progress had been satisfactory. Original weight 101 pounds, weight at time of operation 113 pounds. Immediately following the operation her disease became acute; temperature higher, pulse and respiration quickened, cough increased and much prostration. Visits to the dispensary discontinued and patient confined to house. Examination disclosed spots of consolidation in both lungs increasing in size and number as time passed until the diagnosis of acute pulmonary tuberculosis was made clear. After some delay patient was transferred, April 9, from her boarding house to a private hospital. Weight 99 pounds, afternoon temperature 103.3°, pulse 110, respirations 24, some cyanosis. After entering the hospital the temperature, pulse, and respiration were recorded four times a day until her death, early in August. The following is the condensed record: During April—Highest temperature 103.6°, lowest 99.6°; average morning temperature for the month 100.6°, afternoon 102.3°. Pulse, most rapid 130; daily average 115. Respirations, most rapid 30; daily average 26. May—Highest temperature 102.8°, lowest 99.8°. Average morning temperature for month 100.5°, afternoon 102.6°. Pulse, most rapid 140; daily average 126. Respirations, most rapid 38; daily average 28. June—Highest temperature 103.6°, lowest 100.6°. Average morning temperature for the month 101.2°, afternoon 102.9°. Pulse, most rapid 148; daily average 140. Respirations, most rapid 48; daily average 41. July—Highest temperature 103°, lowest 99.6°. Average morning temperature for the month 101.2°, afternoon 102.4°. Pulse, most rapid 150; daily average 140. Respirations, must rapid 52; daily average 40. Signs of renewed plastic effusion appeared early, were very marked and extended practically over the whole surface of both lungs. During the last month of illness dyspnea and cyanosis were extreme, and attacks of coughing often produced such distress as to suggest impending suffocation. Autopsy not only revealed a marked increase everywhere in fibrous tissue in the lungs, which explained the dyspnea, but in addition a mass of enlarged tuberculous bronchial glands which lay upon the arch of the aorta and apparently occluded this vessel to some extent. This mass was firmly adherent to surrounding structures. Another mass of enlarged glands and inflammatory tissue was found in the median line, just beneath the sternum, at the level of the first and second ribs. Because of their position and gradual enlargement, these glands must have been a factor in causing the persistent and increasing rapidity of the heart's action. This patient consumed daily: Milk, 80 ounces; rare meat, 3 ounces; bread, 6 ounces; butter, 2¼ ounces;

emulsion of mixed fats (42 per cent. fat), 4 ounces. Milk was administered in ten feedings. One drachm of dilute hydrochloric acid was mixed with the milk at each feeding. Meat, bread, and butter in three feedings; emulsion in two feedings. From April 12 to July 25, nothing was added to or subtracted from the diet, and the quantities remained the same throughout this period. July 25 the quantities were reduced because of the distress in breathing and great prostration. Patient was weighed daily. The gain in weight was almost continuous. Weight April 9, 99 pounds; weight July 25, 118¼ pounds.

Second case. The daily amount of food was still further reduced in this case and the results in weight gaining equally gratifying. Charles H., 21 years, U. S., electrician. Began treatment at dispensary May 17, 1909. This patient's lung lesion was not very extensive, though both lungs were involved. His evening temperature, however, was very irregular. Remaining in the neighborhood of 99° or 100° for a time, it would rise to 101° and 102°, and after he stopped work and rested, again subside. This was repeated a number of times, until it became evident he would be obliged to give up both his work and treatment at the dispensary. Hospital treatment was then offered, and he began rest treatment September 1. Total gain while under treatment at dispensary, 5¼ pounds. Weight, September 1, 134½ pounds. Evening temperature 99°, pulse 84. During the first three weeks the evening temperature twice reached 101°, but for most of this time and subsequently ranged between 99° and 100°. Morning temperature, usually subnormal. Highest pulse under 100. This patient received daily: Milk 64 ounces; rare meat, 3 ounces; bread, 6 ounces; butter, 1½ ounces; emulsion of mixed fats (42 per cent. fat), 4 ounces. Weight at beginning of rest treatment 134½ pounds. Weight at the end of six weeks 141½ pounds. This patient has not yet completed rest treatment.

From the standpoint of treatment cases of pulmonary tuberculosis may be divided into two classes, viz., (1) those who require rest strictly, and (2) those who are able to move about without harm. This difference in management is caused by the state of activity of the disease and not by the extent of the lesion. Patients with uncomplicated pulmonary tuberculosis are admitted for treatment at the dispensary in any stage of the disease, whose evening temperature is below 101° and who are clearly not too weak to make the journey from their homes, twice daily; who can provide proper food, clothing, and shelter, and who live within reasonable distance. When other symptoms are favorable patients whose evening temperature is 101° or more are accepted provisionally, because it has occasionally been found that, after one or two weeks of treatment, the temperature falls and remains in the neighborhood of 100°. An evening temperature of 100° and 100½° is not a bar to treatment. It is not meant to imply that this is desirable. It is mentioned as a circumstance arising from the necessities of this work.

But one patient with laryngeal tuberculosis in the stage of ulceration has been treated since the use of hydrochloric acid. This patient had to abandon the treatment because the acid mixture caused so much distress in swallowing. Several cases of this kind were treated with rennet-clotted milk, before the employment of hydrochloric acid, without noticeable benefit.

No patient is admitted whose sputum does not show tubercle bacilli. It frequently happens that the first examinations do not discover this bacillus though the lung lesion is marked. In such cases applicants are kept under observation for several weeks and repeated examinations made before they are refused admission. A number of these patients appear in the table.

Patients are considered apparently cured when physical signs of disease are no longer heard and tubercle bacilli have disappeared from the sputum. At first three consecutive examinations of sputum one month apart, which failed to show the presence of tubercle bacilli, were considered sufficient. Latterly, six consecutive examinations, two weeks apart, are required.

The most satisfactory manner of reporting results of treatment is to give a detailed description and history of every case treated. Lack of space prevents the adoption of this plan here. I have, however, prepared the accompanying table which shows the disposition of every patient who has come under observation since September 12, 1906, the beginning of the experiment. This table also enables those who may possibly prefer a different method of estimating results to do so.

The majority of the patients are working people and continue to work while under treatment. The dispensary hours are arranged with this end especially in view. It frequently happens that patients are admitted who some time before have been told that they have consumption and that they must give up their work and go to the country. No specific instructions have been given for their guidance while away, and very often if they leave the city they do not consult a physician while absent. At best these patients can afford to be away but a few weeks. The one part of the advice which they faithfully follow, whether they leave the city or not, is to give up their employment. In consequence they are being supported by their family or friends. This occurs most often in young unmarried men. These patients are made to go to work.

Rennet-clotted milk was first administered September 12, 1906, the use of hydrochloric acid was begun November 25, 1907, the method of mixing hydrochloric acid, milk, and eggs was begun July 21, 1908. The results here reported date from the first employment of rennet-clotted milk because the subsequent changes in no way alter the original purpose in clotting milk, viz., the certain combination of lime and casein.

Results

Patients under treatment September 12, 1906	29	
Patients admitted since	108	
		137
Patients whose sputum failed to show tubercle bacilli	22	
Patients who remained less than three months	33	
Patients who stopped coming, were dismissed, or developed complications which prevented further treatment	35	
		90
Balance		47

Of this number, 22 are apparently cured or 46.80 per cent.*
Of this number, 25 are still under treatment or 53.20 per cent.

It seems to the writer that the results so far obtained give sufficient promise of an improvement in the treatment of the tuberculous in the home climate to warrant their publication. The experiment is not

*One case (Case No. 1) of fibroid phthisis is included in this number of apparent cures of tuberculosis. Tubercle bacilli were present in this man's sputum when he began treatment. Later, after observing his marked improvement, his sputum was again examined, and repeated examinations failed to discover tubercle bacilli. He still shows marked signs of fibroid phthisis.

yet completed. There are twenty-five of the original number of patients still under treatment. Further reports will, therefore, be made until the work is finished.

As might be expected, the longer the experiment lasts the greater the interval of time between the apparent cures. So far as physical examination gives evidence this is not because of the greater extent of lesion in those still under treatment. The most that can be said is that their disease is either more unyielding, or of greater extent than can be determined by present methods of examination.

These patients and results are classified* as follows:

Class	No.	Per Cent.	Apparently Cured	
			No.	Per Cent.
Incipient	0	0	0	0
Mod advanced	34	72.3	15	44.1
Far advanced	13	27.6	7	53.8

Thirty-five patients discontinued treatment after three months for the following reasons, so far as could be learned:

Stopped without explanation			6†
Moved from city			2
Unable to provide proper food			6
Complications	Cerebral tuberculosis	1 (died)	
	Tuberculous mesenteric glands	1 "	
	Tuberculous arthritis	1	
	Laryngitis, ulcerative	1 (died)	
	Chronic nephritis	1 "	
	Acute pulmonary tuberculosis	1 "	
	Appendicitis, operation	1 "	
		—	7
Exacerbations necessitating prolonged rest			5
Dismissed for disobedience			7
Dismissed for drunkenness			2‡

The following is a statement of the complications which developed or came to notice after treatment was begun, in those patients who subsequently were apparently cured.

Case 1.—Appendicitis. Operation.

Case 2.—Subacute arthritis left elbow and right knee.

Case 13.—Vertebral caries. Small angular kyphosis 9th dorsal vertebra. Cold abscess right costochondral junction under nipple. Suppuration left and right epididymis. Spinal brace applied Oct. 18, 1906.

Case 19.—Carcinoma left breast. Operation Oct. 27, 1908. Surgeon writes that patient "had an exceedingly malignant carcinoma of the breast. I did a complete Halsted operation and she made a prompt recovery. The growth, however, was very cellular and full of mitotic figures which would seem to indicate a high degree of malignancy."

Case 21.—Ischiorectal abscess. Healed.

Case 29.—Scarlet fever, March, 1907. Recovery without complications.

Case 58.—Acute nephritis.

Case 74.—Ischiorectal abscess. Healed.

As will be seen on consulting the table, sufficient time has elapsed to report the ultmate results upon twelve of the apparent cures.

The following table (page 895) shows the result of treatment and the disposition of every patient who has come under observations since the beginning of the experiment:

Report of Reexamination of Patients Two Years or More After Apparent Cure.

Case No.	Date of Re-examination	Condition of Lungs	Present Weight	Tubercle Bacilli in Sputum*	General Health	Present Occupation	Remarks
15	May 7, 1909	No abnormal signs	145½	Absent..	Good....	Foreman.....	Ischiorectal abscess September, 1907. Healed.
2	May 29, "	Signs of disease...	141¼	Present..	Fair.....	Mechanic'l jeweler	Joints occasionally enlarged and give pain.
57	June 10, "	No abnormal signs	139¼	Absent..	Good....	Housewife.....	
3	June 23, "	No abnormal signs	182	Absent..	Good....	Clerk.....	
29	June 20, "	No abnormal signs	96	Absent..	Good....	Shop girl.....	
24	June 30, "	No abnormal signs	137	Absent..	Good....	Housewife.....	Delivered of baby Nov. 8, 1908. Weight of baby at birth, 9 pounds. Nursed baby one month, part feeding, 3 months. Two teeth at six months. Weight at eighth month (July 8) 23 pounds. Perfectly healthy. Third child. First child, empyema when five years old. Operation. Came under writer's care end of 5 months, sinus discharging. Entirely healed end of thirteen months. Present condition, no cough, no signs of disease. Present weight (seven years old) 54 pounds. Second child died of tuberculous meningitis at the age of twenty months.
33	June 30, "	No abnormal signs	105	Absent..	Good....	Outdoor salesman	
13	Aug. 16, "	No abnormal signs	175½	Absent..	Good....	Wood carver.....	Still wears spinal brace. Says there are no symptoms referable to lungs, spine or testicles. Scars in scrotum have remained healed since Nov., 1908, when all discharge ceased.
88	Oct. 1, "	Uncertain signs...	134½	Absent..	Good ..	Housewife.....	Married Mar. 8, 1908. Ischiorectal abscess Aug., 1909. Incised after one week. Still discharging.
58	Oct. 1, "	Signs of disease...	116	Present..	Fair ..	Clerk.....	
26	Oct. 1, "	No abnormal signs	150	Absent..	Good....	Housewife.....	
37	Oct. 13, "	No abnormal signs	197	Absent..	Good....	Lawyer.....	

* Sputum examined each day for three successive days.

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*The classification used in this paper is that adopted by the National Association for the Prevention and Study of Tuberculosis.

†One of these patients disappeared after having two specimens of sputum (counted as one examination) free of tubercle bacilli.

‡Both these patients were dismissed after having one examination of sputum marked free of tubercle bacilli.

Rules of Health.—The Department of Health of the city of Chicago has issued the following rules of health to prevent pneumonia: 1. Avoid poorly ventilated and foul smoking cars. 2. Keep your bedroom windows open at night. 3. Don't overeat. This is a particularly dangerous practice in winter time. 4. Avoid overindulgence in alcoholic drinks. 5. Don't go into the cold air in an overheated condition. 6. Don't be a "draught crank." You need all the pure air you can get. If you wouldn't coddle yourself so much you would get purer air to breathe and your chances of avoiding pneumonia would be much better.

No.	Name	Age.	M. S. W.	No. of Children in Family	Occupation	Began Treatment Date	Stopped Coming Date	Stage of Disease	No Tubercle Bacilli in Sputum	Stayed Less than 3 Months	Dismissed	Stopped Coming After 3 Months	Still Under Treatment	Sputum Clear of Tub. Bac. Date of Final Examination	Apparently Cured	Weight on Admission	Total Gain
1	Ferd W.	48	S	....	Salesman	Dec. 1, 1902		III	....	....		....	....	Dec. 4, 1907	1	121	13
2	John P.	36	M.	3	Waiter	Jan. 16, 1903		III	....	....		....	....	Dec. 27, 1906	1	116	33½
3	John C.	34	S.	....	Paperhanger	Apr. 21, 1904		III	....	....		....	....	May 14, 1907	1	143	40½
4	John R.	40	S.	....	Baker	Nov. 29, 1904		II	....	....		....	1				
5	Robt. E.	28	M.	1	Silver polisher	Nov. 4, 1904		II	....	....	Dec. 30, 1906	1	....				
6	Charles K.	52	M.	6	Letter carrier	Jan. 13, 1905	Nov. 18, 1906	III	....	....		....	1				
7	Victor P.	29	M.	0	Bookkeeper	Mar. 8, 1905		II	....	....		....	1				
8	Gustav B.	24	S.	....	Lithographer	Mar. 21, 1905	Apr. 14, 1907	III	....	....		....	1				
9	Ignace L.	31	M.	0	Cabinetmaker	Mar. 31, 1905		II	....	....		....	1				
10	Joseph G.	31	S.	....	Ticket agent	May 5, 1905	Apr. 18, 1909	III	....	....		1	....				
11	William O'N.	44	M.	2	Machinist	Jan. 17, 1905	Jan. 20, 1907	II	....	....		1	....				
12	Abraham B.	30	M.	0	Clerk	Oct. 9, 1905	Dec. 1, 1907	III	....	....		1	....				
13	George S.	33	M.	1	Wood carver	Nov. 23, 1905		III	....	....		....	....	Aug. 16, 1907	1	142	24
14	Fred. R.	38	S.	....	Salesman	Apr. 2, 1906		III	....	....		....	1				
15	Henry H.	21	S.	....	Clerk	May 17, 1906		II	....	....		....	....	Dec. 28, 1906	1	128	15½
16	William B.	31	M.	0	Clerk	May 28, 1906		III	....	....		....	1				
17	Stephen M.	39	M.	2	Contractor	June 28, 1906		III	....	....	Apr. 5, 1908	1	....				
18	William P.	21	S.	....	Electroplater	Sept. 3, 1906	Dec. 2, 1906	II	....	1		....	....				
19	Margaret S.	32	S.	....	Seamstress	Dec. 14, 1903		III	....	....		....	....	Aug. 9, 1909	1	107½	35½
20	Charlotte W.	23	S.	....	Telephone operato	June 10, 1905	Nov. 24, 1907	II	....	....		1	....				
21	Elizabeth G.	31	M	3	Housekeeper	July 29, 1905		III	....	....		....	....	Dec. 10, 1908	1	74½	39½
22	Jeannette C.	29	M.	0	Housekeeper	Sept. 19, 1905	Nov. 17, 1907	II	....	....		1	....				
23	Susan C.	43	M.	1	Housekeeper	Sept. 19, 1905		III	....	....		....	1				
24	Nellie A.	31	M.	1	Housekeeper	May 10, 1906		II	....	....		....	....	Feb. 23, 1907	1	98	32½
25	Josephine P.	16	S.	....	No occupation	Feb. 5, 1906	June 7, 1908	II	....	....		1	....				
26	Amelia P.	39	M.	3	Housekeeper	Feb. 21, 1906		II	....	....		....	....	Oct. 1, 1907	1	133½	28½
27	Katharine R.	34	M.	0	Housekeeper	Feb. 21, 1906	June 7, 1908	II	....	....		1	....				
28	Barbara M.	26	S.	....	Office work	Mar. 2, 1906		II	....	....		1	....				
29	Eva M.	16	S.	....	Shop girl	Sept. 11, 1906		II	....	....		....	....	May 14, 1907	1	86	5
30	Henry H.	45	M.	3	R. E. agent	Sept. 19, 1906	Oct. 7, 1906	II	....	1		....	....				
31	Michael M.	25	M.	1	Stone cutter	Oct. 1, 1906	Dec. 30, 1906	II	....	1		....	....				
32	Benjamin R.	28	S.	....	Liquor bottler	Oct. 19, 1906		....	1	....		....	....				
33	Jacob W.	43	M.	2	Salesman	Oct. 19, 1906		II	....	....		....	....	June 18, 1907	1	142½	27½
34	Harry S.	18	S.	....	Bank messenger	Oct. 20, 1906		....	1	....		....	....				
35	Charles R.	30	M.	2	Carriage maker	Oct. 27, 1906		II	....	....		....	1				
36	William B.	19	S	....	No occupation	Oct. 27, 1906	Dec. 16, 1906	III	....	1		....	....				
37	James McK.	34	M.	1	Lawyer	Nov. 4, 1906		II	....	....		....	....	Oct 11, 1907	1	184	4½
38	Raymond B.	25	S.	....	Clerk	Nov. 3, 1906		II	....	....	Mar 31, 1907	1	....				
39	William W.	29	M.	1	Clerk	Dec. 6, 1906	Dec 30, 1906	II	....	1		....	....				
40	James D.	40	M.	3	Porter	Dec. 14, 1906		....	1	....		....	....				
41	Eugene H.	38	M.	6	Shipping clerk	Dec. 21, 1906		....	1	....		....	....				
42	William H.	28	M.	0	Carriage painter	Dec. 24, 1906	Jan. 27, 1907	II	....	1		....	....				
43	Frank D.	41	M.	0	Clergyman	Dec. 23, 1906	May 26, 1907	II	....	....		1	....				
44	James D.	25	S.	....	Foreman	Dec. 28, 1906	Dec. 30, 1906	II	....	1		....	....				
45	Lavinia W.	24	S.	....	Shop girl	Sept. 16, 1906	Dec. 2, 1906	II	....	1		....	....				
46	Annie McC.	38	M.	0	No occupation	Sept. 18, 1906	Sept. 30, 1906	II	....	1		....	....				
47	Annie M.	23	S.	....	Housekeeper	Sept. 17, 1906	Oct. 21, 1906	II	....	1		....	....				
48	Bertha G.	27	W.	0	No occupation	Oct. 2, 1906	Oct. 14, 1906	II	....	1		....	....				
49	Christine B.	17	S.	....	No occupation	Oct. 5, 1906	Oct. 21, 1906	II	....	1		....	....				
50	Alma J.	44	M.	2	Housekeeper	Oct. 5, 1906	Nov. 4, 1906	II	....	1		....	....				
51	Annie N.	25	S.	....	Waitress	Oct. 19, 1906	Dec. 9, 1906	II	....	1		....	....				
52	Lena S.	23	S.	....	Seamstress	Oct. 19, 1906		....	1	....		....	....				
53	Minnie N.	28	S.	....	Seamstress	Oct. 20, 1906		....	1	....		....	....				
54	Agnes B.	36	M.	1	Housekeeper	Oct. 19, 1906	Jan. 6, 1907	II	....	1		....	....				
55	Eva A.	47	S.	....	Dressmaker	Oct. 27, 1906		....	1	....		....	....				
56	Mary W.	25	W.	0	Shop girl	Nov. 27, 1906		....	1	....		....	....				
57	Alice A.	37	M.	0	Housekeeper	Nov. 3, 1906		II	....	....		....	....	May 14, 1907	1	129	15½
58	Florence K.	25	S.	....	Seamstress	Dec. 10, 1906		II	....	....		....	....	Oct. 1, 1907	1	95½	14½
59	Edward H.	45	M.	2	Waiter	Jan. 4, 1907		....	1	....		....	....				
60	John J.	30	M.	2	Salesman	Jan. 7, 1907	Jan. 13, 1907	II	....	1		....	....				
61	August G.	30	S.	....	Plumber	Jan. 13, 1907		....	1	....		....	....				
62	John F.	29	S.	....	Packer	Jan. 27, 1907		III	....	....	Dec. 1, 1907	1	....				
63	James W.	28	S.	....	Elevator boy	Jan. 28, 1907	Apr. 7, 1907	II	....	1		....	....				
64	Walter O'T.	21	S.	....	Bookkeeper	Jan. 25, 1907	Jan. 24, 1909	III	....	....		1	....				
65	Leon L.	23	M	1	Cloth examiner	Feb. 4, 1907		II	....	....	July 28, 1907	1	....				
66	Martin A.	27	S.	....	Optician	Feb. 13, 1907	Apr. 28, 1907	II	....	1		....	....				
67	Henry R.	34	M.	0	Teacher	Feb. 22, 1907		III	....	....		....	1				
68	William D.	21	S.	....	Tallyman	Mar. 12, 1907		II	....	....		....	....	June 22, 1909	1	129	25
69	John C.	15	S	....	No occupation	Mar. 12, 1907		II	....	....		....	....	June 29 1908	1	110	35½
70	Charles S.	40	M.	2	Salesman	Apr. 2, 1907		....	1	....		....	....				
71	Carrol G.	21	S.	....	Shipping clerk	Apr. 7, 1907		....	1	....		....	....				
72	Edward McC.	26	S.	....	Mechanic'l engineer	Apr. 5, 1905	May 5, 1907	III	....	1		....	....				
73	Emil M.	29	M.	1	Mason	Apr. 15, 1907	Apr. 21, 1907	II	....	1		....	....				
74	Michael K.	46	M.	3	Shipping clerk	Apr. 16, 1907		III	....	....		....	....	Sept. 8, 1908	1	110½	35½
75	Charles B.	36	M.	2	Clerk	Apr. 24, 1907	June 23, 1907	II	....	1		....	....				
76	John E.	41	M.	2	Physician	May 7, 1907	June 23, 1907	III	....	1		....	....				
77	Solomon P.	31	M	2	Merchant	May 14, 1907	Jan. 12, 1908	III	....	....		1	....				
78	Edward N.	45	M.	2	Broker	May 27, 1907		....	1	....		....	....				
79	Clinton A.	49	S.	....	Salesman	June 17, 1907		II	....	....	Sept. 29, 1907	1	....				
80	Albert F.	27	M.	2	Janitor	July 10, 1907		II	....	....	July 12, 1908	1	....				
81	Stephen S.	26	S	....	Wood polisher	July 10, 1907	July 12, 1908	III	....	....		1	....				
82	George S.	33	M.	0	Student	Aug. 14, 1907		....	1	....		....	....				
83	Fred. P.	28	S.	....	Shipping clerk	Oct. 25, 1907		II	....	....		....	1				
84	John R.	21	S.	....	Electrician	Nov. 3, 1907	June 14, 1908	II	....	....		1	....				
85	Christopher S.	23	S	....	Piano polisher	Nov. 22, 1907	Dec. 15, 1907	III	....	1		....	....				
86	Margaret L.	20	S.	....	Clerk	Jan. 9, 1907		....	1	....		....	....				
87	Mabel B.	42	S.	....	No occupation	Jan. 11, 1907		III	....	....		....	1				
88	Frances G.	32	S.	....	Cashier	Jan. 23, 1907		II	....	....		....	....	Sept. 30, 1907	1	121	19
89	Mary D.	33	M	1	Housekeeper	Mar. 3, 1907	Aug. 18, 1907	III	....	....		1	....				
90	Elizabeth S.	35	M.	2	Housekeeper	Mar. 11, 1907		....	1	....		....	....				
91	Anna M.	36	M.	0	Housekeeper	Mar. 11, 1907		II	....	....		....	1				
92	Julia B.	25	S.	....	Stenographer	Mar. 15, 1907	Mar. 24, 1908	II	....	....		1	....				
93	Elizabeth K.	46	M.	4	No occupation	Mar. 23, 1907	Apr. 28, 1907	....	....	1		....	....				
94	Beatrice S.	24	S.	....	Shop girl	Mar. 29, 1907		III	....	....	Feb. 7, 1909	1	....				
95	Katharine B.	22	M.	0	Housekeeper	Apr. 29, 1907	May 12, 1907	II	....	1		....	....				
96	Catharine C.	41	M.	4	Forewoman	May 8, 1907	May 19, 1907	II	....	1		....	....				
97	Mary R.	27	M	2	Housekeeper	May 15, 1907		....	1	....		....	....				
98	Mary S.	30	M.	4	Housekeeper	June 11, 1907	Dec. 1, 1907	II	....	....		1	....				
99	Mary M.	20	M.	1	Housekeeper	July 15, 1907		II	....	....		....	1				
100	Katharine D.	45	W.	0	Polish. prec. stones	July 26, 1907	Dec. 29, 1907	III	....	....		1	....				
101	Hortense C.	35	M.	1	Housekeeper	Aug. 10 1907		II	....	....		....	1				
102	Anna C.	28	S.	....	Housekeeper	Aug. 1 9 7	Oct. 20, 1907	II	....	1		....	....				
103	Nettie R.	29	S.	....	Shop girl	Aug. 23, 1907		....	1	....		....	....				
104	Emma G.	37	M.	1	Housekeeper	Aug. 30, 1907	Oct 6, 1907	II	....	1		....	....				
105	Florence J.	34	M.	0	No occupation	Sept. 6, 1907	Apr 12 1908	III	....	....		1	....				
106	Josephine R.	27	M.	2	Housekeeper	Sept. 13, 1907		III	....	....	May 30, 1909	1	....				
107	Edward B.	51	S.	....	Salesman	Jan. 6, 1908		II	....	....		....	....	Nov. 16, 1908	1	145½	13

No.	Name	Age.	M. S. W.	No. of Children in Family	Occupation	Began Treatment Date	Stopped Coming Date	Stage of Disease	No Tubercle Bacilli in Sputum	Stayed Less than 3 Months	Dismissed	Stopped Coming After 3 Months	Still Under Treatment	Sputum clear of Tub. Bac. Date of Final Examination	Apparently Cured	Weight on Admission	Total Gain
108	William W.	33	S.	....	Builder	Jan. 13, 1908	.....	II	....	....	....	....	1	....	....	....	....
109	Henry J.	32	M.	0	Salesman	Feb. 18, 1908	Dec. 6, 1908	III	....	....	....	1	....	....	....	....	....
110	Alexander B.	46	M.	3	Merchant	Feb. 26, 1908	Mar. 14, 1909	II	....	....	....	1	....	....	....	....	....
111	Bowden W.	15	S.	....	No occupation	Mar 30, 1908	.....	II	1	....	....	....	....	....	....	....	....
112	Alexander F.	38	M.	0	Upholsterer	Mar. 16, 1908	May 3, 1908	....	....	1	....	....	....	....	....	....	....
113	Henry D.	21	S.	....	Brass finisher	May 18, 1908	.....	II	....	....	....	....	1	....	....	....	....
114	William S.	29	M.	1	Electrician	May 18, 1908	.....	II	....	....	....	....	1	....	....	....	....
115	Lottie S.	31	M.	1	Housekeeper	Jan. 15, 1908	.....	II	....	....	....	....	1	....	....	....	....
116	Margaret L.	42	S.	....	No occupation	Feb. 11, 1908	.....	....	1	....	....	....	....	....	....	....	....
117	Mary H.	28	M.	0	No occupation	Feb. 18, 1908	April 12, 1908	III	....	1	....	....	....	....	....	....	....
118	Nellie M.	23	M.	0	Housekeeper	Mar. 2, 1908	.....	II	....	....	....	....	1	....	....	....	....
119	Margaret G.	43	M.	9	Housekeeper	Mar. 16, 1908	Aug. 2, 1908	II	....	....	....	1	....	....	....	....	....
120	Mary Q.	39	M.	0	Housekeeper	June 17, 1908	.....	II	....	....	....	....	1	....	....	....	....
121	Grace T.	31	M.	1	Housekeeper	June 24, 1908	.....	II	....	....	....	....	....	Dec. 16, 1908	1	84½	22
122	Lydia H.	22	S.	....	Clerk	June 26, 1908	.....	II	....	....	....	....	1	....	....	....	....
123	Charles W.	29	M.	1	Floorwalker	July 8, 1908	.....	....	1	....	....	....	....	....	....	....	....
124	Appolonia V.	37	M.	4	Housekeeper	July 27, 1908	Feb. 28, 1909	II	....	....	....	1	....	....	....	....	....
125	John M.	30	M.	0	Electrotyper	July 29, 1908	Aug. 30, 1908	II	....	1	....	....	....	....	....	....	....
126	John E. H.	22	S.	....	Clerk	Aug. 11, 1908	.....	II	....	....	....	....	1	....	....	....	....
127	Gertrude G.	32	M.	1	No occupation	Aug. 21, 1908	.....	III	....	....	....	....	1	....	....	....	....
128	Sophy Q.	32	M.	1	Housekeeper	Aug. 21, 1908	.....	II	....	....	....	....	1	....	....	....	....
129	Louis S.	21	S.	....	Piano tuner	Aug. 24, 1908	Jan. 31, 1909	II	....	....	....	1	....	....	....	....	....
130	Mary Z. D.	21	S.	....	Telephone operator	Sept. 8, 1908	.....	II	....	....	....	....	....	Mar 31, 1909	1	119	26
131	Charlotte M.	19	S.	....	Telephone opreator	Sept. 9, 1908	.....	II	....	....	....	....	1	....	....	....	....
132	Thomas B.	21	S.	....	Stenographer	Sept. 2, 1908	Oct. 18, 1908	III	....	1	....	....	....	....	....	....	....
133	Joseph McC.	35	M.	4	Court officer	Sept. 9, 1908	.....	II	....	....	....	....	....	Jan. 12, 1909	1	133½	30
134	Anna R.	23	S.	....	Dressmaker	Oct. 24, 1908	.....	....	1	....	....	....	....	....	....	....	....
135	Florence D.	20	S.	....	No occupation	Oct. 24, 1908	Aug. 7, 1909 Died	....	....	....	....	1	....	....	....	....	....
136	Gustave S.	23	S.	....	Clerk	Nov. 3, 1908	Jan. 10, 1909	II	....	1	....	....	....	....	....	....	....
137	Samuel N.	24	S	....	Clerk	Nov. 13, 1908	.....	II	....	....	....	....	1	....	....	....	....
									22	33		35	25		22		

IS THERE A VENEREAL PERIL FOR US?*

By JOHN VAN RENSSELAER HOFF, A.M., M.D., LL.D.,

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COINCIDENTLY with the discovery of a "new world" the physicians of Europe observed and described what they regarded as a new disease, syphilis,† and because many believed that the infection was brought back by the sailors of the various exploratory expeditions westward, it was colloquially known as the "American disease." Was this prophetic?

Of course, we now know that syphilis existed among the older peoples long before the fifteenth century, and indeed evidences of this disease have been observed in the bones of prehistoric skeletons. Confined to no geographical entity, its habitat today embraces all places and nations, and its demands are so compelling that they seem to threaten the entire human race.

Twenty years ago a distinguished syphilographer wrote: "In the United States of America syphilis may be recognized in every hospital and in the practice of almost every physician. It is fortunately, however, much more common in the large cities, the rural populations escaping to a happy extent."

Based upon the official medical records of our military forces, probably the only accurate vital statistics of venereal diseases available, are we justified in hoping that this happy exemption will continue among the rural populations even? If so, it can only be through united effort, such as is now making for the control of tuberculosis. Shall such effort be made, and how?

*Presented to the Washington meeting of the Association of Military Surgeons, October 5-8, 1909.

†Of the three distinct affections, syphilis, gonorrhea, and chancroid, known as venereal diseases, little consideration will be given here to chancroid, a local infection, and unimportant to the particular subject of this paper. It will be recalled, however, that the medical statistics of the Civil War and of our army to a much later date included chancroid with syphilis. Based upon recent statistics, I have estimated the rate as one-half for each of these.

By reference to the Medical Statistics of the Provost Marshall General's Office, Vol. I., Chapter II., it will be observed that of the 334,321 drafted men examined and recorded in 1863-64, 8 per thousand were rejected on account of constitutional syphilis.[1] This, of course, is not an absolute indication of the actual number of syphilitics among those examined, but may be accepted as a fair index of the number in the later stages of the disease, for it is not to be presumed that many drafted men would conceal a condition exempting them from military service. This might be so with the recruit, but not the conscript.

Just how many of the men above referred to, other than those rejected, had had syphilis at any time is not recorded, so we must turn to the records of the Surgeon General's Office for information as to the prevalence of the disease in the army, and inferentially in the country, during the civil war and subsequently. I venture to quote somewhat *in extenso* from the medical records of that period.[2]

"Venereal diseases were associated with intemperance in the conditions which favored their causation. Hence they were more frequent at the beginning and the close of the war than during its progress, and among troops stationed in the vicinity of cities than among those on active service. Elevations of the lines of prevalence during the continuance of the war correspond with the accession of fresh levies or the return of furloughed veterans. Among the white troops 73,382 cases of syphilis[3] were reported, and 109,397 cases of gonorrhea and gonorrheal orchitis, giving a total of 82 cases of venereal disease annually per thousand men"—a rate for syphilis of approximately 33 per thousand per annum, probably 16.5 of this rate being chancroid.

It is interesting to observe that the rate for colored troops then was 33.8 for syphilis, including chancroid, and 43.9 for gonorrhea.

For eighteen years immediately preceding the Civil War the rate per annum for all venereal diseases in our army was 87.86 per thousand, and the

ten years subsequent, 87.62[4] (white troops). From 1876 to 1895, inclusive, the average rate was 82.98, decreasing from 107.6 in 1876 to 73.7 in 1895. For the decennial periods between 1868 and 1897, the average annual rate for syphilis only was 67.20, 36.45, and 15.63, respectively. This would indicate that at that time syphilis, including chancroid, caused approximately half of the total disability due to venereal diseases. There was, however, a steady decrease in the rate for syphilis from 105 (52.5 excluding chancroid) per thousand in 1868 to 12 in 1897. On the other hand, the rate for gonorrhea, though decreasing up to 1885, constantly increased thereafter, it being 37.76 in 1885 and 56.21 in 1897, the last named year showing nearly five times as many cases of gonorrhea as of syphilis.

With the increase of the army in 1898 the rates for venereal disease advanced, in 1899, to 128.59 for white and 195.92 for colored troops, the proportion of syphilis being for the former 13.39 to 78.16 of gonorrhea and 37.04 of chancroid and for the latter 22.43 to 109.82 to 63.67.

In 1900 the Surgeon General reported a rate of 133.97, the proportion of syphilis being 15.83 to gonorrhea 78.69.

In 1901[5] "in the army as a whole with a mean strength of 92,491 men there were reported 13,911 cases of venereal disease, equivalent to an admission rate of 150.41 cases per thousand of strength," syphilis being 19.15 to gonorrhea 93.90.

Regarding venereal diseases in 1902 the Surgeon General wrote:[6] "The steadily increasing prevalence of venereal disease is the most discouraging feature in the sick report of the army. During 1902 13,000 admissions were from this cause alone, equivalent to a rate of 160.94 per thousand," syphilis being 22.37 to gonorrhea 106.58.

The admission rate in 1903 was 151.48; syphilis 23.42 to gonorrhea 96.14.

For 1904 the Surgeon General reported:[7] "A considerable increase was noted in the figures for venereal diseases in the troops in the Philippines service over those of the preceding year. The proportions are also much higher than those recorded for the troops in the United States proper, the relative admission rates being 297.42 and 163.42, respectively." The average rate for the entire army was 188.34; syphilis 33.98 to gonorrhea 120.97.

The admission rate for venereal diseases in 1905 was 198.93; syphilis 34.34 to gonorrhea 131.30.

In 1906 the rate was 190.46; syphilis 28.60 to gonorrhea 124.65.

In 1907 the rate was 196.62; syphilis 28.92 to gonorrhea 123.30, and in 1908, rate, 194.15; syphilis 26.40 to gonorrhea 135.56.

RECAPITULATION

Admission Rate for Venereal Diseases, Entire Army

Year	Venereal Rate	Syphilis	Gonorrhea	Chancroid
1899	133.00	13.98	80.23	38.79
1900	133.97	15.83	78.69	39.45
1901	150.41	19.15	93.90	37.36
1902	160.94	22.37	106.58	31.99
1903	151.48	23.42	96.14	31.92
1904	188.34	33.98	120.97	33.39
1905	198.93	34.34	131.30	33.29
1906	190.46	28.60	124.65	37.21
1907	196.62	28.92	123.30	44.40
1908	194.15	26.40	135.56	32.19
Total	1,698.30	246.99	1,091.32	359.99
Average	169.83	24.70	109.13	36.00

Admission Rate for Venereal Diseases, Army in United States

Year	Venereal Rate	Syphilis	Gonorrhea	Chancroid
1899	127.28	13.49	87.29	26.57
1900	133.97	19.62	102.42	33.35
1901	149.96	19.35	104.21	26.40
1902	161.14	23.03	108.54	29.57
1903	135.84	23.64	84.09	28.11
1904	163.42	28.47	107.05	27.90
1905	178.72	30.02	118.31	30.39
1906	158.91	27.28	105.21	26.41
1907	167.82	25.36	107.68	34.78
Total	1,377.06	210.26	924.80	263.48
Average	153.01	23.36	102.78	29.28

Note.—This table does not include the year 1908, figures for which were not available when it was compiled.

It would appear from the foregoing statistics that compared with those immediately before, during and after the Civil War the rate of admission for all venereal diseases increased from an average of 85.11 to a rate of 194.15, syphilis increasing from an average of approximately 19 (37.82 including chancroid) to 26.40 per thousand, while gonorrhea increased from 47.99 to 135.56. It will be observed, however, that during the last decennium there was a steady increase from the year 1897, with the lowest record of 12 cases of syphilis per thousand, up to 1905, with a maximum record of 34.34, since which year there has been a slight decrease. On the other hand, the rate for gonorrhea advanced from 56.21 in 1897 to 131.30 in 1905, though it fell to 123.30 two years later, but last year it advanced to 135.56, the highest recorded rate.

While the highest rate for syphilis recently attained, that for 1905, is much greater than that during the Civil War, the rate is now steadily decreasing, and it is reasonable to assume that it will be quite possible to regain the standard of 1897 even though[8] "troops quartered among a foreign but not hostile population almost invariably suffer worse in respect to venereal diseases than do those at home."

With this promising outlook as to syphilis in our army it is fair to assume that this disease is not much more widely disseminated proportionately among our military resources, the eleven million male citizens of military age, than it was in the "sixties," and that in case of conscription the relative loss[9] would be no greater now, viz., 8 per thousand.

It would be quite otherwise with gonorrhea and its sequellæ in which the rate has greatly increased. Seven per thousand of drafted men were rejected on this account in 1863-4, when the army rate per annum was 50, and it would not be unreasonable to assume that twice this number would fail us with an army rate of 135.

It may be asked, is there any legitimate basis of comparison between civil and military vital statistics? Perhaps more as to venereal diseases than any others, for these pertain chiefly to youth and early manhood, the soldier age. Von Tophy writes:[10] "The relative venereal morbidity in armies bears a close relationship to the prevalence of this class of diseases among the civilians in the district in which they are quartered."

Taking the average annual rate of syphilis in our army for the current century as the probable rate for those of military age, 18 to 45 years, the number of syphilitic men in the United States last year was 271,700. Assuming that an equal number from the previous year were undergoing cure, and allowing for those previously uncured, it is not

unreasonable to conclude that there are today over a half million syphilitic men in the United States.

This does not seem an excessive estimate if that of Lemoix[11] be correct, who says of syphilis, "In Paris among 100 men at least 13 to 16 infected individuals may be counted."

Adding to the 500,000 syphilitic men, 1,500,000 with gonorrhea, and making a reasonable allowance for chancroid, we may safely estimate that at least two million men suffered from venereal diseases in the United States last year. How many of the other sex likewise suffered I would not dare even to surmise.

What loss to the country is involved in venereal morbidity?

In the military service it is a large item equivalent in our army to the services of an entire regiment every day.[12] "The average number of days treatment for gonorrheal cases was 21.96, for syphilitic cases 40.27." It is not believed that the number of days lost by civilians is so great as in the army, where cases of venereal disease are usually isolated and treated in hospital until active symptoms subside.

But even if we assume that the average non-efficiency of the civilian, from venereal, is half that of the soldier, say 10 days for gonorrhea and 20 for syphilis, the time lost last year on account of venereal was approximately twenty-five million days. The economic value to the country of these lost days is worth considering. It represents the work of an army of nearly 68,500 men for a year—about what we actually have in the service today.

Our people, apparently, have not up to the present time regarded venereal diseases seriously. Even many physicians are disinclined to believe that syphilis has much influence on mortality, while gonorrhea has been looked upon as a joke. Metchnikoff says,[13] "It is quite true that syphilis by itself is not a fatal disease * * * yet, in spite of this, syphilis is one of the most important causes in shortening human life and in bringing about mortal diseases." His discussion of Professor Runeberg's insurance statistics[14] is so pertinent and interesting that I should like to quote it in full did space permit. Suffice it to say that Runeberg showed that 15 per cent. of deaths among members of the Insurance Society of Kaleva was traceable to syphilis. "Among the other diseases that caused the death of insured persons stands foremost tuberculosis, with a mortality of 21 per cent., while pneumonia follows as third with 10 per cent. Thus we receive conformation of the general opinion that, next to tuberculosis, syphilis plays the most important rôle in the death rate of persons whose lives have been insured, *i. e.* of the most vigorous part of the population."

What may be said of gonorrhea? Old as the human race its records have come down to us through history and its onward march has left in its wake blind, halt, maimed, and sexless multitudes. As indicated in this paper, it is to-day contributing no little to the non-efficiency of our men at the most productive age, thousands of women are direct and indirect sufferers from this infection, and I have no doubt it is a considerable, though hidden, factor in the mortality of the race.

From the foregoing it is believed we are justified in answering that there is indeed a venereal peril for the United States, and it behooves us to realize it and take immediate steps to abate it.

The prophylaxis of venereal diseases, while strictly speaking, no part of our subject, but which I may be pardoned for referring to, is a matter that has demanded and received the ablest consideration; but unfortunately no universal consensus of opinion has been reached regarding it.

Metchnikoff believes that until a better method can be found the regulation of prostitutes is the least of two evils. But apparently the legal recognition of the causes and regulation of the conditions which result from the so-called "social evil" are not approved by our people and we must look elsewhere for means of prevention. May we not take advantage of the increasing acceptance of instruction in hygiene, as part of public education, to teach the people something of the meaning and dangers of venereal diseases? Truly; but even this is not without danger, for ignorance of the nature of these infections is by no means the sole cause of their existence. Still, I believe the good done would far outweigh the evil.

Few of our people appreciate the considerable number of non-venereal, innocent cases of syphilis there are. Speaking of this, Tarnovsky says,[15] "Rural syphilis in Russia is first and foremost, a syphilis of the innocent, and spreads far more generally throughout the mass of the people without distinctions of age or sex. The infant soon after its birth is often infected by a kiss from one of its parents who has contracted the infection. The grand parents may in the same manner acquire the disease by eating from the same vessels or by drinking out of the same glasses," etc. Surely education would keep us from such terrible conditions.

Then, too, the number of cases of innocent gonorrhea is by no means small, but might be smaller, did the people generally but know that the gonorrheal discharge is the infecting medium, and if brought in contact with the eye, for example, will quite likely destroy its sight.

Extensive experiments are making to discover vaccines to immunize against venereal diseases, especially syphilis, and it is reasonable to assume that presently immunizers will be found for these affections. When that happens, when all our unfortunate prostitutes, who, like the poor, will probably always be with us, can protect themselves by vaccination against the ravages of venereal infection, most of them will do so and cease to be transmitters of these diseases. Then these dreadful infections will in due time become negligible. In the meantime it is exceedingly important that we should use such means of prophylaxis as are now available.

On January 25, 1909, the Surgeon-General of the Army issued the following:

MEMORANDUM.

"The attention of all medical officers is invited to the importance of making vigorous and sustained efforts to prevent the spread of venereal diseases in the army.

"Reports since the Spanish-American War show a steady and progressive increase in this class of diseases so that the admission rate which was 84.59 per thousand in 1897 has now reached the enormous figure of 196.62 per thousand. These figures are out of all proportion to those which obtain in the European armies. The rates for the latter being according to the latest obtainable information: For the British army, 97.04; Austro-Hungarian, 60; French, 29.08; Prussian, 19.08; Bavarian, 14.06.

"Among the measures which have been found

most successful in other services in controlling this disease have been the following:

"(1) The organization of soldiers' clubs, canteens, etc., where enlisted men can find amusement and recreation sufficiently attractive to keep them at home and away from vile resorts.

"(2) The formation of temperance associations among the enlisted men; the association of intemperance and venereal indulgence being well understood.

"(3) The early detection of all cases of venereal diseases by periodical physical examination of the men stripped.

"(4) Keeping all cases of venereal disease under continuous observation and treatment until they are cured. For this purpose, venereal registers are kept, and a case once on the books is never lost sight of until cured. Should a man be transferred, while under treatment, to another post or station, his venereal history goes with him.

"(5) Instruction of the men by lectures, and by informal advice whenever the opportunity offers as to the nature of venereal diseases, the extent of their prevalence among prostitutes and the grave peril not only to those who contract them, but to their families and posterity. They should also be taught that sexual intercourse is not necessary to good health and the highest degree of mental and physical vigor.

"(6) Approved measures of personal prophylaxis of those who will, contrary to advice, expose themselves to venereal infection. All the principal European armies with the exception of that of Great Britain have officially authorized or directed the use of such prophylactic measures, and a considerable degree of success has attended their use. In some of the Austrian garrisons this system is said to have effected a decrease of 62 per cent. in the cases of venereal disease. In the German army equally good results have been reported. The general procedure in all the armies is about the same, though there are slight differences in the details, especially in regard to the particular antiseptic employed.

"In the first place, medical officers explain to the men the necessity for the utmost cleanliness in sexual intercourse, and thorough ablution immediately afterward, followed by the act of urination to wash out the urethra. A specified place in each barrack, usually one of the wash rooms, has special arrangements provided for prompt ablution and washing with a disinfectant, such as 1-1000 solution of bichloride of mercury, immediately upon returning to barracks. For the prevention of gonorrhea, a few drops of 1 per cent. solution of nitrate of silver, or a 20 per cent. solution of argyrol, are injected into the urethra, or it is washed out with a warm 1-5000 solution of permanganate of potash. For the prevention of syphilis, a 30 per cent. calomel ointment is used, which is rubbed into the penis after the employment of the injection. Glass medicine droppers are used to give the injection of the silver preparations, and are kept for this purpose in an antiseptic solution and boiled after each use. The soldier is instructed to enter in a register which is kept for the purpose, his name and the date and hour of the use of the preventative, and the number of hours which have elapsed since sexual intercourse. It is to be explained to him that promptness in the use of preventatives is of the first importance.

"Geo. H. Torney, Surgeon-General."

It must not be assumed that no previous effort had been made to control the ravages of venereal diseases in the army, for such is not the case. In our dependencies, where non-efficiency from these causes is most marked, there have been determined efforts at control, and at home as well.[16] In the Department of the Lakes in February, 1905, the then Chief Surgeon, Colonel P. F. Harvey, Medical Corps, called attention to the prevalence of venereal diseases, suggested means of prophylaxis, and directed that the plan followed by Major H. I. Raymond, Medical Corps, Surgeon, Columbus Barracks, Ohio, be employed, etc. It cannot be said that the results here have equaled legitimate expectation, due largely to causes which made a material decrease in venereal almost impossible. We must have a simultaneous, uniform, and effectively applied system throughout the entire army if good results are to be obtained.

The memorandum from the Surgeon General is a timely word of warning regarding venereal diseases, addressed to the whole army from the War Department, and cannot fail of good results in due time if the army will but heed it. This memorandum was promulgated in the Department of the Lakes by the Commanding General, March 9, 1909, an advance copy thereof having been sent to the post surgeons February 4, 1909.

As shown by the subjoined table,[17] no marked changes in the admission rate for venereal during the last six months since the memorandum was promulgated, from that for the same period in 1908 are observed. Nor could a different result be expected under existing conditions.

The admission rate for the Department of the Lakes for the last calendar year was considerably in excess of the average for the whole army. This was due to several causes—the Maneuver Camp at Fort Benjamin Harrison, from which a large number of venereal cases were admitted to sick report and charged against that post, the arrival of a regiment from the Philippines, and the temporary assignment of some 700 recruits to the regular garrisons, etc.

This year but one post, Fort Thomas, has the same garrison, practically, it had the whole (10 months) of last year, and it shows a decrease of venereal to the extent of 20 per thousand, though it leads the Department in non-efficiency from this cause.

Venereal Admission Rate per Thousand, Department of the Lakes for Six Months, March to August, Inclusive

Stations	1908				1909			
	Venereal Ulcer	Gonorrhœa	Syphilis	Total	Venereal Ulcer	Gonorrhœa	Syphilis	Total
Ft. Brady, Mich	8.30	83.02	37.36	128.68	23.56	88.37	17.68	129.61
Ft. B. Harrison, Ind.*	50.62	147.98	7.79	206.39	19.43	103.62	20.35	143.40
Ft. Sheridan, Ill	11.31	87.08	11.31	109.70	18.88	90.81	11.69	121.38
Ft. Thomas, Ky	60.80	91.20	27.36	179.36	20.04	113.58	25.05	158.67
Ft. Wayne, Mich	26.72	102.41	26.72	155.85	22.08	83.91	11.95	147.94
Average (Dept.)	26.39	97.68	19.44	143.51	19.92	97.82	21.09	138.83
Equivalent annual rate	52.78	195.36	38.88	287.02	39.84	195.64	42.18	277.66
Actual annual rate 1908.								
Dept. Lakes†	81.93	207.70	39.33	328.96	....	....	....	....
Entire army	1908 32.19	135.56	26.40	194.15	....	....	....	....

* Post not garrisoned until May, 1908.

† Under venereal ulcer (Dept. 1908) are included cases shown in record as "other venereal diseases" amounting to a rate of 25.81.

It is hardly necessary to say here that the solution of the venereal problem in the army is not alone the task of the medical officer, any more than

its solution among civil communities pertains alone to civilian practitioners. It is our duty to keep the proper authority informed of the presence and rate of these diseases, and to quickly cure the subjects or eliminate them from the service. But beyond that we only share equally with all other officers and men, as well, the duty of lessening this terrible cause of non-efficiency, and unless all work together for this result it will not be obtained.

The six suggestions for control of venereal disease offered by the Surgeon General of the Army:

Organization of soldiers' clubs;
Formation of temperance societies;
Early detection of venereal disease;
Keeping of cases under observation and treatment till cured;
Instruction by lectures and advice, and the
Employment of measures of personal prophylaxis,

all demand cooperation if they are to be made effective.

The routine bi-weekly physical inspection of the men should be made to determine among other things, the genital condition. I say among "other things," for it is necessary to the efficacy of the soldier that we should be informed of the state of the skin, the teeth, the feet, and general physical condition as well. Such examinations should not be designated "venereal," for the term is distastful and tends to defeat their object. They must be thorough, and the company commander should accompany the medical officer when they are made.

We study the physical state of our horses with the utmost particularity; is that of our men any less important?

Precept and example will do much, but in spite of these there will remain some whose sexual appetite will not be curbed by moral suasion. Such should and can be protected. The plan of personal prophylaxis suggested by the Surgeon General will be effective only so far as the individual is willing to avail himself of it and does so in time. Many will, but others for various reasons will not. For such the prophylactic package recommended by Colonel Harvey can be employed. This package consists of a vial containing 2 cc. of a solution of protargol 20 parts, glycerin 20 parts, distilled water 60 parts, and a medicine dropper. To make the packet complete a box of calomel ointment, 30 per cent., should be added, or the packet recommended by[18] Passed Assistant Surgeon E. M. Brown, U. S. Navy, would meet the requirements.

Such packets should be obtainable from military hospitals gratuitously, and also by purchase from the post exchange. The latter is important, because I believe the American soldier would be more likely to buy his own prophylactic than to advertise the fact that he was about to place himself in a position where he would require such by going to the hospital for it. The packet conveniently at hand would be more likely to be used immediately after copulation, than the means provided at the barracks, and this could be done privately.

An important addition to the means of control above suggested is sufficient publicity to keep the responsible officer constantly informed of the movement of disease in his own command, and, for the purpose of comparison, in neighboring garrisons. For this there is issued in the Department of the Lakes a monthly statement giving the rates for all classes of sickness at the several posts. This statement is sent out officially through military channels to post commands, and it is believed produces good results, as it is inconceivable that commanders will remain indifferent when "in figures that admit of no denial" the loss in the efficiency of their commands, due to venereal diseases, is constantly thrust upon their attention.

Then, too, there are other means of control which need not be dwelt upon here.

So much for our army. Is there anything that can be done for the people?

We have eliminated regulation as impracticable, we have suggested education as to the dangers of venereal infections.

Vaccination is not yet an established fact, but, until it is, we can use the same means of personal prophylaxis for our people as that employed for our soldiers, and this should be done. Moreover, the knowledge of the means of protection should be as widely promulgated as of the dangers of infection.

We of the United States have a serious peril confronting us, which threatens national venereal infection. Strange to say there are not lacking those who discourage all effort to control venereal disease on the ground that such control encourages vice. Indeed, so strong is this sentiment that our Government does not attempt to protect its citizens against these infections, though it does so against all other infectious diseases.

The sexual instinct is a condition, not a theory, and its demands are not always controllable. Some of our people will act from instinct rather than reason, do what we may to inform them. Could such alone be made to suffer for their immoral practices, we might dismiss the subject, as an economic proposition, without further consideration. Unfortunately this is impossible, consequently every person exposed to the probability of venereal infection should be protected against himself, otherwise he becomes a possible nuisance to the community, threatening the health of the innocent and guilty alike. More than that, threatening generations unborn and the very existence of the race.

"No considerations of a moralizing tendency should be opposed to the prevention of so disastrous a calamity" as universal venereal infection among our people.

REFERENCES.

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2. "Med. and Surg. History of the War of the Rebellion," Part III, Med. Vol., p. 891.
3. Including chancroid. The distinction between chancroid and syphilis began to be recognized in our army about 1880, the exact date being unknown to the author. In the British army the distinction was not recognized until 1887.
4. The rate for the German Army 1874-76 was 41.56 per thousand, including chancroid.
5. Report Surg. Gen. of the Army, 1902, p. 94.
6. Report Surg. Gen. of the Army, 1903, p. 98.
7. Report Surg. Gen. of the Army, 1905, p. 108.
8. Munson: "Military Hygiene," p. 828.
9. Assuming the same standard of rejection for constitutional syphilis only.
10. Munson: "Military Hygiene," p. 830.
11. Fournier: "Prophylaxis de la Syphilis," p. 475.
12. Report Surg. Gen. of the Army, 1897, p. 88.
13. Metchnikoff: "The New Hygiene," p. 76.
14. Ibid., pp. 76-78.
15. Comptes Rendus du XII, Congrès Internat. de Médecine, Moscow, 1809, Vol. IV, p. 8.
16. See Circular No. 10, W.D., Series 1902.
17. See note bottom of following page.
18. *The Military Surgeon*, Vol. XXIV, No. 5, p. 410.

HEMOLYSIS AND ITS DIAGNOSTIC SIGNIFICANCE IN CANCER AND TUBERCULOSIS.*

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Any procedure, be it technical or otherwise, which contributes something to our knowledge of the cause, prophylaxis, and cure of disease warrants consideration and investigation. This is especially true where the elucidation of problems connected with such widespread affections as cancer and tuberculosis is concerned. Laboratory research, coupled with bedside observation, has been productive of valuable results to the profession and to humanity during the past ten years. The early studies of Bordet and Gengou with respect to certain physical and chemical properties of blood serum gave impetus to what had been a rather haphazard series of investigations. Out of these studies directly or indirectly grew the theory of opsonins, as elaborated by Wright, the precipitin reactions for the identification of blood sera of different species of animals, the serum diagnosis of syphilis, and more recently, the attempts to correlate and interpret certain frequently observed phenomena in blood serum from patients affected with cancer and tuberculosis.

It will be granted that many cases of cancer and tuberculosis are readily diagnosable by ordinary clinical procedures. More or less typical alterations of visible tissues, cachexias, the data derived from physical examination, together with simple and routine laboratory methods often suffice to make one reasonably sure of his ground. It is the common experience, however, that there are instances where only pathological section of tissue, and that in the hands of an expert, gives the definite evidence that we seek. And this is particularly so where the disease focus is situated in a region anatomically difficult of access, as in the mediastinum, the retroperitoneal region, certain parts of the liver, of the kidney, etc. It is in this class of cases that we welcome any diagnostic measure which gives promise of proving practicable and dependable.

The study of blood—both serum and corpuscles—in the attempt to discover features distinct for new growths has been carried on for some years. Ehrlich and a large number of followers studied the corpuscular elements of blood, in the endeavor to prove by certain dyes that malignant disease caused certain morphological alterations. Except for the wealth of information with respect to differential estimations of leucocytes, the phenomena of the affinity of their various parts for divers stains, and the establishment of the fact that the anemia of cancer was but a type of secondary anemia, nothing of great practical worth in the diagnosis of malignant disease was discovered. It naturally followed that the chemistry and the physical properties of the blood serum were next investigated. Variations in the organic components of the serum of different individuals were observed, but these variations were not constant for any given disease, being found in noncancerous patients as well as in those affected with cancer. In 1900, it was shown by Grunbaum[1] and Ascoli[2] that the blood serum in certain diseases, including cancer, agglutinated the blood corpuscles of persons apparently well, but did not agglutinate the corpuscles of the subject from which these red cells were taken. This phenomenon was apparently verified in several diseases. In cancer and malaria, it appeared to occur consistently. It was later proven by the investigations of Donath,[3] Gay,[4] and others, that these reactions had little practical diagnostic value.

The more recent researches have attempted to demonstrate that there exists in the blood serum of patients affected with cancer, certain substance or substances which are capable of causing destruction of the red blood cells of patients not cancerous, and probably, to a certain extent, of the blood cells of the cancer patients themselves. This phenomenon of "hemolysis" was first commented upon by Kelling,[5] who had observed its occurrence when serum from human cancer patients was brought into contact with the red cells of sheep, cows, and chickens. Kelling showed that the blood serum of many cases of cancer destroyed the erythrocytes, whereas serum from normal patients did not. It was shown by Fischel,[6] however, that while these observations held for cancer there were also other diseases, as pernicious anemia, tuberculosis, severe diabetes, etc., the sera from which patients when brought into contact with alien corpuscles exhibited similar characteristics. It did not seem, therefore, that the reaction observed in cancer patients could be considered specific.

Two years ago Weil[7] described a new method of studying hemolysis in disease. His early work was carried on with the blood sera of dogs which had been infected with the type of tumor known as "infectious lymphosarcoma." Weil showed that the salt solution extract of these tumors had little effect upon the red cells unless the tumors had become broken down and necrosed. In this latter event, the salt solution extract caused rapid hemolysis with liberation of blood coloring matter. To guard against the possibility of infection in the necrotic tumor masses being responsible for the phenomenon noted, and also to prove that in the breaking down of tumors—their autolysis—certain poisonous materials were developed, similar necrosis of noncancerous tissue—as in the kidney—was accomplished experimentally and aseptically. It was found that in these necrotic foci there also existed materials which caused destruction of erythrocytes. The blood serum of dogs affected with tumors in the stage of necrosis was next investigated, with the object of determining the possible presence of poisonous materials in the circulation. It was shown that the blood serum of dogs thus affected had a remarkable destructive power when brought into contact with dog's red cells. The blood serum of normal dogs was rarely hemolytic. It was also demonstrated that the red cells of dogs, affected with tumors, possessed more resistence to the destructive affected of cancer-dog serum than did the cells of dogs not so affected. In other words, the erythrocytes of the cancer dogs appeared to possess a certain added resistance—an immunity—to the poisonous effects of the substances circulating in the blood of such dogs. The precise nature of the poisonous material has not as yet been determined. It has been shown, however, by Wade that certain substances can be isolated from necrotic tumors, which, when injected into dogs, are capable of producing interstitial nephritis.

It will be readily appreciated what a short step it was from the study of these so-called "serum-hemolysis reactions" in animals to their investigation in humans. The work has been eagerly taken up in

*Read before the Calhoun County Medical Society, Ceresco, June 1, 1909. From the clinical laboratory of Dr Smithies.

this country, notably by Weil,[8,9] Crile,[10] Wittemore,[11] Blumgarten,[12] Johnstone and Canning,[13] and others.

The early work of Weil,[14, 15] on a series of eighty-two cases showed that with serum of late malignant tumors 56 per cent. produced destruction of the red cells of clinically well patients. Thirty-three per cent. of sera from benign tumor patients as well as 26 per cent. of sera from patients affected with diseases other than cancer were also hemolytic. In Weil's series the blood sera from no normal cases produced destruction of erythrocytes. The investigations of Wittemore revealed that of 109 cases, normal and otherwise, hemolysis occurred in 36 per cent. of the carcinoma cases—all stages—in 50 per cent. of tuberculous patients—all degrees of advancement—in 18 per cent. of patients affected with ailments others than cancer, and in 17 per cent. of normal individuals. Blumgarten reports that 72 per cent. of cancer sera, in his series, produced hemolysis, while the serum of but 10 per cent. of patients affected with disease other than cancer caused destruction of red cells.

The most complete study of the serum reaction in cancer, from the clinical viewpoint, has been made by Crile and his assistants. These workers claim to have developed such perfection in technique that the high percentage of positive reactions in a very large series of cases warrants careful consideration. A total of 591 cases is reported by Crile. Of these, there were 211 normal individuals. In none of the normals was the reaction of hemolysis obtained. Seventy-one cases of pyogenic infection were tested, with hemolysis in about 10 per cent. Of 55 cases with benign tumors, the serum from none was hemolytic. Of 153 cases of cancer—all stages—130 or 85 per cent. produced hemolysis of healthy, human red cells. Of 11 cases of cancer, with clinical recurrence, 100 per cent. maintained persistence of positive reaction. Of 37 cases, postoperative, without clinical recurrence, examined at periods of from three weeks to fifteen years after operation, none exhibited hemolytic properties in their sera. Of 52 cases of tuberculosis, 92 per cent. showed the so-called reaction of "reverse hemolysis," the discussion of which will be attempted later. Crile noted that cancer cases showing no hemolysis were late, inoperable growths; that cancers of the mucous membranes showed more uniform hemolysis than did those in tissues such as the breast; that in cases which had been operated on with no recurrence the hemolytic power of the sera was lost in from twelve to twenty-one days; that in cases where incomplete operation had been performed, the serum never lost its hemolytic power. Crile also observed that if serum be heated to 55° Centigrade, it lost its hemolytic power, while if it were chilled, the hemolytic power was increased. Plasma used shortly after blood had been obtained from the patient was shown to be weak in hemolysins, while that which had stood for twenty-four hours on ice, was very rich in hemolysins. Recently, Johnstone and Canning have reported results which agree in the main with those of Crile and his coworkers. They have, however, noted the presence of the reactions in disease conditions other than cancer.

The results obtained by Crile appear to be at such variance from those reported by other dependable investigators as to excite more than passing interest. Either the improved technique suggested by Crile has been responsible for the apparent reliability of the reaction, or the manifestations of the reaction have been misinterpreted. This applies especially with respect to the cases of tuberculosis giving the so-called "reverse hemolysis." By this is meant that serum of a patient affected with tuberculosis will not hemolyze its own or other human corpuscles, but that the serum from a normal individual will destroy the erythrocytes from a tuberculous individual.

The work outlined in this brief and what must be considered preliminary report, was undertaken for the purpose of satisfying the writer of the practical clinical worth of the hemolytic reactions in cancer and tuberculosis. Added interest was given to the research by the working, in many instances, of the reaction simultaneously with the Wassermann reaction for lues, the positive manifestations of which were in more or less direct contrast to those obtained in the serum test.

It will be recognized, as has been pointed out by many observers, notably Weil and Crile, that there are many difficulties in the performing of the various steps of the reaction. But these difficulties are not greater than those encountered in the estimation of the opsonic index, the manipulations of the Wassermann reaction, or other exact laboratory procedures. The technique is well within the range of men who have had modern bacteriological training. There is sometimes difficulty in getting subjects to submit to the bleeding for the serum, but these can usually be surmounted by tact and patience. In the early part of the work the general principles outlined by Crile were observed; in the latter part of the investigation, these were somewhat modified for the purpose of better adapting the manipulation to practical clinical work. The modification did not appear to alter the results obtained.

The steps in the reaction have been frequently described. Blood is obtained from the subject, either by direct puncture of the arm veins or from the end of the finger, under aseptic conditions. It is necessary to obtain from each patient, blood corpuscles and blood serum in separate containers. In order to obtain the serum, blood is allowed to run directly into sterile test tubes. From forty to sixty drops are usually sufficient. If much serum is required for the purpose of running many sets of controls, then from five to ten cubic centimeters of blood should be obtained. This large amount can best be secured by direct puncture of a superficial arm vein. After obtaining the blood for serum, the test tube is either slanted and placed at once in the ice box, or is at once centrifugalized, and after the serum has thus been mechanically separated, is then placed at icebox temperature for from twelve to twenty-four hours. It is especially requisite that serum be kept at even temperature. If the temperature fluctuates the hemolytic properties of the sera are greatly affected. The red blood cells for the test are obtained by allowing from ten to twenty drops of fresh blood to run into salt-citrate solution or into a tube or flask containing several small glass beads. In the latter event the tube or flask is gently agitated and defibrination accomplished, with prevention of clotting. It has not appeared best to us to prevent clotting in this way. There seem to be several objections. Cells are readily injured by the sharp edges of the beads, and it seems that hemolysis is more readily brought about in them than under conditions where cells are preserved in salt or salt-citrate solution. Defibrination by beads is cumbersome, the cells are sometimes separated from the fibrin shred with considerable difficulty,

and if the shreds are not separated, it is frequently noted that hemolysis is delayed or interfered with on account of cells being entangled within the fibrin network. Before using the corpuscles it is necessary to wash them several times with normal salt solution. Sometimes it is difficult to free the cells from fibrin when glass beads have been used. The bits may seriously interfere with the reaction as a consequence. After washing, the erythrocytes are placed on ice to be used when serum is available.

In the manner above described, blood serum and red cells are obtained from normal individuals, etc. When the components of the reactions have been thus prepared, the test is ready to set up. As before mentioned, it has not appeared necessary to use the triple controls suggested by Crile. It does not appear that there is any greater accuracy in such method than when a few well-manipulated controls are followed. The sources of error are certainly greater. We have in all cases tested each suspected serum with at least two normals, and against cells suspended in normal salt, and against cells and sera in sterile water. With Crile and others we have noted that heating sera above 55° Centigrade prevented hemolysis.

Our procedure in carrying out the test is to add to the several test-tubes successively five or ten drops of a 5 per cent. suspension of normal red cells in normal salt solution, then respectively three to six drops of blood serum from the cancer patient (or other subject), three to six drops of blood serum from the normals, three to six drops of normal salt solution, and three to six drops of sterile water. To the next group are added, respectively, five or ten drops of a 5 per cent. suspension of red cells from the cancer patient (or other subject), and then to the various tubes three to six drops of normal serum, of serum from the suspected individual, of normal salt, and of sterile water. The tubes are then thoroughly agitated. When the smaller portions of each constituent of the reaction are used, the mixing may be best done with capillary pipettes, after the fashion of cell suspension mixing in the working of the opsonic index. After thorough mixing, the tubes are placed in a thermostat at 37° Centigrade for two hours. If the tubes are placed in a vessel containing water in the incubator, it is possible that they may be agitated several times during the period of incubation, without interfering with the progress of the reaction. After incubation, the tubes are removed from the incubator and placed at icebox temperature for twelve hours. They should be shaken once or twice during this period. The tubes are then observed for evidences of hemolysis. This is shown by the pink coloration of the fluid above the cell débris. It is best to have the observations made by someone who knows nothing of the clinical histories of the cases being tested. If reactions are read after twenty-four hours following removal of the tubes from the thermostat, the information derived is dubious, inasmuch as hemolysis may occur in tubes containing no serum. It is rare to secure hemolysis in any tube as complete as that in the control containing sterile water, even though the hemolytic properties of the serum tests are marked.

The results furnishing the basis of this communication are based upon the findings in 85 cases affected with various ailments, as will be seen by reference to Table I. It is impossible here to go into details with respect to each individual tested. Some were very interesting, particularly the cancer cases, the syphilitics, the tuberculous patients, and those subjects affected with non-malignant diseases, but with diseases frequently productive of anemia, as Graves' disease, pernicious and severe secondary anemias, Addison's disease, etc.

Table I.—Showing Scope of Work Furnishing Basis of This Communication

Clinical Diagnosis	Pathologic Findings	Remarks	Hemolysis of	
			Own Corp	Alien Corps
1. *Malignant disease:*				
Palate and cheek	Carcinoma	Late		++
Breast	"	Necrotic		+
Lip	"	Early		+ slight
Breast	"	Mod. adv		++
Prostate	"	Early		
Uterus—2	"	Mod. adv		++
Uterus—1	"	Early	+	+
Uterus—1	"	Mod. adv	+	
Stomach	"	Mod. adv		
Breast	"	Late	+	++
Breast	"	Early		
2. *Benign tumors:*				
Prostate	Adenoma	Early		
Uterus fibroid		Mod. adv		
3. *Non-cancerous affections:*				
Syphilis:				
Primary—1				
Secondary—3				
Secondary—1			+	+
Tertiary—4				
Tertiary—2			+ slight	+ slight
Tertiary—1		Anemia		+
Tuberculosis:				
Pulmonary—2		Early		
Pulmonary—1		Early	+ slight	+ slight
Pulmonary—2		Mod. adv	+	
Pulmonary—2		Late	+ slight	+
Pulmonary and pleura—1		Old		
Bones—2		Anemia	+ slight	+ slight
Bones—1		Healed		
Glands—2		No suppuration.		
G. U. and general		Rapid spread		+ slight
Bowels		Anemia	+ slight	+ slight
Pernicious anemia		Mod. grade	+ slight	+ slight
Hodgkin's disease		Mod. adv		
Chlorosis		Mod. grade		
Secondary anemia		Mod. grade		+ slight
Graves' disease		Anemia	+	+
Graves' disease		Early		
Aneurysm		Aortic		
Herpes zoster				
Cystitis—non-tuberculous				
Tonsillitis		Septic		
Acne		Severe	+ slight	+ slight
Nephritis			+	+
Addison's disease		Early anemia		
Endocarditis		Rheumatic	+ slight	+ slight
Gallstones		Jaundice fever	+ slight	+ slight
Enlarged parotid		Acute		
Brain abscess				
Arteriosclerosis		Anemia		+
Hysteria				
Achylia gastrica—2		1 with trichomoniasis intestinalis		
Chorea		Anemia	+ slight	
Chronic headache—3		Anemia, ophthalmic migrain.		
4 *Normal*—18		All ages		
1				+

Table II summarizes the findings.

Table II.—Summary

Clinical Diagnosis	Cases	Positive	Reaction		
			Negative	Undetermined	Reverse
Cancer	12	7 (58.3%)	3 (25%)	2 (16.66%)	0
Benign tumors	2	0	2 (100%)	0	0
Tuberculosis	15	1 (6.6%)	6 (40%)	6 (40%)	2
Syphilis	12	1 (8.3%)	8 (65%)	3	0
Non-cancerous disease, generally	25	5 (20%)	13 (52%)	6	1
Normal individuals	19	1 (5.3%)	18 (92.7%)	0	0
Total	85	15	50	17	3

It might be of value to say a few words with respect to the reactions in the cancer cases. By positive reaction we mean that the normal red cells to which cancer serum has been added, are destroyed (hemolyzed) more or less completely, while the

cancer patient's red cells to which normal, and frequently cancer serum (as will be seen), has been added are not hemolyzed. The reactions which we have classed as "undetermined" are those where hemolysis was found to be present in both combinations. By the reaction of "reverse hemolysis," it will be recalled we mean that the cells of the suspected patient are hemolyzed by normal, alien serum. Of the malignant tumors, the serum of which we had opportunity of testing, it will be noted that, in the main, serum from moderately advanced and advanced cases reacted well, while recent tumors either caused poorly manifested reaction or none at all. There is one necrotic case noted. The reaction did not appear to be as pronounced as some of the long growing tumors where breaking down was not prominent. This necrotic case was a late carcinoma of the jaw. The cases which did not react at all were one early carcinoma of the prostate, one scirrhus carcinoma of the stomach, and one early malignant tumor of the breast. There were two "undetermined" reactions, namely, a late cancer of the breast and an early cancer of the uterus. There was one case of "reverse hemolysis," a moderately advanced carcinoma of the uterus. At the present state of our knowledge it does not seem proper that we attempt explanation of the variations noted. It might be said that where the cases are marked "undetermined," the hemolysis was invariably more pronounced in the tubes where the action of the cancer patient's serum on the alien cells was being observed. Our percentage of rather more than 58 per cent. positive reactions compares favorably with that of Weil, Wittemore, and Blumgarten, but does not approach the high figures submitted by Crile and Johnstone and Canning. Perhaps were our series larger we should have more encouraging figures to offer.

Sera from two patients affected with benign tumors were tested. In neither were positive reactions obtained. It would seem that this fact is important diagnostically. Given a tumor, the nature of which is in doubt, the obtaining of positive hemolytic reaction might be of value in directing surgical procedures. And this especially when taken in connection with the fact that practically all the well-developed malignant growths in our series gave distinct positive manifestations.

Of the fifteen cases of tuberculosis examined, but two revealed the "reverse hemolysis" first emphasized by Crile. Both these cases had moderately advanced lesions. One case of tuberculosis exhibited direct hemolysis. This was a male, with general genitourinary tract involvement, and beginning changes in both lungs. Six cases of tuberculosis showed negative reaction, and a like number are for fairness recorded as "undetermined." Some of these showed slight hemolysis and might have been called negative by a worker more experienced with the test than the writer.

Of the twelve cases of syphilis, eight or 65 per cent. were negative, while three were classed as "undetermined." In all, the reactions were slightly manifested. One case—a patient with tertiary lesions and grave anemia—exhibited positive reaction.

Of twenty-five patients affected with various more or less serious diseases, selected at random, five or 20 per cent. exhibited positive reaction. It will be granted that in the majority of these the changes were not very marked, but the hemolysis was greater than in the controls, and the evidence is submitted for what it is worth. These cases reacting were respectively, chlorosis, severe secondary anemia, arteriosclerosis with anemia, Graves' disease with anemia and rapid loss of weight, and severe tonsillitis with sloughing of the tonsil and high fever. The reactions in the anemias are extremely interesting, especially with respect to the supposed hemolytic factors entering into the production of such diseases as pernicious anemia. It will be noted that one case of pernicious anemia was tested. It is classed with the "undetermined" reactions. The hemolysis was, however, more marked in the tube containing the patient's serum and the normal corpuscles. Of the twenty-five patients ill, but clinically noncancerous, six were classed as "undetermined." It will be seen that these were respectively severe acne, chronic parenchymatous nephritis, old rheumatic endocarditis, gallstones with jaundice, neurasthenia, and the above-mentioned pernicious anemia. One case of chorea—a young female with anemia—exhibited "reverse hemolysis."

Of the clinically normal individuals—nineteen in number—one gave slight positive reaction, while 92.7 per cent. were negative. We have no explanation to offer for the occurrence of this positive reaction. Similar observations have been made by Wittemore and by Blumgarten. The possibility of an unrecognized infective focus, a previous illness, or an error in technique should be considered.

It would appear, then, from this brief consideration of the work of others and the results we submit, that certain facts are brought forward quite prominently. It seems that the blood serum of the majority of patients affected with malignant disease is capable of destroying normal red blood cells. It also appears that while this fact is very interesting from a clinical and etiological standpoint, similar manifestations are possible in noncancerous patients. We ourselves have noted them in tuberculosis, syphilis, various forms of disease associated with anemia, in infective processes, and in one clinically normal individual. It would seem that in some cases where the nature of a pathological process is in doubt the hemolytic reaction might furnish information with respect to operative measures, inasmuch as we have noted it in the majority of malignant growths, while the majority of noncancerous but variously ill people and normal individuals fail to give us positive reaction. We have also shown that some cases, other than tuberculous, exhibit the phenomenon of "reverse hemolysis" and that others classed as "undetermined" hemolyze in both directions. As Crile has suggested, it would consequently seem to be quite necessary to estimate the hemolytic power of blood sera in cases where direct transfusion of blood is contemplated, else an already grave anemia may be rapidly changed to a fatal one. From the work of other investigators, and from our own, small as the series may be, it does not appear warranted to state that "reverse hemolysis" is characteristic in tuberculosis. We have shown that it does not always occur in proven tuberculosis, and that it occurs in other conditions. In conclusion, it should be emphasized that while the serum reactions for cancer and tuberculosis may furnish valuable and interesting information, they cannot be accepted as sole or deciding evidence. In confirmation of clinical findings they may be of importance, but as with other laboratory tests, of like nature, they cannot take the place of careful anamneses, careful examination of the patients from every viewpoint, and the adoption of clinical meas-

ures which have been proven feasible and dependable.

The writer's thanks are due to Drs. de Nancrede, Peterson, Lorce, Kollig, and Witter for opportunity of carrying on the work here outlined upon patients from their services at the University Hospital and their practices.

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ATROPINE AS A HEMOSTATIC.

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Several years ago my attention was arrested by a recommendation of atropine as an effective hemostatic. I had just made a review of the literature on atropine, and its physiological action as stated by all the leading pharmacologists was such that one could but look on this suggestion as perilous to the lives of patients, since every element in the activity of this powerful alkaloid pointed to the conclusion that it must increase hemorrhage. For according to the best authorities atropine increased vascular tension, dilated the caliber of the arteries and capillaries, and increased the energy of the ventricular contractions. Luchsinger found that it caused an enormous rise of the pulse rate, which he attributed to paralysis of the intracardiac vagus ends, although he acknowledged that it antagonized the paralysis caused by chloroform, potash, oxalates, cholates, apomorphine, copper, zinc, antimony, or quinine.

Van Renterghem attributes the redness of the face and the upper parts of the body to the rapid pulse and the rise of blood-pressure. Zeller observed that a solution of atropine sulphate in a neutral solution of sodium chloride dilated the arteries, accelerating the circulation in the veins and capillaries, which were not dilated.

Albertini found that atropine added to the blood supplied an exsected organ caused the current to be briefly slowed and then much accelerated, which he attributed to relaxation of the circular fibers. By exciting the vasomotor center the vascular tension was raised in dogs, after large doses, that cutaneous vessels dilated while the cerebral vessels contracted, and the arterial tension was raised. The heart first slows when a toxic dose of atropine is taken, yet the slow pulse of muscarine is promptly quickened by atropine.

Here was certainly reason enough for us to rule out atropine from the list of probable hemostatics, and to look upon it as eminently calculated to increase bleeding, whether from the arteries, veins, or capillaries. But nothing is more liable to fallacy than *a priori* reasoning, especially when it is based on the presumption of the completeness of our knowledge of physiology and therapeutics. Besides, there was one notable contradiction between the experimental observations of the laboratory and the clinical evidence familiar to every practitioner—it was asserted that atropine caused a diminution of the quantity of blood in the brain, and this would necessarily tend to favor sleep; yet nothing in the effects of atropine is more certain than that it banishes slumber and generates a wild active delirium that by no stretch of imagination could be associated with cerebral anemia. Besides, the report I had received of the efficacy of atropine in checking hemorrhages was from a respectable source and the circumstances were too positive to suggest an error of observation or judgment. The matter appeared important enough to justify investigation.

The first step obviously was to establish the correctness of the premises. Single cases or even a series may be exceptional; the judicial faculty is rarely so developed as to render the testimony of one individual conclusive in scientific researches. Accordingly I advertised in journals going to 100,000 physicians for reports on atropine as a hemostatic. A large number of reports were received. Some of these were merely statements of the opinion that atropine could not be a hemostatic for reasons as detailed above. All the reports of cases in which it had been actually employed were favorable, testifying to the prompt and powerful influence of the alkaloid in controlling every form of hemorrhage to which human beings are liable, with the solitary exception of that due to the opening of a large artery. Several cases were reported of erosion occurring during typhoid intestinal ulceration or rapidly advancing pulmonary disease where atropine failed to control the hemorrhage. But it succeeded in active and passive, arterial and capillary, traumatic and hemophiliac forms of bleeding, and that with a promptness and completeness that left nothing to be desired.

By one of those annoying mistakes that occur in the best regulated offices, these reports were distributed in the general files of the journal I edited, before they had been copied and tabulated; and it was not possible to dig them out of a mass of correspondence from over 50,000 physicians. I therefore sent a circular note to every medical journal published in America asking for fresh reports. Knowing the tendency we all have to report successes, I specially requested reports of failures. Many of my colleagues responded to this request, but the reports did not differ materially from those previously sent to me—up to the present I have been unable to secure a solitary failure except when there is erosion of a large artery—and who could expect a drug to staunch such bleeding!

We therefore face one of those apparent contradictions, where unanimous and extensive clinical evidence shows results exactly contrary to those deduced from experimental investigation. I am not of those who insist on their own view, denying or ignoring the testimony of their adversaries. Honest, intelligent observations must agree if pushed to the point where the apparently divergent lines come together; and I believe that the present

furnishes a notable instance of this truth. It is not enough to assert that any agent does so and so, for we are learning to distinguish between primary and secondary effects, between those of large and of small doses, besides the modification due to conditions and environment. All accounts agreed that the hemostatic powers of atropine were manifested under the full effect of large doses, with the development of toxic symptoms, dry mouth, flushed face, and dilated pupils. Study of these clinical manifestations of atropine induces the conviction that its action is essentially active and not sedative. It is an excitant, not a paralyzer; and this extends through its entire field of action. If we accept the theory of a dual system of nerves governing the caliber of the blood-vessels, we may increase their caliber in one of two ways; by paralyzing the vasoconstrictors or by stimulating the vasodilators. If atropine did the first we should have a decided increase of hemorrhage from the relaxed, flabby capillaries. But how if atropine activated the hypothetical vasodilators? We would then have an actual increase of capillary attraction by which the blood would be drawn into the capillaries, necessarily lowering the tension in the arterial system. But a slight increase in the capillary blood-content would suffice to establish such a scarcity of blood elsewhere as promptly to check its loss, since the capacity of the capillary system is estimated at 700 times that of the arteries. Hemorrhage from arteries and veins would then be impossible on account of the increased attraction of the blood into the capillaries.

But how about capillary hemorrhages? Here we see the vast importance of the distinction between vasoconstrictor paralysis and vasodilator stimulation, for if by the latter the attraction of the capillaries for blood is increased by the forcible dilatation of their walls, if we cut through these vessels the blood would be retained within them and if the action is powerful enough we might even find air drawn into the open vessels.

This hypothesis involves the assumption that atropine in full toxic doses lessens arterial tension; and here let me quote one of the latest works on pharmacology. Sollmann says: "Quickening of the pulse is the principal effect of *moderate doses* of atropine on the circulation. The blood-pressure is scarcely altered; but there may be a slight rise. This stimulation is always slight and may be entirely absent; it is replaced by vasomotor depression rather early. *Large doses* depress the vasomotor center profoundly so that the pressure falls very low."

Doyon and Kareff have published several papers on the action of atropine on the coagulability of the blood. This is lessened by an injection of atropine into the portal vein, the effects, however, not being due to a direct action of the poison on the blood. If the blood is allowed to flow into a tube containing atropine solution coagulation is not perceptibly retarded, the effect being manifested only after the atropine solution has passed through the liver. Very small doses appear to hasten coagulation; large doses delay it, but only from ten to twelve minutes. Observers found that the injection of atropine, one centigram per kilogram, into an intestinal vein of a dog, induced narcosis with considerable lowering of arterial pressure. The pulse is very rapid, the impulses imperceptible, respiration is relaxed, and the amplitude of the respiratory movement is augmented. Little by little the heart pulsations are renewed and the effects pass off.

Among the numerous reports which I have received, I note especially some on placenta prævia, in which atropine was administered hypodermically until the mouth became dry, hemorrhage ceasing in all cases.

Others report the successful application of atropine in full dose in postpartum hemorrhage, menorrhagia, many cases of epistaxis, metrorrhagia, hemoptysis, quite a number of postpartum hemorrhage, hemophilia, intestinal hemorrhage, the hemorrhage following abortion, hematemesis, and one reports twenty-five cases of malarial hematuria in all of which atropine was successful. Among these there were some in which the use of quinine was invariably followed by hematuria, oozing of the gums, and hemorrhage from other parts.

Space forbids the quotation of these reports *in extenso,* and this is unnecessary since the matter is one which every physician in active practice can test for himself.

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A STATISTICAL STUDY OF ALCOHOLISM AS A CAUSATIVE FACTOR IN INSANITY.*

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The statistics on alcoholism as a causative factor in insanity which we offer for your consideration are based on the admissions to the male department of the Norristown State Hospital for the Insane during the past two years—from April 1, 1907, to April 1, 1909. In that time 623 male patients were admitted, but as 103 of this number were returned from another institution where they had been temporarily detained, we do not include them in our study and thus have to consider 520 new admissions. Five of these were imbecile children from whom we could elicit no family history, but they were sent to the institution from Philadelphia by a society for the prevention of cruelty to children, which is alone significant. It might be said that our material is too limited to be of considerable value, but we have tried to increase its usefulness by obtaining some statistics from other sources. And the fact that these patients have been admitted from our own section of the state will add to their interest.

In studying our cases it soon becomes apparent that some presented the clinical pictures of psychoses which are classed as intoxication psychoses, while others would be of the manic-depressive, the præcox group, or other psychoses, tho' alcoholic excesses would be the apparent precipitating cause of the alienation. In another class of cases, alcoholism acted as an indirect cause. A few cases were admitted in which alcoholism in the parent at the time of conception appears to have influenced the mental development of the patient. Alcoholism in the parent after the child is born and as it grows to adult life undoubtedly has some influence upon its mental personality. The example of an alcoholic parent, with the often accompanying privations and laxity of morals, cannot but leave some impressions on the developing child, but as

*Read before the Psychiatric Society, Philadelphia, May 14, 1909.

we are unable to learn definitely the extent of these impressions, we have confined ourselves to the statement that the father or mother was alcoholic, when we found such to be the case.

Of the 520 cases admitted, alcoholism appeared to be an etiological factor in 240 cases, or 46 per cent., while of the 240 cases 71, or 13.6 per cent., were classed as alcoholic psychoses and divided as follows: chronic alcoholism 28, alcoholic hallucinosis 20, alcoholic hallucinatory dementia 11, alcoholic paranoia 10, dipsomania 1, Korssakow's psychosis 1; one of these, a physician, was also addicted to the use of morphine and hyoscine; eight had been admitted the second, and two the third, time to this or similar institutions.

In 37 cases a history of alcoholism in the parent was elicited, while in one the father was an epileptic, 36 were of Irish parentage, 20 of German, 7 English, 3 Italian, 1 French, 1 Austrian, 1 Swiss, 1 East Indian and 1 Negro. As to occupation: 46 were unskilled and 19 were skilled workmen, 4 were professional men and 2 had no occupation.

The remaining 169 cases, that is, 32.5 per cent. of those admitted, in whom we found a history of alcoholism, presented psychoses other than alcoholic and were classified as follows: In the manic-depressive group, 15 were mania, 15 depression, 1 hypomania, 1 stuporous mania. In the precox group, 12 were of the hebephrenic form, 9 of the katatonic form, and 21 of the paranoid form. There was one case of true paranoia, 11 epileptics, which is 34 per cent. of the total number of epileptics admitted, 28 paresis, 4 cerebral syphilis, 1 tabes, 26 senile dementia, 1 presenile, 14 imbeciles, which is 41 per cent. of the total number of imbeciles admitted; 7 melancholia, 1 traumatic, and 1 psychasthenia. Nineteen of these had previously been admitted to this or similar institutions, while in 82 cases a history of alcoholism in the parent was elicited. In one case the father and six brothers were alcoholics, and one brother was a suicide. In the 14 imbeciles, 9 were addicted to the use of alcoholics, while in 10 cases their fathers were alcoholic. In the 11 epileptics, 10 were addicted to the use of alcoholics and the fathers were alcoholic in 6 cases. Of the 28 paretics who gave an alcoholic history, 17 also gave a positive history of syphilis. In 3 cases of mania, alcoholic indulgence appeared to precipitate the attack, while in 8 cases of dementia præcox it acted in the same capacity.

Although in the remaining cases alcoholism cannot be said to be the direct cause, it was certainly a potent factor in causing the mental disease. Four of the cases had attempted suicide, 5 had made homocidal attacks which were not successful, 5 were murderers, 1 attempted criminal assault, and 5 were arrested for larceny.

We found whisky and beer to have been the principal beverages used, but we could not observe any relation between the beverages used and the psychosis produced. In some cases, and especially in the alcoholic hallucinosis, the psychosis developed while indulging regularly, though in others the mental symptoms developed only after withdrawal of the alcohol.

Doctor Mabon, of the Manhattan State Hospital at Ward's Island, kindly furnished us some statistics from that institution, with which we may compare our own. During the year ending Sept. 30, 1907, 1,516 patients were admitted to the Manhattan State Hospital and 201 cases or 13 per cent., were suffering from alcoholic insanity. For the year ending Sept. 30, 1908, 1,463 patients were admitted to the same institution, and over 13 per cent, were alcoholic psychoses, the largest proportion, however, being among the men, there being over 16 per cent., while among the women there was a little over 5 per cent. In a study which Dr. Mabon has made of 961 cases in which a dependable history could be obtained he found that either alone or in combination, alcohol was a precipitating cause in 37 per cent. Among the men the percentage reached 55 per cent., while in the women it was 22 per cent.

Kraepelin found that 30 per cent. of the male patients and 6 per cent. of the female admitted to the psychiatric clinic at Munich were suffering from psychoses due to alcohol. He also states that in 44.9 per cent. of the psychoses not directly due to alcohol this agent was an important factor in producing the mental disease. In epilepsy he found alcohol to be responsible for the commitment in 65 per cent. of males and 28.5 per cent. of female patients. In 42.9 per cent. of the imbeciles alcohol was the cause of their commitment.

Peterson places alcohol next to heredity as a single independent cause of insanity, and believes it to be the cause in 18 per cent. to 20 per cent. of the cases, being 3 or 4 times more frequent in males than females.

Doctor Cotton, in a paper on "Alcohol as an Etiological Factor in Mental Disease," states that of the patients admitted to the Danvers Insane Hospital, in Massachusetts, in 1906, alcoholic insanity was present in 25.6 per cent. of the male patients and in 15 per cent. when both male and female patients were considered, and that the percentage is gradually increasing.

Rosanoff in a recent article gives the following percentages for male patients whose psychoses were due to alcohol: In the State of New York 28.9 per cent., Massachusetts 30.6 per cent., in a group of three asylums in England 26.3 per cent., in a group of five asylums in Austria 24.9 per cent.

The percentages we have found at the Norristown Hospital are slightly lower than those of the other localities we have investigated, and this may be explained by the fact that some of our patients are admitted from rural districts, and in this city many are taken to the Insane Department of the Philadelphia Hospital.

SUMMARY.

I.—Our study includes 520 male patients, a majority of whom were admitted from Philadelphia and the larger towns in the Counties of Philadelphia, Delaware, Montgomery, Bucks, Lehigh, and Northampton.

II.—In 46 per cent. of these, alcohol either alone or in combination was an important etiological factor. In 13.5 per cent., they were classed as alcoholic psychoses.

III.—In 41 per cent. of the imbeciles and 34.5 per cent. of the epileptics, alcohol was responsible for their commitment.

Negro Physicians.—There are over 3,000 negro physicians in the United States. In a recent address before the Howard University Medical School, Booker T. Washington said there was a great opening for educated negroes in the medical profession in the South, and that there was room for at least 4,000 more.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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JONNESCO'S METHOD OF SPINAL ANESTHESIA.

THE use of arachnoid injections of one of the cocaine substitutes as a means of inducing general anesthesia has not found great favor among surgeons in this country, although a few have employed them and some have advocated them strongly. The fact that this method could be used only when the lower part of the body was the seat of operation, injection into the upper part of the cord being rightly looked upon as dangerous, has had much to do with the disfavor with which the method was regarded. The feeling has been that, the danger of upper spinal injections being admitted, there was no guarantee that the influence of low injections might not extend upward to the bulbar region. Hence there was little disposition to flee from the familiar dangers of inhalation anesthesia to the unknown perils of spinal injection.

General spinal anesthesia has, however, had its enthusiastic advocates in France and elsewhere on the Continent, and at the International Congress of Surgery in Brussels in September, 1908, Jonnesco of Bucharest read a paper advocating this method for operations in the upper as well as in the lower part of the body, claiming that the addition of strychnine to the anesthetic deprived the procedure of all danger even when injection was made into the arachnoid of the upper dorsal spine. The paper was not particularly well received, and Bier of Berlin, Rehn of Frankfort, and others in Germany have warned their colleagues against a resort to what they consider a dangerous measure. In answer to their condemnation, Jonnesco went to London and is coming to this country to show by practical demonstration in the operating room that his method is not only safe but possesses numerous advantages over inhalation anesthesia.

In the *British Medical Journal* of November 13, Jonnesco writes that since October, 1908, he has used spinal anesthesia in all his operations, hospital and private, never once having recourse to anesthesia by inhalation, and his hospital colleagues have also employed the method with complete success. The two essential points of novelty are: (1) That the puncture is made either in the dorsolumbar region, for operations on the abdomen or lower extremities, or between the first and second dorsal vertebræ, for operations on the upper portion of the body or the head; and (2) that strychnine is added to the anesthetic, this addition preventing, it is claimed, the occurrence of bulbar symptoms when the higher injection is made. Among the advantages which the writer claims for general spinal anesthesia are that it can be given by the surgeon himself, thus doing away with the need of a special anesthetist and so reducing the number of assistants; that it can be used in any case with absolute safety, there being no contraindication to its employment; that it greatly simplifies operations on the face or throat by doing away with the troublesome mask; that it usually is attended by immobility of the limbs by reason of the paresis resulting from the anesthesia of the spine; and finally that there is immobility of the abdominal viscera, including the intestines, the advantage of which in cases of laparotomy can hardly be overestimated.

Concerning the safety of the method Jonnesco speaks with the most absolute confidence, with a disquieting confidence indeed, for it is not founded on a sufficiently long or wide experience. He has used it in 412 cases, 295 dorsolumbar injections, and 117 upper dorsal injections, and his colleagues, Jiano and Nasta, have used it in 211 cases, 172 dorsolumbar and 39 dorsosuperior injections—a total of 623 operations in the course of a year, without a death and without any serious complications. In addition, Jonnesco had 603 cases of lumbar anesthesia before he began to use strychnine, all without any untoward complication. That is indeed a strong showing and explains, even if it does not entirely justify, the author's confidence. The cable reports that he has overcome the conservatism of the London surgeons and has demonstrated the method in some of the hospitals in that city, and it adds that he will soon come to America to urge the practice of general spinal anesthesia upon his professional brethren here.

THE STATUS OF THE NEW TESTS FOR TUBERCULOSIS.

ENOUGH time has elapsed since the introduction of the cutaneous and the conjunctival tests for tuberculosis to admit of judging, more or less finally, their value in the practical problems of diagnosis. The busy practitioner, however, will find it very difficult to form a personal judgment in the matter, because of the necessarily limited material and the infrequent autopsies he sees, while the current medical literature has been full rather of enthusiastic or polemical articles than of careful consideration of the reactions in question. It is to be welcomed, therefore, that Bandelier and Roepke have thought it fit to give a great deal of space to these questions in the third edition of their book on the specific diagnosis of tuberculosis.*

They first consider von Pirquet's cutaneous test which, if positive, results in an inflammatory reaction at the site of inoculation with tuberculin after the lapse of from three to 48 hours. The specific character of the reaction cannot be doubted:

*Bandelier and Roepke: "Lehrbuch der specifischen Diagnostik und Therapie der Tuberculose," 1909.

v. Pirquet's autopsy material numbering several hundred cases, showed anatomical lesions of the disease in the great majority of patients who gave a positive reaction in life. Moreover, the inflammatory lesion at the site of the inoculation shows the histological structure of a tubercle, characterized by the presence of Langhans' giant cells, surrounded by numerous epithelioid and round cells. Beyond an occasional slight general disturbance or an unusually marked local reaction, the test as prescribed by von Pirquet, with the usual care in technique, has proved completely harmless. Negative results have been obtained in the presence of tuberculosis in the last stages of the disease, in many cases of miliary tuberculosis and of tuberculous meningitis, after prolonged treatment with tuberculin, and frequently in cases of coexistent measles. It is evident that in many of these instances the failure to obtain a reaction in a manifestly tuberculous patient may have some prognostic as well as a diagnostic significance. A late reaction, occurring after more than twenty-four hours, has usually been seen in clinically negative cases and only exceptionally in manifestly tuberculous patients. Of the latter, 96 to 98 per cent. of the immense material observed have given a positive reaction.

The real value of the test, however, lies in the diagnosis of tuberculosis in childhood. The percentage of positive reactions increases steadily and proportionately with the increase in age, and these results have proved to be quite parallel with the pathological findings at autopsies. Newborn children give a negative reaction without exception. A positive reaction in an infant below one year of age almost infallibly shows the presence of tuberculosis; a negative result means absence of the disease, if cachectic patients suffering from a manifest infection be excluded. In other children the reaction is the more valuable the nearer they are to infancy; a negative reaction speaks almost infallibly for absence of tuberculosis. A positive result in the great majority of cases means the presence of an active tuberculous process. Von Pirquet's test, therefore, is indicated in practice among children, its general applicability, easy technique, harmlessness, and specific character making it perhaps the most valuable single measure of diagnosis.

Bandelier and Roepke have hardly any words of commendation for the conjunctival test. It is evident, of course, that this test is dangerous. Moreover, it is contraindicated in the presence of most external affections of the eye, in which the specific reaction cannot be judged. Finally, if positive, it speaks only for the presence of a frankly tuberculous process which can be diagnosed by other methods. If negative, it is of no value, for it is not nearly as sensitive as the cutaneous test. Thus this test, the authors contend, so indiscriminately used at first, finds hardly any excuse for being included among diagnostic measures in tuberculosis. The damage that may be caused by it should restrict its application to the few cases in which some special reasons might call for it.

On the other hand, Bandelier and Roepke hold, the cutaneous test must be looked upon as a most valuable addition to the means of diagnosing tuberculosis. Its special value in the tuberculosis of children should lead to its wide employment among these patients, so that curative and prophylactic measures may be instituted at an earlier date than the results of physical examination or the general symptoms have justified in the past.

Toxic Arthritis of the Hip

The diagnosis of disease of the hip joint is not, as a rule, considered to be a matter of great difficulty. The proper appreciation of the significance of the referred pains, limp, tenderness, spasm, restriction of motion, and other signs described in every text book of surgery, leads the careful examiner almost at once to a localization of the trouble to the hip joint, and when once this is determined the chances are considered so overwhelmingly in favor of the process being tuberculous, that the diagnosis of tuberculous arthritis is promptly made; for, ruling out neuroses, syphilis, and rheumatism, which can usually be done from lack of signs elsewhere, there is but little else which comes into consideration. In the August number of the *American Journal of Orthopedic Surgery*, however, Hoke calls attention to a new variety of arthritis of the hip, called by him "toxic arthritis," which so closely resembles tuberculous disease of the joint that it may be expected in the future to make the diagnosis of trouble in this region more difficult than it has been in the past. The cases as reported by Hoke occurred in children and began in the manner typical of tuberculosis of the hip, with pain, limp, spasm, deformity, and fever. Clinically the affection could not be told from the early stage of tuberculous arthritis. In most of the cases, however, there was a history of improper dieting or indigestion, and there were found in the urine excessive amounts of indican, phenol, or indol acetic acid, suggesting intestinal putrefaction. The patients were put to bed, given a clearing out with castor oil, and placed on a lactofarinaceous diet, and the bowels were irrigated twice daily. In the acute cases this treatment caused a complete disappearance of all symptoms in the course of a few days, and proper dieting produced a permanent cure. In the chronic cases the head of the bone softened, bone atrophy occurred, and operation became necessary. In such cases the clinical diagnosis was especially difficult, as the destruction of the bone and consequent shortening of the limb added to the confusion. A characteristic of these cases of "toxic arthritis" was that they did not suppurate; the joints often became distended with fluid, but of a straw color and sterile. The cases, as a rule, gave negative reaction to tuberculin, though in a few cases the association of "toxic arthritis" of the hip, with tuberculous lesions elsewhere, rendered the diagnosis especially obscure. The recognition of these cases of toxic arthritis, if the findings of Hoke are confirmed, is an observation of far-reaching import. In his clinic at Atlanta, such cases made up a majority of the affections of the hip seen. If the disease is allowed to progress it leads to deformities, which, except for suppuration and the tendency to generalization, are quite as serious as those seen in true tuberculous osteoarthritis; whereas, if recognized early a simple dietetic and enteric treatment causes complete and prompt recovery. The possibility of such a condition should be borne in mind in

the consideration of every child suspected of hip joint disease. If it actually exists, the appreciation and recognition of it may lead to the prevention of years of suffering.

Can Deaf-Mutes Swim?

In the *Journal of Laryngology* for November, 1909, Daniel Mackenzie refers to a statement made in a discussion at the French Congress of Otology, by Moure and Cauzard, who reported on the recent improvement in our methods of diagnosing labyrinthine disease. They quote an American observer that it is "almost impossible for deaf-mutes to swim." Mackenzie, however, says that what was referred to was the difficulty which deaf-mutes experience when they try to swim under water. If the recent experiments of Thomas be accepted this inability would seem to be a result of the absence or paralysis of the vestibular apparatus. Having cut the vestibular nerves of dogs, Thomas found that the animals could not maintain their balance under water, but if these nerves were left untouched and the cerebellum was destroyed, they could manage themselves very well. Mackenzie quotes from a letter received from the head master of one of the English institutions for the instruction of deaf and dumb children, who says that they teach all their pupils there to swim unless there is some special medical contraindication. They seem to learn the art quicker than normal children and become proficient swimmers. They cannot, of course, direct themselves by sound though they swim perfectly well with eyes closed. This same writer adds that the discrepancy between the older reports and the more recent statements is more apparent than real. In many deaf-mutes—the majority—the vestibular sense is active and these persons have no difficulty in swimming. If the vestibular end organs are totally inert the ability to support oneself under or on water would probably depend on the character and duration of the destructive lesion and upon the presence or absence of an education of the compensatory methods of maintaining the equilibrium. Certain deaf-mutes find it difficult to walk in the dark or with eyes bandaged and these we should expect to be the individuals in whom the vestibular end-organs have been but recently destroyed or who have neglected to train their sense of touch and pressure to replace the defective stimuli from the semicircular canals.

A Neurological Institute.

In casting up the evils of Christian Science and its imitators, one should not forget that some good has come from them in the way of an awakening of the medical profession to the necessity of a more general study and knowledge of so-called functional nervous diseases. It must be confessed that the general practitioner has hitherto not given the attention and the thought to these distressing conditions that their seriousness demanded, and some such outside demonstration of their prevalence and of their amenability to treatment was perhaps necessary to open his eyes to the fact of his neglect. Even neurologists have been remiss in this matter, for with all the institutions, both hospital and dispensaries, for the treatment of the indigent sick in the larger cities of this country, there is no place to which the subjects of "functional" nervous diseases or mental disorders not amounting to actual insanity can go for care and treatment. The general hospitals will not receive them, and if they did the sufferer would get little relief even if his condition were not aggravated by a stay in such a place. To supply this need an institution has now been established, as noted in our news columns, for the study and treatment of nervous and mental diseases. Such an institution will doubtless be of great service to the sufferers from those hitherto more or less neglected affections, not only directly in relieving them of their troubles, but also indirectly as an educational center for the spread of greater knowledge regarding these maladies and their cure.

News of the Week.

Fifth Course of Harvey Society Lectures.—The Harvey Society lectures for the coming season will be given on Saturday evenings, at 8:30, in the Academy of Medicine, 17 West Forty-third street, New York, as follows: *December* 4, Prof. Otto Cohnheim, University of Heidelberg, "The Influence of Sensory Impressions on Scientific Deductions." *December* 11, Prof. T. G. Brodie, University of Toronto, "Renal Activity." *December* 18, Prof. Carl G. Huber, University of Michigan, "Renal Structure." *January* 15, Prof. Ludwig Hektoen, University of Chicago, "On Certain Phases of the Formation of Antibodies." *February* 19, Dr. Eugene L. Opie, The Rockefeller Institute, "Inflammation." *March* 5, Prof. Adolf Meyer, Johns Hopkins University, "The Present Status of Aphasia and its Relation to Psychopathology." *March* 19, Prof. A. Magnus-Levy, University of Berlin, "Pathology and Therapy in Diseases of Metabolism." *April*, Prof. Jules Bordet of the Pasteur Institute of Brussels is expected to deliver a lecture before the Society in April. The exact date and title will be announced later.

A Department of Public Health.—It is stated by the Washington correspondent of *The New York Times* that a report on a plan for a Federal Department of Public Health has been submitted to President Taft by Dr. Walter Wyman, Surgeon-General of the Public Health and Marine-Hospital Service, at Mr. Taft's own request. Such a department or bureau was recommended in the platform of both the Republican and Democratic Parties, but in spite of that, it is not thought likely that any action will be taken at the present session of Congress.

Mortality in American Cities.—The official figures on the general death rates of the seven cities having more than 500,000 population are as follows: Chicago, 14.03; St. Louis, 14.52; Pittsburg, 16.49; New York, 16.83; Philadelphia, 17.39; Baltimore, 18.32; Boston, 19.08. The typhoid fever rate was highest in Pittsburg, 46, and lowest in New York, 12. Chicago had the second lowest typhoid rate—fifteen per 100,000 of population. Tuberculosis was lowest in Pittsburg, 139; second lowest in Chicago, 181; and highest in Baltimore, 250 per 100,000 of population. Pittsburg had the largest proportion of pneumonia deaths—229 in each 100,000 of population; New York was second highest with 212, Boston was third with 188, and Chicago was fourth with 162. St. Louis had the lowest pneumonia rate, 114. The four chief acute contagious diseases that menace child life—diphtheria, scarlet fever, measles, and whooping cough—were most fatal in Boston—101.4 per 100,000 of population—and second highest in New York—94.8. Self-destruction was most

commonly practised in St. Louis, where, according to the tabulations of the United States census office, 32 out of each 100,000 of its citizens ended their lives by suicide. In New York and Chicago the proportion was 23; in Boston and Pittsburg, 21; in Philadelphia, 18, and in Baltimore, 17.

The Good Effects of Water Filtration.—Since the introduction of water filtration there has been a gradual reduction in the number of cases and of deaths from typhoid fever in the city of Philadelphia. For the week ended November 13 there were twenty-five cases reported, with but one death. Prior to the year 1904, when the first division of the water filtration system was put in operation, the number of cases of typhoid fever was upward of 400 a week and the number of deaths upward of 20. In that year there were 6,587 cases of the disease reported, an average of 127 a week, with 744 deaths, or an average of 14 a week, as compared with 8,701 deaths, an average of 167 a week, with 957 deaths, or an average of 18 a week, in the preceding year.

Pensions in State Hospitals.—The conference of medical superintendents and managers of State hospitals, with members of the State Lunacy Commission, decided recently to favor legislation at the coming session to provide for an increase of about 20 per cent. in the salaries of attendants and nurses in the State hospital service. It is contended that the State's force of employees is constantly being disorganized because outside institutions pay higher wages than the State and as soon as the employees become valuable they leave the hospitals for the more lucrative positions in private institutions. Dr. Mabon, medical superintendent of the Manhattan State Hospital, presented a paper which recommended a system of annuities to be paid not only to the employees but also to members of the medical staffs of State hospitals if they serve for twenty-five years or longer. This proposition was indorsed by the conference.

Pellagra in Cleveland.—The first case of pellagra to be diagnosed in Cleveland, O., was reported to the Federal authorities recently. The case was found in the Cleveland City Hospital.

Antituberculosis Campaign in Ontario County, N. Y.—An active campaign for the eradication of tuberculosis in Ontario County, N. Y., has been begun. An enthusiastic meeting of the county organization was held recently and Robert H. Pierce of Albany was appointed special field agent. This means that the County of Ontario will have the benefit of the services of a paid secretary, who will devote his entire time to educating the public in the fundamental facts of the disease and encouraging action towards its suppression. He will be furnished with an exhibit by the State Charities Aid Association of New York, which he will take from town to town. Every home in the county will have literature on tuberculosis. Committees are already formed in Geneva, Canandaigua, Allan's Hill, Clinton Springs, East Bloomfield, Naples, Seneca Castle, and Stanley. Committees will be formed in the other towns and villages in the county. It is expected that every community will have such a committee and in this way the whole county will be aroused. The office and headquarters will probably be in Geneva, where active work has already been done through the efforts largely of Mr. H. B. Graves, president of the committee, and Dr. C. C. Lytle, secretary.

A Neurological Hospital and Dispensary will be opened on November 29, at 149-151 East Sixty-seventh street. Under the name of the Neurological Institute, it has been incorporated in accordance with the laws of the State of New York as a public hospital for the study and treatment of nervous and mental and allied diseases. The hospital consists of two wards, one for males and one for females, into which suitable cases will be received free of charge, of private wards in which a charge will be made for care and treatment, and of private rooms. The Dispensary will be open daily except Sundays and holidays, from two to four for charity cases only. During these hours, one of the medical board and his assistants will be in attendance. Physicians are invited to send patients suffering from nervous, mental, and allied diseases to the dispensary for diagnosis and for treatment, or for admission to the wards. Patients bringing letters from their physicians requesting diagnosis or suggestions in regard to treatment will be referred to their physicians. In addition to the medical board, the medical staff will consist of a surgeon, an orthopedic surgeon, an ophthalmologist, a psychologist, a resident physician, and a laboratory director. Courses of instruction will be announced later. The medical board is composed of Drs. Joseph Collins, Joseph Fraenkel, and Pearce Bailey.

Yellow Fever in Yucatan.—Yellow fever has again made its appearance in Yucatan. Four cases are reported at Merida and one in the interior.

Refraction by Practitioners.—The committee appointed by the Ophthalmic Section of the American Medical Association to "promote a working knowledge of simple refraction among family physicians" has issued a letter in which it is urged that the State Boards of Registration require it for license and medical colleges teach it in course.

Ungallant Medical Students.—A cable despatch to *The Sun* states that the annual examination list of the medical students in the Paris hospitals is headed for the first time on record by a woman, Mlle. Romme. Her male competitors greeted the result of the examination with cries of "Conspuez le jury!" The disturbance lasted for a quarter of an hour.

Charitable Bequests.—By the will of the late Emanuel Ernestine of Pompton Lakes, N. J., the Mount Sinai Hospital in New York will receive $10,000, and the Montefiore Home $5,000.

House Staff Resigns.—Owing to a disagreement between the superintendent of the Washington Heights Hospital in New York as to remuneration for the signing of insurance certificates, one of the three internes was dismissed, and the two other internes promptly resigned, their resignation taking effect as soon as their positions were filled.

Licenses Revoked.—For the first time under the new laws of Arkansas, the State Medical Board has revoked the licenses of two physicians. The cause was "fake" advertising.

Fourth International Sanitary Convention.—The Secretary of the Treasury has selected the following persons as representatives at the Fourth International Sanitary Convention to be held at San José, Costa Rica, from December 25, 1909, to January 2, 1910. Surgeon-General Wyman, P. A. Surgeon J. W. Amesz, P. H. and M. H. S.; Dr. H. M. Bracken, Secretary of the State Board of Health of Minnesota; Dr. A. H. Doty, Quarantine Officer

of the Port of New York; Dr. Rhett Goods, member International Sanitary Bureau of Washington.

The Association of French Physicians of North America.—The fifth congress of this association will be held at Sherbrooke, P. Q., during the second week of August, 1910. This date is selected to enable the members to attend the meeting of the Canadian Medical Association during the last few days of August. The president of the association is Dr. P. Pelletier of Sherbrooke, the secretary is Dr. Frederick A. Gadbois of Sherbrooke, and the treasurer is Dr. J. Omar Ledoux of Sherbrooke.

The Pendleton (Ore.) City and County Society was organized November 4, and the following were elected officers: *President,* Dr. A. J. Best; *Vice-President,* Dr. D. J. McFaul; *Secretary-Treasurer,* Dr. I. U. Temple.

The Rockingham County (N. H.) Medical Society held its fifth annual meeting at Portsmouth, November 11, 1909. The election of officers resulted as follows: *President,* Dr. E. A. Landman of Plaistow; *Vice-President,* Dr. Thomas W. Luce of Portsmouth; *Secretary,* Dr. Walter Tuttle of Exeter; *Treasurer,* Dr. Alice Chesley of Exeter.

The Fond du Lac County Medical Society at its seventh annual meeting, held November 10, 1909, elected the following officers: *President,* Dr. Schoofs of Johnsburg; *Vice-President,* Dr. G. T. McDougall; *Secretary and Treasurer,* Dr. Flora Read.

The Jewish Hospital of Brooklyn.—At the annual meeting of this institution, held last Sunday, it was announced that an isolation building, a septic pavilion, and a laboratory would be added. The hospital has also undertaken the construction of a nurses' home and training school.

Obituary Notes.—Dr. William Adie Bell of Yonkers, N. Y., died November 15, 1909, at the bedside of a patient. He was 58 years of age, a graduate of the College of Physicians and Surgeons in New York, in 1886, and a member of the Westchester County Medical Society and the New York State Medical Association.

Dr. Charles E. Hall of Greenville, N. H., died suddenly November 7, 1909, aged 62 years. He was a graduate of Dartmouth College and of the New York University Medical College, in 1873. Dr. Hall, besides practising his profession, was proprietor of a drug store, and a politician, having been a member of both houses of the State Legislature.

Dr. Franklin B. Ives of Long Beach, Cal., died November 2, 1909, aged 86 years. He was a graduate of the Rush Medical College, in 1850, and practised medicine in Chicago for forty years. About twenty years ago Dr. Ives retired from the practice of medicine, and was ordained a minister in the Baptist Church. He had lived in Long Beach for the past fourteen years.

Dr. James W. Stewart of Rumford, Me., died November 10, 1909, aged 65 years. He was a graduate of the Medical School of Maine, in 1873, and a member of the Oxford County Medical Society and the Maine Medical Association.

Dr. David H. Beckwith of Cleveland, O., died at his home, recently, aged 85 years. A graduate of the Eclectic Medical Institute of Cincinnati, in 1851, Dr. Beckwith soon became associated with the Cleveland Homeopathic Medical College, in which institution he held a professorship for over fifty years.

Correspondence.

THE AURICULO-VENTRICULAR BUNDLE AND STANLEY KENT.

To the Editor of the Medical Record:

Sir:—In a recent issue of the Medical Record[1] Dr. S. J Meltzer calls attention to what he believes to be an injustice to the work of Stanley Kent in regard to credit for the detection of the auriculo-ventricular bundle and for the determination of its function. Dr. Meltzer says in this connection: " . . . Two publications appeared nearly simultaneously by Kent and His, describing *a bundle of muscle fibers** entering from the right auricle into the septum and branching out into both ventricles." "Everybody knows His and his bundle, but very few know of the share which Kent had in the detection of that bundle. Kent's publication *on the bundle** appeared at least simultaneously with that of His. Furthermore, Kent was apparently more correct than His in the description of the structure of these fibers, and in his important reference to their embryonic character. Now, in studying original articles, I discovered that Kent also performed the experiments of Erlanger apparently by the *same method and with the same success.* They are mentioned in Kent's article which was published fifteen years ago."

It is implied or stated in as many words in the passages quoted above (*a*) that Kent described the auriculo-ventricular bundle, (*b*) that Kent determined the function of that structure, (*c*) that Kent's experiments and those of the writer, not to mention those of other experimenters who have been engaged in the elucidation of the same problem, are identical, and (*d*) that Kent's work has not received the notice it deserves. We are satisfied, as must any one be who, like the writer, has experienced the pleasure and stimulus of knowing him, that Dr. Meltzer was impelled to the publication of these views by that inestimable trait of character that insists upon the placing of credit where there is even the slightest reason for believing that credit is due. It is therefore to be regretted that in his effort to do justice to the work of Kent, Dr. Meltzer has failed to recognize its true significance in relation to the contributions of subsequent investigators; it is to be regretted that each of the implications or statements mentioned above is, in our opinion, incorrect. And lest these errors be perpetuated in the literature, I have reluctantly decided to call the attention of the readers of this journal to what I believe to be Kent's real relation to the development of the subject in hand.

We may begin this discussion with an analysis of Kent's contribution. The problem to be solved is clearly stated in his introductory remarks.[2] After calling attention to the fact that in cold-blooded animals "the muscular tissue constituting the various chambers of the heart . . . is perfectly continuous from sinus venosus through the auricles into the ventricle," and that "the explanation of the passage of a wave of contraction over the various chambers is upon exactly the same footing as the explanation of the passage of a wave of contraction along any other continuous stretch of muscular tissue, he proceeds to say that in mammals "a distinct break has always been described as existing between the muscle fibers of auricle and ventricle. The existence of this break," he continues, "has rendered inadmissible any explanation which depends upon muscular conduction . . ." For this reason he undertakes a study of the auriculoventricular ring he undertakes a animals for the presence in it of muscle fibers.

It would require too much space to give here his results in full. It is therefore fortunate that Kent himself has supplied us with an abstract of his work.[3] This was read eight months after the full report of his experiments had been placed in the hands of the editor: "In the hearts of newly-born rats a complete muscular connection exists between auricle and ventricle in the following situations: (*a*) Between the outer wall of the right auricle and right ventricle; (*b*) between septum of auricles and septum of ventricles; (*c*) between outer wall of left auricle and left ventricle. In the adult rat a similar connection exists, though the details are modified in consequence of the development of a mass of connective tissue for the support of the auriculo-ventricular valves.

"In the rabbit the development of fibrous tissue at the base of the valves is still more pronounced, though the muscular fibers appear to be still continuous between the two cavities.

"Between the auricle and ventricle and lying in the connective tissue ring are modified muscle cells, usually

* Italics mine.

spindle shaped, nucleated, granular, becoming extremely narrow in parts and then swelling out again, transversely striated, branched, and usually connected into a network. These cells are somewhat rudimentary in the case of the rat and are very well developed in the monkey. In the latter animal they exist as a complete network, penetrating the fibrous connective tissue of the groove and extending through from auricle to ventricle. Upon approaching the groove the normal cardiac fibers split up into similar fibers and become connected with the network of cells lying in the fibrous tissue."

There cannot be recognized in this full transcription, or in Kent's full report, any structure that answers to the description of the auriculo-ventricular bundle. Indeed, Kent does not even hint at the existence in any heart of but a single sharply differentiated bundle of muscle fibers located in the septum and nowhere else. That he may have seen the auriculo-ventricular bundle among the numerous other connections which he believed were muscular cannot be denied; neither can it be affirmed that he did see it and describe it.

Kent published in connection with his article six beautiful plate figures. A careful examination of these plates fails to reveal the auriculo-ventricular bundle. Nor is it stated in the accompanying descriptions that any of the figures picture the septum of the heart; whereas it is definitely stated that two of the sections, showing what Kent believed were broad muscular connections, are from "the junction of the left auricle and the left ventricle." These could not possibly have contained the auriculo-ventricular bundle.

At this place reference should be made to the claim of some Italian authors, *i.e.* Luciani,[4] that the auriculo-ventricular bundle was discovered by Paladino in 1870.* Unfortunately I have been unable to secure a copy of Paladino's original article. Retzer,[5] however, says that he has failed to find any statement in it that could be construed as meaning that muscle fibers cross through the auriculo-ventricular junction.

Kent's histological work has been referred to by all subsequent workers in the same field. The paper by His, Jr.,[6] describing the auriculo-ventricular bundle appeared at about the same time as Kent's. In a subsequent paper His[7] briefly reviews his own work and at the same time brings Kent's into relation with it. Be it here recalled that in the interim His had not repeated his own work nor that of Kent. He says: "In man, indeed in mammals in general, a layer of connective tissue grows in between the muscle walls of the ventricles and auricles and separates these parts almost completely. Nevertheless, muscle fibers have been found in this layer (Stanley Kent), and I myself have demonstrated a bundle, present in mammals as well as in man, which courses from the posterior wall of the right auricle to the ventricular septum." Retzer,[5] Braeunig,[8] Humblet,[9] Tawara,[10] and others all confirm His to the effect that crossing the auriculo-ventricular junction there is to be found in the heart of warm-blooded animals but a single discrete bundle of muscle lying in the septum of the heart. There is still some difference of opinion as to the exact mode of origin and termination of this bundle and as to the histological characteristics of the cells of which it is composed, but all are agreed that it lies in the septum of the heart. None have succeeded in finding muscular connections in any other part of the heart.

Retzer[5] attempts to account for Kent's finding muscle fibers in other places by calling attention to the fact that the latter "used picrocarmine for the differentiation of musculature and connective tissue. This method," he says, "is, however, very unreliable, as one can easily determine for himself."

Braeunig,[8] referring to Kent's work, says in one place that he could not discover in any of the hearts studied a muscular connection similar to that described by Kent as existing in the monkey's heart. And whereas he thinks that Kent's findings in the undeveloped heart of the new born rat may be of great significance, they are wholly without significance in so far as concerns the fully developed mammalian heart.

Finally, Tawara[10] says in this connection: "Kent's description of the finer histological details agrees very well in some points with my observations. But I have found this peculiar connecting bundle only on the boundary between the septum atriorum and ventriculorum, never in the auriculo-ventricular groove. . . . The actual discovery of the auriculo-ventricular bundle in man and mammals we owe to His."

It is evident, therefore, that Kent should not be credited with having discovered and described the auriculo-ventricular bundle. The credit that is Kent's is that he was one of the first investigators to attempt to demonstrate by means of histological methods a muscular connection between the mammalian auricles and ventricles. Practically every paper purporting to give a more or less complete review of this subject refers to Kent's work in connection with it; we mention, for example, the reviews by Gaskell,[11] Langendorff,[12] Hoffmann,[13] His,[7] Hering,[14] Humblet,[9] Retzer,[5] Braeunig,[8] Tawara,[10] Erlanger,[15] and others.

Since Kent did not know the auriculo-ventricular bundle and since he believed that muscular connections existed in practically every part of the auriculo-ventricular junction, there can be no valid reason for maintaining that Kent devised experiments for the purpose of blocking the passage of the excitation wave through that particular structure. Kent's own statements permit us to go even further than this: he made no effort to block the passage of the excitation wave through those structures which he believed to be muscular to the exclusion of other parts of the auriculo-ventricular junction.

Kent's account of this phase of his work is extremely brief, being contained in practically four lines. It is preceded by the following paragraph: "It has been shown by Gaskell that in the frog a similar (partial and complete) block may be produced by a gradually increasing compression of the tissues at the auriculo-ventricular groove, and by a specially constructed clamp he has been able to so apply the pressure to the excitable structures as to obtain results almost identical with those described above as the result of section in the tortoise heart." Then follows the account of his experiments which is here *transcribed in full:* "In the case of the mammalian heart almost precisely similar results may be obtained by the use of a suitably constructed clamp, and using such an instrument I have been able to verify for the mammalian heart almost all of the effects described by Gaskell as obtained in the frog." Finally, in his conclusions, Kent refers to this phase of his work as "the effects of compression on the auriculo-ventricular *groove.*"*

In view of the fact that Kent does not furnish proof that his clamp was applied accurately to the auriculo-ventricular groove, the statement may be interesting, that results similar to those obtained by Kent may follow functional separation of any more rhythmical part of the heart from a part less rhythmical. It is therefore possible that his clamp might not have included in its grasp even the structures he describes in the anatomical section of his paper, not to mention the auriculo-ventricular bundle.

With the experiments demonstrating that the auriculo-ventricular bundle constitutes the sole functional connection between the auricles and ventricles, the readers of this journal are probably familiar. They can be divided into two groups: (1) Those in which practically nothing but the auriculo-ventricular bundle was cut in the perfused heart (His[16] [?], Humblet,[9] Hering[14]); and (2) those in which practically nothing but the auriculo-ventricular bundle was gradually compressed in a special clamp, the heart preserving its normal relations to the organism (Erlanger,[17] v. Tabora[18]). These two types of experiments bear the same relation to each other as do the experiments of Wooldridge and Tigerstedt (mass ligation of the entire auriculo-ventricular junction), upon the one hand, to those of Kent on the other. And this constitutes Kent's only contribution to this phase of the subject.

If we admit that Kent's histological findings are correct, then, in view of this recent work, we find ourselves in an interesting dilemma. Experiment has conclusively proved that the cardiac excitation wave is blocked when of all of the auriculo-ventricular junction practically nothing but the auriculo-ventricular bundle is injured. Now Kent describes muscular connections in remote parts of the auriculo-ventricular junction. It follows that the excitation wave is not conducted through muscular tissue, and the neurogenic theory is proved. It is fortunate, therefore, for the defenders of the myogenic camp that recent work does not substantiate Kent in this regard.

It will not be superfluous to state in conclusion that the writer became acquainted with Kent's experiments while he was engaged in his investigation into the function of the auriculo-ventricular bundle, but not until after his plans had been fully developed. Had he, however, known it sooner it would have been considerably less of help to him in devising his experiments than was Gaskell's work, with which every modern student of physiology is perfectly familiar. Kent's experiments, so far as can be determined from his own account, were a perfect repetition, upon warm-blooded animals, of Gaskell's. Gaskell, however, de-

* Luciani merely says that Paladino found muscle fibers crossing the auriculo-ventricular junction.

* Italics mine.

scribes methods and pictures results; Kent does neither. Had the writer been engaged in Kent's particular problem it would have been necessary for him to work out for himself every technical detail connected therewith. Our problems, it has been seen, were, however, quite different. There may be some who will maintain that I was remiss in not calling attention to this difference. My only defense is that others who have concerned themselves with the physiology of the auriculo-ventricular bundle (His,[16] Humblet,[9] Hering,[14] v. Tabora[15]) are equally culpable in that they too fail to see the relation between their problem and that of Kent.

JOSEPH ERLANGER, M.D.

MADISON, WIS.

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TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Regarding the objections raised by Dr. Erlanger to my giving credit to Stanley Kent for his share in establishing the existence and significance of the atrioventricular conducting fibers,[1] I am ready to stand corrected and willing to be more explicit on the following points: 1. Kent described muscle fibers connecting the auricles with the ventricles, but did not mention specifically the "bundle"; 2. Kent has not determined the function of the "bundle" but that of the muscle fibers which connect the auricles with the ventricles; 3. the experiments of Kent were not exactly identical with those of Dr. Erlanger, who compressed the nearly isolated bundle, whereas Kent compressed all the tissues of the septum connecting the auricles with the ventricles.

After these admissions I must confess to a feeling of real regret for the attitude which Dr. Erlanger in his letter assumes toward Kent and his work. In the first place, assuming even that all which Dr. Erlanger has to say of this work is unassailable, his position seems to me to be nevertheless unjustifiable. Kent's work and merit ought to be judged particularly with reference to the situation and time when the work was done. Gaskell and Engelmann claimed that the cardiac impulses are exclusively originated in and transmitted through muscle fibers. The experiments supporting this claim were made on amphibia in which animals' muscle fibers were present which connect auricles and ventricles. The delay in the transmission of the wave of contraction from auricle to ventricle Gaskell explained by the assumption that the transmitting muscle fibers are of embryonic nature. By means of a clamp Gaskell has further shown that by a gradual compression of the connecting fibers in the amphibian hearts the ventricular rhythm will gradually pass through all the phases of an incomplete "block" to a complete one. However, the anatomy of the mammalian heart stood in the way of accepting the myogenic theory; it was then generally assumed that in mammals no muscle fibers run between the auricles and ventricles of the heart. That was the situation in 1892. Then came the communication of Kent, made to the English Physiological Society, November 12, 1892, which brought out, among others, these three points: In various mammalian hearts muscle fibers were found to connect the auricles and ventricles; these fibers differed histologically from the other muscle fibers of the heart, and by compressing the tissues between the auricle and ventricle of the mammalian heart by means of a suitable clamp results could be obtained exactly similar to those which were obtained by Gaskell in amphibian hearts. This communication apparently removed all obstacles to the generalization of the myogenic theory. In the years which followed this communication and that of His, Jr., a great amount of work was done on this subject; the main facts were confirmed, many particulars were elucidated and rectified, and finer methods of experimentation were devised—as is invariably the case in the history of all branches of science. From the details of this progress may be singled out for our purpose the facts that the fibers run in a bundle in the septum and that this bundle can now be compressed in a nearly isolated state. Now, on account of the last-named details, Dr. Erlanger insists that Kent deserves no special credit for his work and that his name should not even be mentioned when dealing with the experimental side of this line of work, a suggestion actually carried out by him and other writers. I must emphatically say that, even if the underlying facts were correct, this attitude is neither fair nor just. It is like denying Schwan the right to the discovery of the animal cell because he did not know what protoplasm was, did not understand the meaning of the nucleus, and was wrong regarding the existence of a membrane in animal cells. Moreover, His, Retzer, and Braeunig were wrong in their insistence that there were no histological differences between the conducting fibers and the normal muscle fibers of the heart (and Kent was right on this very important point); nevertheless, nobody would think, on account of this error of observation, of depriving His of the great credit which is justly due him.

But aside from these general grounds I cannot agree with Dr. Erlanger in his destructive criticism of Kent's work, as well as regards some other statements and implications which he makes in his letter. Dr. Erlanger insists that the full report of Kent's work does not indicate that this investigator has even seen the auriculoventricular bundle in the septum, and makes this point the chief basis for his attitude. In judging Kent's paper one ought to bear in mind that the importance of the contrast between the septum and other parts of the auricle was only brought out sharply in recent years by younger writers, and that at the time when Kent made his investigation the general interest was essentially centered in the main demonstration that connecting muscle fibers exist in the mammalian heart, but their exact topography was not yet raised to the dignity of a special problem. In the entire paper of Kent the tendency is in evidence to prove that such connecting fibers undoubtedly do exist, and little interest is manifested in their exact location. The term septum as contrasting with the rest of the heart occurs therefore only a few times in the article. Nevertheless, a careful reading of the article will make it perfectly evident that Kent has seen a well-defined "bundle" of muscle fibers and seen it essentially in locations corresponding to the auriculoventricular septum. The following quotations from his paper will illustrate it. In speaking of the hearts of newly born rats Kent[2] says first that "the fibers being quite continuous and streaming through at the junction of auricle and ventricles as a *strand of considerable size.*"* Later (on same page) he says at "the upper part of the ventricle and in the angle formed by the auricular wall the muscular fibers of the ventricle are seen to have a direction somewhat different to that taken by the auricular, but at about *the center of the isthmus** the auricular fibers are seen to sweep freely down into the substance of the ventricular wall, and the other fibers are to be observed coursing from the auricle into the basal part of the valve." *A strand which runs in the center of the isthmus* corresponds fairly well to the "bundle" in the septum, and the statement that some fibers terminate in the basal part of the valve agrees with the description of His. In speaking of the adult heart Kent says (*loc. cit.* p. 241) that "a *strongly marked band* of muscular tissue remains." Later (on same page), when speaking of the muscle fibers within the septum, he states the following in a separate paragraph: "In the case of the junction between septum ventriculorum and the auricle the fibrous tissue of the base of the valve penetrates a comparatively short way into the muscle and in deeper parts the (muscle) fibers sweep uninter-

*Italics mine.

ruptedly through from auricle to ventricle." *A band of fibers in the septum which sweeps uninterruptedly from auricle to ventricle* is simply the auriculoventricular bundle. There can be no doubt that Kent saw and described the band or bundle of the atrioventricular conducting fibers within the septum.

It is, however, true that Kent apparently claims to have seen connecting muscle fibers also in parts outside of the septum and that some investigators, Tawara, for instance, could not confirm this statement. Dr. Erlanger, however, is not entirely correct in quoting Retzer against this claim of Kent. Retzer's article contains a paragraph which rather supports that claim to a degree. On page 10 of his article[4] Retzer states that it is often impossible to exclude the presence of single fibers or small, indefinite bundles of fibers in the atrioventricular groove, so closely do the muscle fibers come to one another. The histologists have not yet said the last word on this point, which, by the way, is not of fundamental importance.

As to the experimental evidence, I cannot agree with Dr. Erlanger that the complete dissociation of the rhythm of the auricle and ventricle after a complete destruction or compression of the isolated atrioventricular bundle is conclusive evidence that there are no other connecting fibers besides those of the bundle. This result is only a proof that if there are other fibers they are insufficient to keep up the normal rhythm. The death of an animal which follows after the removal of three-fourths of the lungs is no proof that there was no fourth part; it proves only that one-fourth of a lung cannot keep up life.

As to Dr. Erlanger's statement that there was in principle practically no difference between the previous experiments of Wooldridge, Tigerstedt, and Krehl and Romberg on the one hand, and the experiments of Kent on the other. I again cannot agree with him; there is this definite and important difference: the other authors obtained complete dissociation by abrupt *destruction of the connecting tissues;* Kent obtained in *addition all the phases of incomplete dissociation by gradual compression,* a feature which made Dr. Erlanger's experiments interesting and instructive. But, assuming even that Kent's experiments were not different from those of Wooldridge and Tigerstedt, etc., why should Dr. Erlanger quote (in his paper in the *Journal of Experimental Medicine*) these authors and not mention Kent? That others did the same does not attenuate the injustice done to Kent. There is one point on which I fully agree with Dr. Erlanger, and that is that Kent's report of his experimental work is extremely brief, too brief to be of any essential benefit to other investigators. This brevity was greatly to Kent's disadvantage, but certainly not to his discredit; the mental and moral strength to state important facts in a few terse lines is not given to many.

My impression is that very few have read Kent's article and perhaps none with fairness. It is true that regarding the histological side of his work he is often mentioned, but my impression is that it was done in the familiar way; one writer copied from another, who also copied from a previous writer, and so on. It is amusing to find that some writers made two investigators of him, Stanley and Kent. It was the fact that all writers refer to Kent's histological work and that none mentioned his pioneer experimental work, that impelled me to call attention to the latter, without the slightest intention to deprive Dr. Erlanger of any credit which is his. I have to state, however, that meanwhile I have found out that I have no priority right to this discovery. In a book on the "Therapeutics of the Circulation," by Sir Lauder Brunton, published in 1908, I find on page 35 that the credit for clamping the mammalian heart is given in the first place to Kent and in the second place to Erlanger. While this may be historically correct, Kent's brief statement can in no way be compared with the superior work of Erlanger.

I stated in my address that I did not know who Kent is and whether he is alive. Dr. James Mackenzie informed me that Dr. Stanley Kent is professor of physiology in Bristol, England. Perhaps he will feel inclined to fight his own battles.

Before concluding I wish to append two brief remarks indicating the present direction of the cardiogenetic currents. It will be remembered that Retzer could not find that the conducting fibers differed in their histological character from the normal cardiac muscle fibers, and that the bundle contained no nerves. The last statement was, of course, hailed with delight by my friend Dr. Erlanger, who is a stanch myogenist. Retzer carried out the mentioned work under Spalteholz in Leipzig, in the same laboratory where His, Jr., discovered his bundle. Dr. Retzer is now in the anatomical department of the Johns Hopkins University. He still works on the sinoventricular conducting system, as he now terms the old bundle. But what a change in his views! The conducting system he considers now as a neuromuscular apparatus, the sympathetic ganglia, he states, lie immediately above the conducting system, and he is looking for its connection with the ganglia. The Purkinje fibers, the terminations of the conducting system, Retzer states, are surrounded by a plexus of nonmedullated nerves[5]. That looks positively like desertion from the myogenic camp. There is one case of flagrant rebellion. Engelmann, one of the chief founders of the myogenic theory, died recently, and Nicolai, his former chief assistant, who is now himself an authority on cardiac physiology, recently came out very flatly against the myogenic and in favor of the purest neurogenic theory[5]. Furthermore, Trendelenburg[6], who gave at the recent meeting of the German Physiological Society a detailed description of the bundle in various animals, took special pains to declare that, in spite of the bundle, he is not a myogenist; there are too many nerves around the muscle fibers in the bundle[7]. Is the myogenic ship sinking?

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OUR LONDON LETTER.

(From Our Regular Correspondent.)

ROYALTY AT THE HOSPITAL FOR THE PARALYZED AND EPILEPTIC—ROYAL SOCIETY—SLEEPING SICKNESS—ROYAL SOCIETY OF MEDICINE, CHILDREN'S SECTION—GYNECOLOGICAL SECTION—ROYAL COLLEGE OF PHYSICIANS—ROYAL UNIVERSITY OF IRELAND CLOSES—OBITUARY.

London, November 5, 1909.

The King went yesterday to the National Hospital for the Paralyzed and Epileptic and opened the buildings which have been enlarged to celebrate the jubilee of the institution. As Prince of Wales, His Majesty, in 1885, opened this hospital, which was started at the suggestion of the Duke of Albany, and on his decease became a memorial of him. In replying to the address presented, the King referred to that visit, and said he knew and appreciated the work done during the fifty years that have passed since, and was convinced it would be carried on even more efficiently in the improved buildings. After the ceremony His Majesty conferred a knighthood on the chairman of the board of management and went around one of the wards and spoke to the patients, whose cases were explained by Sir W. Gowers.

On Tuesday the Duchess of Albany, as president of the jubilee fund, attended a service of thanksgiving, which was held in the chapel of the hospital, as a part of the jubilee celebration. The Archbishop of Canterbury preached on this occasion, and after the service the Duchess attended in the hall to receive purses for the fund. Those presented contained £150, raising the total received to date to £19,000, which, it is hoped, will shortly reach £50,000.

The new session of the Royal Society opened yesterday afternoon with several papers. One, of medical interest, was by Sir David Bruce and colleagues, and dealt with infection by the glossina palpalis. Sir David is himself absent in Uganda, continuing his work on sleeping sickness. The facts given in his paper appear to confirm the suggestion which has been made, that the infection of the fly may last much longer than has been supposed, as long, in fact, as seventy-five days.

In the section for children's diseases (Royal Society of Medicine) a rare case was shown as "congenital hemidystrophy." The child is a year and ten months

old. When only one month old it was noticed that the left side of the tongue was larger than the right, and later asymmetry of the abdomen was observed. This seems progressive, as at present there is a marked difference between the two sides of the body. Mr. Mummery said he showed a similar case two years ago. As a progressive condition it seemed likely to lead to great deformity. Dr. Parkes-Weber regarded it as hemihypertrophy of muscular origin.

Dr. Wynter showed a case of chloroma in a girl, aged three years and four months, with very marked facial deformity observed since May. The face is large, bony, with skin tense and shiny over malar bones and ophthalmia, more marked on the right. Neck glands enlarged. Red corpuscles, 3,630,000; white, 30,000; hemoglobin, 56 per cent.; lymphatics, 66.2. Members asked how few secondary tumors of the suprarenal capsule had been considered, whether the diagnosis of lymphatic leukemia had been weighed, and how far the blood count was to be held decisive. One mentioned a similar case in a child with sarcoma of the suprarenals.

A specimen of acute inflammation of the appendix was shown in which it had completely involuted into the cecum and so formed the apex of an intussusception. It was removed by operation, and the patient, a girl of eight years of age, made a good recovery.

Dr. Dingwall-Fordyce reported three cases of liver affection in childhood, with notes on the pathology of some conditions. Case 1. A girl of seven had subacute yellow atrophy. A year ago had jaundice, with pain on left side. Seven weeks before death abdomen swelled, diarrhea, vomiting, edema of back, paresis of left leg and side of face, with squint. Temperature, 99° Fahrenheit; pulse, 144. Post mortem showed signs of pleurisy and pericarditis. There was blood-stained fluid in peritoneal cavity, dilated stomach, and in ascending colon an acute tuberculous ulcer. Liver greatly reduced in size and almost flat, its surface irregular, with yellow nodules. Under microscope yellow areas of hyperplasia and much fibrous tissue. Case 2. A girl of eight, with caries of dorsal spine. Died of persistent vomiting a few days after admission. Post mortem showed fatty liver, which weighed 460 grams. Case 3. A boy, aged four years and eight months. First seen for digestive troubles, and liver observed to be enlarged. Died after an operation, which revealed malignant disease of liver, which post mortem weighed 4½ pounds, and was studded throughout with new growth. There was also a tumor in the ileum and the kidneys were enlarged.

Dr. Walter Carr related a case of pneumococcal infection similating general tuberculosis in a child of fifteen months. At first considered pneumonia. The condition continuing for weeks, it was thought later to be tuberculous. Post mortem gave no trace of tubercle, but general pneumococcal infection and pericarditis. The lungs were adherent; in one lobe there was old unresolved pneumonia. About a pint of semipurulent fluid was in the peritoneal cavity. Dr. Sutherland remarked that this was a very unusual case.

In the Obstetrical and Gynecological Section two subjects were pretty fully debated, viz., indications for electrotherapy and cesarean section in placenta prævia. The first paper was by Dr. Curtis Webb, who dwelt on the types of current to use, the methods of obtaining and controlling them, and the treatment of different diseases. Drs. Spanton, Routh, Stedman and Humphries related their experiences with the method, and the president (Dr. Macnaughton-Jones) summed up the discussion. He said there were things to "learn and unlearn," as Goodell had taught him, practices we had followed that had to be abandoned and others we had despised, but afterward had to accept. In the matter before them ignorance of the nature of electricity and of how the different currents operated had for a long time produced suspicion in many minds. Charles Routh and Cutter in the sixties had advocated electricity, and were followed by Tripier, and after him by Apostoli. He had himself used the several methods soon after. He had abandoned the high-tension battery on account of an unfortunate result in a case in which he used it in the manner advised by Apostoli. But the president went on to say the discussion had turned more on cataphoresis and ionic medication as to which he could not offer personal experience. But he had no doubt from the reports of others that benefit had often resulted. He agreed with Dr. Routh that there were cases in which this treatment might be disastrous when more active measures were necessary. He could not agree that curetting removed only the mucous membrane. It certainly affected the underlying muscular tissue and set up a new circulatory relation between the uterus and the adnexa through the blood vessels and lymphatics. He referred to thorough curetting, and at times tamponading—not to mere superficial scraping. The one important point in deciding on electrical treatment, as on other methods, too, was diagnosis, as many had strongly emphasized. In many adnexal cases electricity was not only useless, as, *e.g.* in pyosalpinx, but very dangerous, and that not merely from delay, but from the nature of the interference itself.

The second discussion in the section was based on a case of placenta prævia reported by Dr. Munro Kerr, in which cesarean section was performed. The patient was twenty-eight, one week from term; had been curetted for fibroids and much benefited thereby, and soon became pregnant. A few weeks before term repeated hemorrhages occurred, and examination under an anesthetic revealed a centrally placed placenta prævia and the fibroids on the fundus increased in size. It was thought cesarean section afforded the best chance for mother and child. It was accordingly done, the placenta and living child removed, and then the uterus by supravaginal amputation. A number of fibroids, the largest the size of the closed fist, were on the uterus. Dr. Kerr discussed the question whether cesarean section would not in some cases give a lower mortality than craniotomy followed by version. He thought it would, for he knew nothing more likely to be followed by death or grave septic mischief than a difficult extraction with placenta prævia.

Sir William Smyly congratulated Dr. Kerr upon his success and said his treatment was certainly the best for the case. Both the conditions demanded relief and it involved less risk to treat them simultaneously.

Dr. Griffith also considered cesarean section the best for some cases and related a case in which he had successfully resorted to it.

The president also considered that the operation was indicated in Dr. Kerr's case by the complication with myomata, and mentioned that the question of cesarean section in placenta prævia generally had recently given rise to a most important discussion at the McDowell centennial anniversary.

The Royal College of Physicians has awarded the Weber-Parkes prize and silver medal to Professor Camac Wilkinson, lecturer on medicine at the University of Sydney, and a similar medal to Dr. A. Conyers Inman, of the Brompton Hospital, the essayist next in order of merit. This prize was founded in 1895 by Sir Hermann Weber in memory of the late Dr. E. A. Parkes, and is awarded every third year for the best essay on tuberculosis (prevention, pathology, or treatment), with special reference to pulmonary consumption in man.

On Tuesday the Bradshaw lecture was delivered at the college by Professor J. A. Lindsay, who took for his subject "Darwinism and Medicine." Yesterday Sir T. C. Allbutt gave his first Fitz-Patrick lecture, subject "Greek Medicine in Rome."

Dr. E. W. Hope, Medical Officer of Health for Liverpool, addressed the Association of Public Vaccinators on Friday and said we had learned much from Germany, where both primary and secondary vaccination were compulsory and were rigorously and efficiently carried out. Germany's frontiers were more difficult to defend from an incursion of smallpox than our own seaports, and yet with a population nearly double that of England there were only 600 deaths from smallpox during a recent period of twelve years. During the same period there were in England and Wales 6,761 deaths—more than eleven times the number.

The Royal University of Ireland was dissolved on the last day of October, under the act of last year Sir Christopher Nixon, Vice-Chancellor, delivered a valedictory address. Honorary degrees were conferred on the 20th upon members of the Senate who had not previously received them.

Dr. John Perivale Waggett died suddenly on November 2 at Bournemouth, to which he retired some twenty-five years ago, after a long and active professional life in Kensington. He was in his ninety-first year. He took M.R.C.S. in 1841, M.D. Edin. 1842, and contributed "Observations on Cholera" to the Government report, 1855.

Dr. William Andrew Hayes, P.M.O. Mafeking, during the siege, has died there at the age of forty-eight. He was surgeon-lieutenant in the Bechuava Rifles and medical officer on the Cape Government railways.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

RETURN OF THE CHOLERA—INFECTION THROUGH FISH—CHOLERA CARRIERS—LESSENING SEVERITY OF THE EPIDEMIC—A SUMMARY OF THE CHOLERA SITUATION IN THE PHILIPPINES—SUICIDES—PERSONAL.

MANILA, September 30, 1909.

CHOLERA again made its appearance in the City of Manila during the early days of September. Its exact origin cannot be definitely stated. As in previous years, however, a few deaths occurred from time to time during the preceding two months among persons who had some of the clinical symptoms of the disease, but cultures taken before and after death were negative for cholera. On post mortem the gross lesions were found to be moderately injected small intestines, which did not contain the characteristic rice-water like contents. The principal lesion was found to be an intense acute parenchymatous nephritis. The cases invariably had supression of urine before death, which is one of the most constant clinical symptoms of cholera. Investigations made recently indicate that in some of these cases a spirillum can be obtained directly from the heart's blood. Whether there is any connection between the suspicious cases which occur before the appearance of the annual outbreaks of true cholera in Manila during the past few years is, of course, not known as yet.

The outbreak this year might be due to the introduction of infected fish from the nearby province of Bulacan, which has been badly infected with cholera, and from which there are large daily importations of this foodstuff. If the fish should have been the cause, the Bureau of Health believes that it was purely a surface infection and that the disease was directly contracted through handling them before they were cooked.

It is also worthy of notice that coincidently with the appearance of cholera there were "cholera carriers" found who were harboring in their intestines virulent cholera vibrios without having any symptoms of the disease and being apparently in good health. A house-to-house inspection in the City of Manila was already in force before the appearance of cholera, and the cases were so promptly found and isolated and the necessary disinfection done that at no time during the month have there been more than five cases reported for any one day. During September the total number of cases reached 70, among which there were 50 deaths.

Cholera has also finally gained a foothold in the port of Cebu, and it is feared that it will spread throughout the Island of Cebu; and with the dense population of over 700,000 persons, the consequences would likely be serious.

A most encouraging feature in connection with the cholera outbreaks is the fact that only dozens of cases occur now where in the earlier years there were hundreds. This improvement is undoubtedly due to the campaign of education which has so persistently been waged during the past few years.

In the more advanced provinces, like Albay, where there were 352 cases, during the past few months no cases occurred among the public school children. In the province of Ambos Camarines, where there were 569 cases, only one case was contracted by a public school child, while a number of cases occurred among the children attending private schools.

The Director of Health in his Annual Report for the fiscal year ended June 30, 1909, gives the following summary of the cholera situation in the Philippines: "A careful review of the cholera conditions in the Philippines during the past few years, coupled with a study of the cholera reports from the different parts of the world in which the disease exists, leads more and more to the conclusion that the cholera question in the Philippine Islands presents much the same problem as typhoid fever in Europe and America. The experience of the Bureau has demonstrated again and again that the disease can be controlled and that those who desire to take the few simple precautions which all residents of the tropics should take in order to protect themselves against intestinal diseases, can rest assured that they will not contract the disease. The prospects of lessening the number of cases each year are excellent, and its complete eradication is not too much to hope for because many brilliant scientific men with liberal endowments to aid them are at present at work in all civilized countries seeking to perfect measures for eradicating typhoid; and when these are found, they can likewise be applied to cholera, and this scourge removed from our midst."

Figures have just been compiled giving the number of cases of suicide in the Philippine Islands during the past five years. The report shows that there were 1,386 cases reported. This would mean that the average number per year is about 4 per hundred thousand of the population; this is exceedingly low when it is remembered that the number of cases in the United States reaches at least 14 per hundred thousand. This is a most striking difference, and offers considerable opportunity for speculation upon the cause for so great a difference between the Occident and the Orient.

Dr. Alexander Rochester, who has been connected with the Bureau of Health during the past three years, has resigned his position and will engage in private practice at Columbus, Ohio.

Progress of Medical Science.

Boston Medical and Surgical Journal, November 11, 1909

Vaccine Treatment of Lobar Pneumonia.—T. Leary refers to recent literature and reports on this mode of therapy and passes on to consider the results of 34 cases either alcoholic or of an extreme type. Pneumococcus vaccine was given and all but 6 recovered. In a larger series (49) of ordinary cases, 15 per cent. came to a crisis in 3 days and all but 2 recovered. The total deaths in the 83 cases were 8 or 9.7 per cent. He considers the results sufficiently encouraging to justify a wider application of the treatment. There was a rapid relief of toxemic conditions which were present in the serious cases and in those with uncontrollable delirium, an abatement of this symptom was prominent. He adds that in his experience the use of the opsonic index has very little value for controlling treatment of acute infections. In acute conditions also, with proper dosage of vaccines, the negative phase is either harmless or ephemeral. He has shortened the intervals between injections, in acute general infections, to four-hour periods, using smaller doses, and his results have been good. As to the time of exposure of suspensions of bacteria to heat for the purpose of killing, he finds fifteen minutes to be the most desirable. In giving vaccines, the patient plays an active part in the process and if success is to be obtained he must have sufficient resisting ability to react under the stimulation of the vaccine. Vaccines in moribund patients are, therefore, useless. The dose of the stock solution in pneumonia is 8 minims. The bottle should be kept in a cool place and the contents used promptly. They are made from typical sputum sent into the laboratory. From such a specimen an autogenous vaccine can usually be made in twenty-four hours.

The Physiological Aspects of Gastroenterostomy.—W. B. Cannon says that according to physiological observations, there is no alteration of peristalsis because a new opening is made midway in the stomach. The notion which has been expressed by some surgeons that such an opening gives the part of the stomach beyond its rest from activity is quite erroneous. If the pylorus is not obstructed this continued peristalsis results in forcing food through the normal opening at the pylorus. The psysiologist has difficulty in seeing any advantage gained by this operation unless the passage of the bile and pancreatic juice into the stomach reduces hyperacidity. Experienced surgeons now advise against the operation unless the pylorus is obstructed. If obstruction is present, food leaves the stomach through the artificial opening and though the acid chyme doubtless causes a flow of pancreatic juice and bile, it may not receive a proper admixture of these fluids. As a consequence a considerable amount of fat and the protein of the food may pass through the alimentary canal without being absorbed.

New York Medical Journal, November 13, 1909

Pityriasis Rosea with Pseudo Vesicles.—U. J. Wile comments on the occasional difficulty in diagnosis between this condition and psoriasis and seborrhoic eczema and narrates the history of the case of a woman whose body from head to feet, extending even down to the fingers, and excepting only the scalp, was covered with a profuse, distinctly raised, yellowish red, and at first sight seemingly papular eruption. The individual lesions varied in size from a pinhead up to a ten-cent piece, and for the most part they were oval or round in shape. Examined closely, the lesions showed very distinct differences in their structures the smaller ones were indeed papules, but the larger ones having a more distinct yellowish hue seemed to be papules superimposed upon deep-seated vesicles. When such were punctured with a needle a

drop or two of clear serum could be expressed by firm pressure. In the very large lesions the fluid contents were more superficial and in some instances had ruptured to the surface, and in drying had given rise to crusts and scabs. The mucous membrane of the mouth was entirely normal, but at the anal orifice and within the vulva were numerous small ruptured and unruptured vesicles, not herpetic in outline or character. There was further present a marked general lymphadenitis. The patient was treated with soothing lotions, saline purges, and she was placed on a simple rational diet. Within twenty-four hours a marked change in the condition had already taken place; the lesions were much flatter and fewer of the vesicle-like elements were to be seen. A few days more brought about the entire disappearance of the latter, and at this time the patient presented the typical picture of an involuting pityriasis rosea, which went on to a complete cure in about five weeks. The author has not been able to find a similar case on record.

Medical Charity.—L. H. Schwartz comments on the need of the establishment throughout the city of stations where prescriptions for poor people can be filled at a moderate rate and where they procure sick-room requisites or can secure them on loan when ordered by the physician. He says that medical charity has been abused to an unusual degree during the last two years. There are several causes for this. First, the classes at dispensaries are too large so that the physician has no time to inquire into the circumstances of the patient. Second, some institutions do not want, for selfish reasons, to cut down their attendance. Third, the large dispensaries hold out such inducements in way of equipment that many people are attracted away from the family physician. Fourth, some physicians send their patients to the dispensaries in order to get a diagnosis free from the professors in charge. Fifth, very many people who go to the family physician for ordinary ills go to the dispensary when they want special treatment. Sixth, many plead hard times while they are abundantly able to pay. Seventh, the usual custom of dispensaries in charging a small fee for medicines, dressings, etc., makes the patients feel that they are paying for what they get and are not asking charity. Two plans for reform present themselves. The first method is this: A patient applying at a dispensary should receive treatment for the day on which he applies. A card should be given him stating that before he can again get treatment he must go to the Department of Public Charities to report and record his case for investigation. It would not be necessary to investigate every case and this work could properly be delegated to the Department of Public Charities and Correction. The district attorney's office should be required to prosecute those who obtain medical or surgical aid under false representations. The mere fact that they must report to the Department of Charities would keep 90 per cent. of the fakirs out.

The Technique of Orcheopexy.—This subject is discussed in an elaborate illustrated paper by F. Torek, who says that recently he has been treating cases of nondescended testicle by attaching the testis to the fascia of the thigh. He acknowledges the similarity of the method to that of Keetley, although his own method was developed independently and without the knowledge of Keetley's. His own plan differs in some essential points. Keetley recommends dividing the cremaster as high up as possible and turning it down in order to attach the cremaster and not the testis itself to the thigh fascia. Torek attaches the testis itself and finds that it hangs normally in the scrotum, whereas Keetley admits that in some instances the testis was placed in the pubic region, where it might be injured. Space does not allow us to go into all the details of Keetley's operation. His paper is fully illustrated and must be read by those interested. In cases of bilateral retention only one testis is brought down at a time, as in those cases the scrotum is rudimentary and could not be fastened to both thighs without considerable tension. In all of Torek's cases success has been complete. In the description of the operation the author lays stress on exactness in suturing, as he considers this to be an important factor towards insuring primary healing without local irritation. In none of his cases has there been the slightest reaction in a stitch canal. In all cases the testis was at the bottom of the scrotum and in all it has increased in size. He admits that his technique is more difficult than in other procedures, but says that his efforts have been amply recompensed by the completeness of his success.

Some New Fields and Methods in Psychology.—F. Peterson says that in time past phychology has seemed to him a barren field of work. Academic psychologists have made the subject very unattractive. He refers to the modern use of the word "unconsciously" as suggesting a fascinating domain, viz., unconscious, coconscious, subconscious and the subliminal conscious. For instance, each man's vocabulary, be it large or small, is related to all subconscious material. A word has a magic power in it to summon from the vaults of memory all sorts of apparitions. The modern method of psychanalysis has been developed by Freud, whose technic of performing it is described. The object of such psychanalysis is twofold. In the first place we uncover the details of some psychic trauma which is usually at the basis of all hysterical manifestations and of many psychoneurotic conditions such as obsessions, phobias, and the like, and may be the origin of some type of insanity like dementia præcox. In the second place, it is a therapeutic procedure and the analysis generally cures the patient. The views of Freud on dreams are interesting. They always seem to be the fulfillment of some wish or desire. The child receives in dreams the delights that he longs for. When a dream is recorded and examined we have before us a curious piece of conglomerate, often uniting materials from the days of childhood with experiences of yesterday, full of absurd distortions of events and words, transformations, allegories, and symbols. There is nothing accidental in the arrangement, and by psychanalysis of the person having the dream one determines the origin of every patch in the crazy-quilt, and by investigation one discovers the wish at the foundation which is directly or indirectly fulfilled by the dream. Freud has been much criticized because in his opinion it is usually a sexual idea which is the fons et origin of these dreams as well of hysteria and other psychoneuroses. He is, perhaps, extreme in this opinion, but we might grant him half, since, roughly speaking, fifty per cent. of trends, wishes, desires that inspire our activities, are for the perpetuation of the species and fifty per cent. for self preservation.

Journal of the American Medical Association, November 13, 1909.

Treatment of Idiopathic Multiple Hemorrhagic Sarcoma.—H. J. F. Wallhauser reports two cases in which he has successfully employed bichloride of mercury solution in this disease. A solution of bichloride of mercury, one or two thousand, was applied in the first case to overcome the offensive discharge. After several weeks however, it was noticed that the larger tumors had perceptibly diminished and that several small pea-sized tumors had altogether disappeared. The strength of the solution was then gradually increased to one to five hundred and applied in wet compresses. At the end of four months all growths had disappeared and the patient was seen two years later in good health with no recurrence of the disorder. In the second patient, after cutting off the larger masses the same treatment was applied and continued for about six weeks when all the wounds had cicatrized and the smaller unexcised tumors were decreasing. With the gradual increase to 1 to 500 strength of the solution a slight dermatitis developed and the milder solution was substituted. All lesions had disappeared at the end of six months, leaving only the increased pigmentation and a few areas of white slightly atrophic spots, the skin appearing otherwise normal. The patient, a woman, was later admitted for alcoholism and still later again, nearly three years after the first treatment, for a new growth in another region, of the same general character which, according to her statements, appeared about six months previous to this admission. There was only one tumor on the inner side of the thigh which was stiff, swollen, and very painful, the slightest movement causing acute lancinating pain. Treatment to improve her general health, which was bad, was instituted, but she never rallied and died in coma a few weeks after her admission to the hospital, of a complication of conditions as shown by the post mortem. Wallhauser remarks on these cases that from a study of the histopathology the exact nature of the condition still seems dubious. It is generally accepted that it is of vessel origin and that the vessels play an important part in its production. This is borne out in the examination of these two cases. Whether it is sarcomatous or granulomatous is also in question, authorities holding both opinions, while a few recently place it midway between the two, and the author seems to think this the best solution of the problem at the present time. From these two cases he assumes that it cannot be considered necessarily a fatal disease. The slow progress of recession of lesions would certainly point to a favorable issue as compared with the rapid growth and gland involvement of sarcoma.

Tropical Medicine.—J. A. Nydegger points out the advantages derived from the establishment of the British schools of tropical medicine, and pleads for the foundation of a similar institution in this country. With our increasing intercourse wtih tropical regions and acquisition of tropical dependencies, and with the greatly increased amount of travel in such regions by our citizens, the need of such an institution is becoming more and more apparent. We have courses in tropical medicine in some of our schools but they consist chiefly of a few optionally attended lectures, often given by instructors who have not seen tropical diseases, or if so, only to a limited extent, and, therefore, whose lectures could not be conducive to the stimulation of a lively interest, so necessary on the part of the student. The army and navy medical schools and the Hygienic Laboratory of the Public Health and Marine-Hospital Service give courses of lectures on tropical medicine, but it is only one of the subjects studied and the courses are not generally available to the civil practitioner. Until a special school is established there will be no place for the special study of these diseases for the medical practitioner in those parts of our country where these diseases are liable to occur, or who as medical missionaries or otherwise may wish to settle in tropical regions.

Urinary Findings in Children.—W. L. Carr says that when careful routine examinations of the urine are made in all diseases incident to childhood more kidney complications will be found than are at present commonly observed. The diseases in which urine examination is often omitted are gastroenteric disorders, influenza, tonsillitis, and conditions of defective metabolism. Under the term gastroenteric he includes all the disorders of digestion and not merely the summer complaints, and he quotes from various authorities, Chapin, Mason Knox and Meakins, Herter and others in support of his views. While the testimony seems to indicate that the majority of children who have albumin and hyaline casts in these diseases recover, this belief in recovery is largely based on ignorance of the state of the kidney for the period following the acute disease. He urges a routine examination and the following up of the case for months or possibly years after the subsidence of the acute symptoms to trace the presence of kidney defects. In closing he calls attention to the need of more study of the centrifuged sediment of urine as it may contain casts even if the urine has not shown the presence of albumin.

Mistakes in Diagnosis.—J. P. Crozer Griffith reports several cases in children in which, after an injury, symptoms appeared which might be, and were in some cases, attributed to this as a cause, whereas in reality the trauma and the disease causing the symptoms were simply coincident. In one case the examination of the blood revealed cerebrospinal fever, causing symptoms which were observed immediately after a fall from a street car. Another child was kicked in a fight and later went into an unconscious condition with convulsions and temporary hemiplegia which disappeared without any treatment to account for it. A somewhat similar case was also reported in which a child was said to have been hit by a street car. In still another suffocation from ingested matter was suspected, and it is quoted particularly as an illustration of the possibility of error from leading questions given to parents and friends who are open to suggestion. The choking of the child was elicited by the physician in questioning the parents, but the case was one of retroesophageal abscess, as shown by the autopsy. Perhaps one of the most misleading diseases, the author says, is infantile scurvy, and he has repeatedly seen the sudden development of pain in the limb from this disease attributed to trauma. Two cases are reported. Griffith says he might multiply such cases from his experience, but these he thinks will be sufficient as striking examples of the necessity of caution in the diagnosis of any supposed injury especially in children.

Spinal Cord Lesions from Pasteur Treatment.—W. A. Jones reports two cases of spinal cord symptoms following the Pasteur treatment and the notes of two similar cases obtained from other sources. The symptoms are not unlike those of Landry's paralysis or severe multiple neuritis, and it is notable that they began in the neighborhood of the point of inoculation and spread from there to other parts of the body, indicating that, like the rabic infection, the toxin travels along the nerve tracts to the spinal cord where, probably, it sets up a myelitis. The prognosis, however, is usually favorable, though one of the cases reported terminated fatally. Similar cases have been reported by European authorities and those reported by the author make sixty-two thus far recorded in the literature, and with the two added in his note from other sources, sixty-four. Letters sent to thirteen Pasteur institutes in this country asking for information concerning similar cases, brought reports of no others, though nine responded. It seems to be recognized, however, by some foreign authors that such symptoms appear in a certain proportion of cases treated by the Pasteur method. Previous genuine rabic infection does not seem to be necessary for their appearance.

Pellagra, Ancient and Modern.—H. D. King gives an historic sketch of the disease pellagra, showing its spread and increase in the countries where it exists. He accepts the view that it is due to the eating of damaged maize. There seems to be hardly a country in Europe where it is not more or less prevalent with the exception of the northern regions, Italy, France, and Austria seeming to be the greatest sufferers. In Great Britain the disease has been noted but twice and there does not seem to be any record of it in the Scandinavian countries or in northern Russia. In northern Africa it is also very prevalent. On this continent it has been recognized in Brazil, Mexico, and the Argentine Republic as well as in the West Indies. The recent recognition of it in the United States was preceded many years ago in 1864 by the reports of two or three cases at which time also a small outbreak was noted in Nova Scotia. Reports of this are very meager and uncertain. It is noticed as remarkable that the medical records of the Civil War contain no mention of pellagra, but King suggests that it may have existed unrecognized in the southern prison camps and he suggests further inquiries as to this point as a profitable subject for investigation.

The Lancet, November 6, 1909.

Lung Puncture: a New Application of Clinical Pathology.—T. J. Horder says that diagnostic puncture of the lung may be made under two conditions; (1) a pleural effusion is suspected in the pleural sac and the result of the puncture negatives this, and (2) no fluid is suspected, but the lung is deliberately punctured for the express purpose of discovering the nature of the process within the lung itself. The procedure is indicated in any case, yielding signs of consolidation of the lung in which careful examination of the sputa fails to reveal the nature of the disease. The puncture will frequently yield evidence of a mixed infection as influenza bacillus and pneumococcus. (2) In abscess it is useful to obtain a specimen of pus from the actual site of suppuration, for thereby we obtain a specimen of the causal bacterium, which, if often a matter of great difficulty when dealing with sputum alone and (3) in bronchiectases, the same thing is true, for the flora of the sputa is notoriously varied and difficult of interpretation. We should be careful to make our punctures under strict antisepsis, avoid dangerous areas, and not go deeper than one inch. The method of handling the material withdrawn will depend on its amount. It may be used for culture purposes alone or be employed to make films, which may be stained and examined in the usual way. Six illustrative cases are recorded. The author has made puncture 14 times. In view of the modern tendency to vaccine therapy, it often becomes necessary to find out just what organism is at the bottom of the pathological process in order to prepare the vaccine intelligently.

The Dyspepsia of Old Age.—W. S. Fenwick finds that out of 100 persons over 65 years of age suffering with chronic dyspepsia, 66 of the cases are secondary to organic disease of some important bodily organ, while 34 owe their symptoms to a progressive degeneration of the secretary structures of the stomach and bowel. In the former class the digestive disorders usually take the form of a chronic gastritis, due to disease of the kidneys, prostate, heart, lungs, liver, pancreas, chronic gout, or inefficient mastication; while about ten per cent. of the entire number are due to long-continued hypersecretion from chronic ulcer in the vicinity of the pylorus, gallstones, or diseased appendix. The pathological changes are traced, and are found to be more constant in women. Flatulence is the most constant symptom of the complaint. It is particularly severe at night. Constipation alternates with diarrhea. The main indications for treatment are to correct the subacidity and to relieve the flatulency and constipation. Large doses of diluted HCl may be given twice a day after meals, combined with a dram and a half of glycerin. Pepsin is useless. Metchnikoff's sour milk is undoubtedly one of the best means of relief. Malt preparations are of service when the intestine is particularly at fault. The usual bitter tonics had best be omitted, as they are apt to aggravate the condition. The new alcoholic essence of peppermint is of great service. One teaspoonful may be

given in a sherry glass of water for an acute flatulent condition. For the constipation salines and mineral waters are to be avoided and recourse had to a mixture of cascara and maltine, a confection of sulphur and guaias, an infusion of senna pods or to an occasional dose of gray powder.

Sinusitis Occurring as a Concomitant Complication of Influenza.—According to R. M. Manwarring-White, the association of the two diseases is very common. Owing to the direction of the major air stream, the frontal sinus is apt to be involved more often than any other. The symptoms are detailed and the author's account contains nothing new. They usually continue for one to two weeks and gradually subside. The regularity of the pain coming on as it does about 10 a. m., lasting till about 3 p. m., and then disappearing till next day, is a usual feature of the malady. When the sphenoidal sinus is involved there may be a marked somnolence; when we realize how near to important structures at the base of the brain the sinus is situated, we can easily account for the anxious symptoms which may ensue. There is usually conjunctivitis and edema of the lid and vision may be affected. Optic neuritis and blindness may occur, due to pressure on the optic nerve as it passes through the wall of the sphenoidal sinus. For treatment the author applies hot fomentations over the affected side, and inhalations of oil of eucalyptus menthol and rectified and methylated spirits are given. Cocaine and adrenalin may be used about the middle turbinate. Phenacetin, aspirin, etc., may be given to relieve pain. If the soft tissues over the sinus become red, swollen, edematous, and pit on pressure on external opening may be necessary.

Tertiary Syphilitis Terminating in Sudden Death from Abductor Paralysis of the Vocal Cords.—The patient of R. J. Browne was a man of 30 years without distinct specific history. He had a cough and some dysponea. On simple local and constitutional treatment he improved, but he grew worse raising considerable tenacious mucus. One night he suddenly died while trying to call some one for relief. Autopsy showed the cords in the cadaveric position. They were thickened and there was some scarring, the result of old ulceration extending toward the base of the epiglottis. The trachea was scarred and ulcerated in several places with a gradual narrowing of the lumen. Three inches below the larynx there was a stricture which would just admit a No. 7 bougie. Below this the ulceration and contraction extended down into both bronchi. Near the bifurcation one or two gummatous glands were on the point of breaking down. The author considers the case as one of sudden death due to abductor paralysis. In syphilis localized brain centers are often apt to be involved alone. If in this case this was true the abductor muscles, which are always the first to be affected, were paralyzed, while there was doubtless a spasm of the abductors. The autopsy did not show whether or not the inferior laryngeal nerve was directly involved in the lesion. According to the author abductor laryngeal paralysis is always to be thought of in mysterious cases of sudden death.

British Medical Journal, November 6, 1909.

A Note on Oriental Sore.—R. M. Carter refers to his previous papers on this subject, saying that the term "Oriental sore" is an anomaly as it stands at present, for under this name are grouped several affections of the skin and subcutaneous tissues clinically quite distinct. In North India there is the Monghyr phora, a pale, yellow, painless area from one-fourth to one-half inch square, surrounded by a red margin, usually on the face near the lips or eyes, on the cheek or forehead. It does not break down. It may last for a year, and after healing with a faint scar may recur on other parts of the body, such as the elbows or wrists. Second, there is the Chambal, a large, flat-surfaced ulcer, fairly deep, with a bed of raised papilliform prolongations of the corium which support a mass of epithelial débris. Third, there is the typical Delhi boil. The parasite, described recently by Row from South India, is capsulated and chiefly of an oval type. Row states that each parasite is lodged wtih a clear space in the macrophage. The parasite worked with in North India has no capsule, is almost torpedo-shaped, has no clear space around it, and distends the mononuclear cell it invades, almost to bursting. The rosy-red parasites seen in cultures from patients of Mongyhr phora apparently do not occur in the type of Oriental sore described by Row. They are not described by him, and he does not record flagellated bodies of this type.

A Case of Disseminated Tuberculosis Treated with Marmorek's Serum.—H. Hemsted's patient was a Spanish school boy of 15 years. The chief features of the case were the following: First, repeatedly negative Widal test, though every symptom was consistent with typhoid, which the case was at first thought to be. Second, there seemed no doubt that Marmorek's serum, of which the boy had forty injections, or nearly half a pint, in the course of three months, was responsible for the improvement in the case. The clinical signs pointed to tuberculous lesions of the intestines, peritoneoum, bladder, lungs, and meninges. The author supposes that the invasion was of the miliary type, in which case by all the rules of medicine the patient ought to have died. Temperature reactions commenced about three hours after nearly every injection. It is admitted that the boy may yet become a chronic phthisical case. Inquiry revealed the fact that the right kidney had been previously removed and found tuberculous. The patient when first seen had suffered from hematuria for about six months. The Marmorek serum was of the new variety made from the primitive bacillus obtained from the growing margin of a culture. With this a horse was immunized for about eight months. Injections were made in the patient's thigh of 5 c.c. through a head of lysol. The injections were repeated for twelve consecutive days. In the ensuing seven weeks some twenty-eight injections were administrated. The patient slowly but surely improved. The typhoid condition with its temperature, diarrhea, etc., all disappeared. Evidences of tuberculosis in the lungs gradually subsided, and though the boy had a slightly turbid effusion of the left side, it rapidly disappeared after tapping.

Further Researches into the Bacteriology and Vaccine Therapy of Common Colds.—C. H. Benham refers to his previous communications on this subject and additional experiments made during the last two years. The prevailing organisms he has found during the period have been the *Micrococcus catarrhalis* and the *M. paratetragenus*. The *B. septus* was present in a number of the cases, but it did not grow readily and was difficult to isolate. The *B. Pfeiffer* was present in some cases in small numbers, but it was not possible to isolate it. The pneumococcus was seen in the swabs in a few cases, but in small numbers, and it was not isolated. The *B. Friedlaender* was isolated from a few of the cases. The result of the author's vaccine therapy convince him that in cases of catarrh caused by the *M. catarrhalis* there are marked fluctuations of the opsonic index. Second, that a fall in the opsonic index coincides with an increase in the severity and a rise of the index with a decline in the severity of the symptoms. This is more marked in the acute cases. Third, that a suitable dose of vaccine given at an appropriate time will cause a rise of the opsonic index, which may be preceded by a negative phase of short duration. Fourth, that it is probable that similar fluctuations may occur in the case of the *M. paratetragenus*. No good cultures have thus far been obtained for opsonic work with the *B. septus* and *B. Friedlaender*. In view of the fact that many common colds gradually spread down to the larynx and trachea and may lead to bronchopneumonia, the author thinks this matter of vaccine therapy in the earlier stages one of great importance. The *M. catarrhalis* has been found in healthy noses and throats, in the lungs in acute cases of pneumonia, and in all the organs in a fatal case of pneumotyphus. The *M. paratetragenus* has been found in the blood of a patient who died of pulmonary gangrene and in the pus of a foul empyema.

Berliner klinische Wochenschrift, October 25, 1909.

Childhood Tuberculosis and Immunity.—Ritter and Vehling tabulate a large series of tuberculosis cases in regard to the occurrence of the disease in childhood and exposure to infected members of the family. They state that there are three cardinal points which must be carried out in order to succeed in the fight against tuberculosis. (1) The separation of the bacillus-spreading consumptive from his home and family, in order to prevent the general infection, especially of the children; (2) careful and prolonged treatment of scrofulous and tuberculous children—the difference is only in the grade of the disease—in order to obtain a complete healing of the tuberculosis; (3) stimulation of the weakened immunity element in adult tuberculous patients by single or repeated treatments in sanatoria, in order to prevent the transformation of a hopeful case of tuberculosis into a hopeless progressive consumptive. It is evident that the treatment of tuberculous children as well as adults must follow the lines of the well-known dietetic and hygienic measures. Nevertheless, the treatment by tuberculin, thought it can as yet produce but a partial immunity, must play no small rôle in the treatment.

Münchener medizinische Wochenschrift, October 19 and 26, 1909.

The Influence of Sinusoidal Baths Upon the Heart.—Veiel investigated the action of sinusoidal electric baths upon the heart, and concludes that it acts in a manner similar to the carbonic acid bath. Great care is required in regulating the dose: one cannot follow any rules. The best criterion of the dose is to be found in the patient's feelings. A feeling of fatigue which does not disappear after brief rest is an indication for a weaker current at the next treatment. In the sinusoidal bath we have an addition to balneotherapeutic treatment of the heart which has a definite action without the use of a full bath. Such an active increase of cardiac action as occurs after carbonic baths cannot be obtained. The individual susceptibility to the sinusoidal bath varies more than with the carbonic baths. This form of bath, therefore, has its place when a mild balneological regulation of cardiac power is required, and for one reason or another carbonic baths are contraindicated.

Narcosis with Artificially Decreased Circulation.—Hörmann has studied the effect of reducing the circulatory system by putting Esmarch bandages around the thigh during general anesthesia to reduce the circulation, and has found that his experiments on man agree completely with the animal experiments of Verth and Ziegner. The results of the procedure were a diminished amount of narcotic required, especially with chloroform; a rapid awakening from the narcosis, and the use of this isolated carbonic-acid laden blood to relieve the asphyxia. The contraindication to the procedure are varicose veins and arteriosclerosis.

Amaurosis During Pregnancy.—Himmelheber reports the case of a woman of 34 years of age who during her seventh pregnancy had headache, vomiting, and blindness. She had no convulsion or edema. The urine contained 0.4 per cent. albumin, leucocytes, blood, and all kinds of casts. The ophthalmological examination showed an optic neuritis, retinal hemorrhages, and white patches. After abortion the condition of the urine improved rapidly but the amaurosis continued, with the development of optic atrophy.

Serum Treatment and Its Dangers.—Scheidemandel reports the case of a girl of 19 who was suffering from osteomyelitis of the pelvis. For this an antistreptococcus serum was injected as follows: January 10, 10 cc.; January 14, 10 cc.; January 21, 25 cc.; February 5, 25 cc.; March 12, 5 cc. Immediately after this last injection she complained of pain and dizziness. She sat up in bed suddenly, struggled for breath, vomited, and was markedly cyanosed. Innumerable small hemorrhages appeared on the forehead, neck, and breasts. The breathing stopped and the pulse became very weak. Camphor and caffein overcome the collapse and the patient recovered. At autopsy, three months later following death from the osteomyelitis, there was no sign of hemorrhage in the internal organs. This the author considers to be a typical case of anaphylaxis due to repetitions of the doses of serum. The reaction appears, as a rule, when there is a pause between the first and second injection varying from 10 days to six months. The author asks how such accidents are to be prevented. He calls attention to the fact that in animal experiments injections of calcium chloride and calcium lactate have prevented the appearance of the phenomenon. In every case where serum is to be given it must be ascertained whether or not a previous injection has been made within a few months. This knowledge is not always definitely a safeguard, as cases of hereditary hypersensitiveness have occurred. The best method is always to give a small initial test dose of the serum and then if no symptoms appear to repeat shortly, with gradually increasing doses. Intravenous injections should never be given until the absence of anaphylaxis has been definitely ascertained. The indiscriminate use of all kinds of unproven sera in enormous doses is most strongly to be deprecated.

A New Method of Proof of Proteolytic Ferment and Antiferment.—Mandelbaum refers to the Loeffler's plate method of Müller and Jochmann and the casein method of Gross and Fuld and then describes a new plate method which he believes to be more delicate than either. It is as follows: Two parts of ordinary agar-agar and one part of milk are mixed, heated to 100° C., cooled to 50° C—60° C, well shaken, and poured into Petri dishes, which are gently agitated until the medium has hardened. These plates are then used quite similarly to the Muller and Jochmann plates. The improvement consists in the fact that instead of having to see a minute hollow in the serum where the ferment has produced digestion, the much more evident change takes place of the white medium becoming transparent. This is due to the digestion of the protein covering of the fat and its consequent solution with bars of the white appearance of the emulsion.

Postoperative Duodenal Ileus.—Weinbrenner reports such a case, discusses the condition and summarizes his conclusions as follows. The etiology of past operative duodenal ileus is not entirely clear. The theory that the obstruction occurs only as a secondary condition to an acute gastric dilatation does not hold good. The strangulation may also be primary. Mechanical factors which can cause a dragging on the mesentary may also play a rôle, especially drainage and adhesions. The symptoms may suggest a peritonitis running an acute stormy course, which obscures the diagnosis. To prevent a mistaken diagnosis with possible serious consequences in the differential diagnosis, bile containing post-operative vomiting suggests the duodenal ileus. In therapeutics the placing of the patient on the abdomen or in the knee chest position is of the first importance. In this position the pressure and weight of the small intestine and the stomach acts in a different direction so that the relaxation of the mesentary and the freeing of the duodenum results. Weak mesenteric adhesions may be loosened or relaxed, a possibility which makes it advisable in all forms of post-operative ileus before undertaking a secondary laparotomy to try all possible postures.

The Respirometer.—C. A. Bucklin of Glasgow has devised an instrument to which he has given this name, the purpose of which is to measure the degree of the obstruction of the nostrils to respired air from which he draws conclusions as to the indications for and results of rhinological procedures. It consists of a glass tube 41.5 inches long and ⅜ inch in diameter with a bore of ⅛ inch. To each end of this tube is fitted a stiff piece of rubber tubing 3 inches in length, which extends ⅛ inch beyond the end of the glass tube. A notch ⅛ inch in diameter and ⅛ inch in depth, disposed at right angles to the bore, is burned into the end of each piece of rubber tubing. At 30 inches from each notch is the lower margin of a narrow ring of rubber tubing. These rubber tubings are used for protection and measure indications. To use the respirometer a tumbler containing one-half inch of water is placed upon the floor into which one end of the respirometer is immersed. After complete expiration the patient takes the upper end of the instrument firmly in his mouth, depresses his tongue with it, and makes the strongest, quickest nasal inspiration possible. The height to which the water rises in the tube indicates the degree of vacuum produced in the mouth which is in turn proportional to the nasal obstruction. The instrument is disinfected in a specially made case, as shown with the instrument in the plate. This is of vulcanized rubber, ⅞ inch in diameter, with a bore of ⅝ inch, and a length of 42 inches. The bottom cap is screwed on and cemented, while the top is so adjusted that it may be turned with the fingers. An aqueous solution of bichloride of mercury 1:31.25, made by dissolving two "1:1003" tablets in each fluid ounce of water is put in the case. The tube placed in this for 2 minutes is disinfected. The end is dipped in clean water before use. In hypertrophic nasal catarrh for a satisfactory result, the instrument after operation should register not more than one-half what it did before treatment. A double partial turbinectomy for hay fever or asthma reduces the register to one-fourth of the original. The registration of the instrument is proportional to the attitude. The average height to which the water rises in a case of hypertrophic nasal catarrh is 37 inches. The respirometer is recommended as an indication for operation, an estimation of the results, and for settling disputes on these subjects.—*Archiv fur Laryngologie.* Vol. 22, No. 2, 1909.

Tuberculosis and Poverty.—That poverty is a friend of consumption is demonstrated by some recent German statistics, which show that of 10,000 well-to do persons, 40 annually die of consumption; of the same number only moderately well-to-do, 66; of the same number really poor, 77; and of paupers, 97. According to John Burns, the famous English labor leader, 90 per cent. of the consumptives in London receive charitable relief in their homes.—*Ohio State Medical Journal*

Book Reviews.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M.D., Assistant Physician to the Out-Patient Medical Department of the Jefferson Medical College Hospital. Philadelphia and New York: Lea & Febiger, September 1, 1909.

The present number contains contributions on Diseases of the Thorax and Its Viscera, including the heart, lungs, and blood-vessels, by W. Ewart; Dermatology and Syphilis, by W. S. Gottheil; Obstetrics, by E. P. Davis, and Diseases of the Nervous System, by W. G. Spiller. These various departments of medical science are well and thoroughly reviewed. Of particular interest are the forty pages devoted to tuberculosis, and the sixty pages dealing with pregnancy and its complications. This publication continues to give the busy practitioner an authoritative summary of all that is best in medical literature.

Hämodynamische Studien. Von Dr. med. Johann Plesch. Mit 14 Abbildungen und 2 Curven im Text. Berlin: Verlag von August Hirschwald, 1909.

The studies comprising this volume of 240 pages were originally presented in the *Zeitschrift für experimentelle Pathologie und Therapie*, but their unusual interest and volume more that justify their appearance in separate form. They represent an immense amount of work in fields of great importance to the physiologist and experimental pathologist, some of it in corroboration or correction of previous investigations, but much of it in entirely new directions. The first portion of the book deals with the interesting question of the methods for determining the total amounts of hemoglobin and of blood in the body, and new procedures are described by means of which the author believes that the older figures are proven to be erroneous. The statement originally made by Welcker that the amount of blood in the human body is equal to 1/13 of the body weight has been universally accepted, yet it was founded on only three observations, and the author's very elaborate investigations show that the true value is 1/19, and that the amount of hemoglobin is 0.7 per cent. of the body weight. In the second and larger portion of the work, such matters as the minute volume, pulse volume, rapidity of the circulatory flow, and amount of energy expended by the heart are considered. The methods used in studying these questions are exceedingly ingenious and lead the author to a very extensive series of conclusions, some of which, if generally accepted, will entail more or less important revisions in this branch of physiology. Among the conclusions recorded are the following: The minute volume in the healthy, resting individual is 62 c.c. per kilogram of body weight; the pulse volume during rest is 0.86 c.c. per kilogram; the rate of flow in healthy persons is 42.4 c.c., but this is greatly exceeded in anemias, and the functional murmurs heard under these conditions depend on this cause. The time of circulation is normally 55 seconds and requires 65 heart beats. The coronary circulation receives 4.8 per cent. of the total, and the blood supply of the heart is ten times that of the rest of the body.

Tuberculosis. A Treatise by American Authors on Its Etiology, Pathology, Frequency, Semeiology, Diagnosis, Prognosis, Prevention, and Treatment. Edited by Arnold C. Klebs, M.D. With three colored plates and two hundred and forty-three illustrations in the text. New York and London: D. Appleton and Company, 1909.

The editor of this treatise confidently states in the preface that a continuous and systematized discussion of the whole subject of tuberculosis in all those phases of interest and value to the practitioner by a single author has become an impossibility. In the book edited by him every distinct phase of the immense subject is treated by a writer whose authority in the special question is widely recognized. Yet the needs of a practitioner have been kept as a guiding consideration and the editor has succeeded in avoiding most of the faults of repetition, superabundance of detail, and of theoretical discussion that often mark the joint work of many authors. William Osler has written a characteristically brief, yet lucid, historical sketch showing the gradual progress of our knowledge of the disease; his final word is a warning that sanatorium treatment will not solve the question of tuberculosis; the brunt of the battle must be borne by the practitioners at large whose skill in recognizing the disease in its earliest stages must ever stand as the first condition of successful treatment. Ravenel describes the bacteriological part of the pathology of tuberculosis, Ludwig Hektoen the anatomical part. Baldwin of Saranac has contributed the chapter on Resistance, Predisposition, and Immunity. Klebs, Coleman, and Hutchins have written on the general frequency of tuberculosis and its distribution among insane and among dark-skinned races of America. Part III, dealing with Symptomatology and Diagnosis, is the work of Charles L. Minor of Asheville. This contribution forms a most complete study of the practical side of tuberculosis. Minor has put into his study knowledge of the clinical and physical picture of tuberculosis that could have been acquired only by most extensive experience of the subject. Among objective signs the appearances in *x*-ray photographs are given special attention, so that the reader is well instructed in the interpretation of this new diagnostic method. Baldwin and Knopf have written the chapters on prophylaxis. These are not worded in general terms but give specific information with numerous illustrations of the work of prevention that is being done by the State and by individuals. Lawrason Brown writes on specific treatment with tuberculin, a detailed account of the various procedures being given. Coleman writes on home treatment with sanatorium methods, and Klebs contributes a valuable chapter on the sanatorium, its construction, rôle, and limitations in the fight against tuberculosis. Climatic treatment is considered further along and surgical tuberculosis is given a special section, again the work of several contributors. Several appendices furnish a formulary, illustrate numerous devices for the prevention of the spread of the disease, give suitable diet lists, and finally an extensive bibliography of selected works on tuberculosis. This short summary of the more important divisions of the work give an idea of its plan and extent. The execution of each separate task is vouched for by the names of contributors mentioned above. The book is distinctly a credit to the American medical profession.

Myeloische Metaplasie und fötale Blutbildung, und deren Histogenese. Von Dr. med. Heinrich Fischer. Sanatorium "Untere Waid" bei St. Gallen (Schweiz). Berlin: Julius Springer, 1909.

As the result of his embryological studies the author comes to the conclusion that the formation of the cellular elements of the blood from endothelial structures can be definitely demonstrated. The endothelial cells of the capillaries form myeloblasts, basophilic erythroblasts, and probably also megacaryocytes, and from the first two of these myelocytes and leucocytes on the one hand, and polychromatophilic and orthochromatic red cells on the other, may be developed. In regard to the controversy concerning the nature of the basophilic granules of red cells he is of the opinion that true basophilic stippling is a result of chromatin synthesis, the granules being formed from the protoplasm and not from the nucleus. This genuine basophilia must be distinguished from that due to granule formation caused by karyorrhexis, or karyolysis, and it is not a degenerative process but must be regarded as morphological evidence of mitotic cell division. The little volume forms an interesting contribution to the literature of the subject, though its value would have been very greatly increased by the addition of illustrations and a description of the staining methods employed.

Parenthood and Race Culture—An Outline of Eugenics. By Caleb Williams Saleeby, M.D., Ch.B., F.Z.R. Edin. New York: Moffat, Yard & Company, 1909.

The author of this book has already achieved a certain notoriety through his contributions to popular medicine and will probably add to the same with this new work. In it he enters the lists as an advocate of social and racial reform. The cause is certainly a most commendable one from any viewpoint. To quote Francis Galton, honorary president of the society, "Eugenics is the study of agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally." Its scope and aim are therefore very broad and deserve the hearty cooperation of everyone. Physicians especially should be interested in this movement. There is great need for an appreciation by all sorts and conditions of men of the inherent possibilities for proper control of racial propagation. To quote in part: "The society exists to uphold the idea of parenthood . . . to proclaim that the racial instinct is supremely sacred and its exercise through marriage the loftiest of all privileges. Parenthood on the part of the insane, the diseased, the alcoholic must be denounced as a crime against future generations. Parenthood on the part of the worthy and fit is to be buttressed, guided, and extolled." Whether this book will advance the objects of this society is questionable.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

FIRST DISTRICT BRANCH.

Stated Meeting, Held October 28, 1909.

DR. C. E. TOWNSEND OF NEWBURGH IN THE CHAIR.

THE Third Annual Meeting of the First District Branch of this Society was held in Middletown, N. Y.

President's Address.—Dr. CHARLES E. TOWNSEND of Newburgh expressed his appreciation of the honor conferred upon him; the position if properly filled required the giving up of a large amount of time and labor. A subject that had given him a great deal of thought was "What was the trouble with the attendance at their meetings?" Since he had become President it had been made evident to him that there were many men throughout the southern tier of counties who were eligible and who would in every particular be good and useful members of this Society, but for some reason they did not care to join, and he was trying to find the reason for this indifference. Many of these men led lonely professional lives and yet did not take advantage of the privileges which they might enjoy by becoming members of the State Society. He wished to find out what was lacking in the State Society or whether the failure was due to the county society meetings. He believed the success of the meetings depended to a great extent upon the secretary of the County Society. Something more should be done than the mere sending out of notices as had been done for the past one hundred years. He thought that one trouble was that the meetings had been too frequent. The establishment of many small local societies throughout the State was evidence that physicians were solving the question to suit themselves much to the disadvantage of the County Medical Society. The day for the reading of the long medical paper was about over, and the need was for short papers on timely subjects. It might seem heretical, but it seemed to him that the papers should not be too technical. The average doctor at the county society meetings went sound asleep over long technical papers. He was of the opinion that changing the place of the annual meeting to Albany had made a difference to the men in the southern tier, and every effort should be made to have the annual meeting returned to New York City. Such a change would require a special act of the Legislature, but that could be accomplished if one went about it in the right way. Dr. Townsend asked the members to discuss among themselves the ways and means of making the meetings more attractive. A short scientific session followed by a luncheon which would give the men an opportunity to get acquainted with each other would be a help.

Has Our Therapeutic Knowledge Kept Pace with the Advancement of Other Branches of Medical Science?—Dr. C. W. DENNIS of Goshen presented this paper, in which he said that of all the branches of medical science there was none having a more uncertain foundation than therapeutics. Assuming a correct diagnosis in a given case there entered the factors of sanitation, bathing, feeding, nursing, the mental attitude of the patient, his surroundings, peculiarities, idiosyncrasies, opsonic power, phagocytic power, the degree and virulence of the infection, his susceptibility to medicinal influence, and finally the medicines administered. Then came the question of quality, strength, and purity of the medicinal agents selected. If the patient recovered, what means had one of determining what acted most favorably to bring this to pass? As it was impossible to determine the part that therapeutics performed in the treatment of disease, the conclusion was forced upon one that the discussion of the question whether therapeutics had progressed equally with other branches of medical science became purely a matter of speculation, and decision became an impossibility. Drug therapy was to-day the most discredited of all the branches of medicine; there probably never was a time when medical men had so little faith in the positive effects of drugs when applied to the cure of disease. There were approximately 200 separate diseases recognized and described in literature, and out of all these perhaps but one had positively and incontestibly yielded to medicine as a sole curative force—that was malaria to quinine. Exception might be taken to this statement by those who believed that mercury cured syphilis. Was serum therapy to become the agent which was to fulfill the hopes of past ages and lift the whole art of therapeutics up to an equal plane with surgery, in science and preventive medicine? While drugs might not cure as directly as our fathers believed, they did relieve, sustain, and soothe as no other agents could. This was the future field for drug therapy. After reviewing some of the former beliefs in regard to drug therapy and showing how complicated the present system of therapeutics had become, Dr. Dennis concluded that the future hope of the therapeutic art as applying to drugs lay along the following lines: (1) Dropping out of the pharmacopeia hundreds of medicines which were of doubtful utility or which were with difficulty prepared with accuracy or which duplicated each other in their range of action. (2) The State should provide a laboratory in which would be made examinations and tests of medicines to determine their strength and purity, and a law should be made prescribing a fine and punishment for offering for sale medicinal substances varying materially from a standard as defined in the United States Pharmacopœia. This was not covered by the "pure food and drug act" as he understood it. In addition skilled men should be employed to determine, physiologically when possible, the positive effects of drugs most commonly used. (3) More careful observations should be made and recorded by medical men of the effects of medicines used clinically; single remedies should be used more frequently, the ready made prescription should be largely, if not entirely, dispensed with, as it cultivated habits of carelessness and indolence. (4) Proprietary remedies should be entirely refused which did not contain the exact formula. (5) Every doctor should familiarize himself, in a measure at least, with the drugs used by other schools of medicines. No one school possessed all the knowledge of the world. (6) Careful study of each case, recognizing that nature was always making an effort to cure and not to kill, which was the direct opposite of the view which it seemed our fathers held, judging by their therapy, would lead to the adoption of those measures which removed obstacles from her pathway and strengthened her power. If drugs could not cure they could aid nature to cure; if they could not cure or aid in a cure they could relieve and thus accomplish all the prime objects of drug therapy.

Dr. ANDREW VICTOR JOVA of Newburgh said they were all interested in therapeutics, and what Dr. Dennis had stated was a straightforward and plain statement of facts. That branch of therapeutics which dealt with drug therapy had not made the advance that was made in other branches of medicine. If one went back to the seventeenth or eighteenth centuries, it would be found that therapeutics had held its own with other branches of medicine. To show that therapeutics had made some advancement, he quoted the following which he had extracted from a book of the eighteenth century on the "Treatment of Smallpox": "Let the patient lye in a little chamber close shut, and free from any wind, to the end he may the more easily breath and that the stinking vapors being the more easily discussed may the less offend him. More specially take care that no cold get into the patient's bed, for should the least cold come to him while he is in a sweat or a moist breathing, or if the patient himself by tossing or tumbling should throw off the cloaths and check his sweat, it fre-

quently happens that the pox fall in again and vanish or sinks into the skin to the great hazard of life. For which reason the patient must not be shifted till after the fourteenth day, for fear of striking in again the pox to the irrecoverable ruin of the patient. Far better is it to suffer the sheets of the patient moist with sweat to dry of themselves with the heat of the body, and for the patient for some days to bear with the stench of the sweat and the pustules coming forth, than to change his linen and be the cause of his own death. But if there is an urgent necessity for the patient to change his linen then let him have the same foul linen that he put off just before he fell sick, or that have been worn by some other sound body. For I have often observed clean and newly worked linen to be very prejudicial to sick people which I am apt to believe proceeds from the smell of the soap which the linen in some measure retains. This is certain, 'tis better not to change linen at all, but to change before the fourteenth day is a thing not to be done without extreme hazard. Nor is there any reason for any man to be afraid of any bad smell which the linen contracts from the sweat and heat and broken pustules, for that we never found it to be prejudicial to any that were ever sick of the distemper." For fifty years drug therapy had not kept pace with the advance in other branches of medicine. He believed the time would come when members of the medical profession would content themselves with the use of but a few drugs; then better knowledge of the physiological action and better results would be had. He wished there was some other way of administering drugs than by way of the alimentary canal, such as serotherapy, to which we looked forward with great expectation. Surgery had made a great advance, but not solely because of the art, but because of the discovery of antiseptics and the germ theory of disease, without which no surgeon, however skillful, could be successful in saving life.

Neurasthenia.—Dr. F. Howell Greene of Poughkeepsie read this paper, in which he stated that neurasthenia most commonly made its appearance between the ages of twenty and fifty, and consequently incapacitated its victim at that time of life when his usefulness should be greatest. Nine-tenths of neurasthenics had inherited a sensitive nervous condition from parents who were not psychically stable, or who had lowered vitality from abuse or disease. Improper training during childhood and adolescence were also predisposing causes. Both sexes were affected in about equal proportions; it was more frequent in those locations where the greatest amount of physical and mental strength was required. It was often quite difficult to learn the exact immediate exciting cause, but by careful search they would find something that depressed the mind of the victim, and from which he could not recover, even though in itself the cause might be trivial to a normal mind and known to be such by the patient. Although the pathological anatomy of the condition was not known, its manifestations were those best explained by a diminished dynamic energy and lessened recuperative power in the cerebrospinal axis, and especially in the cellular elements. The symptoms of neurasthenia were numerous and varied; they might simulate any of the graver diseases, probably through suggestion. Some of the most constant symptoms were headache, vertigo, backache, pain, gastrointestinal atony, neuromuscular weakness, insomnia, mental depression, and mental irritability, nearly always having some one subjective symptom that constantly entertained the mind of the victim. Vertigo was not as constant a symptom as headache; backache was nearly always present, usually in the small of the back, radiating upward between the shoulders and downward through the loins into the limbs. Mental depression and mental irritability were the essential factors of the disease, around which all other symptoms were grouped. These patients might have all forms of nervous irritability of the heart, as intermitting, throbbing sensation, palpitation, etc. The sexual appetite was usually diminished or lost. These patients frequently wished they were dead, but were prone to avoid doing anything to expose themselves to danger. In a few cases, however, they did commit suicide. The diagnosis of neurasthenia was usually easily made, though one might be misled by the patient giving a train of symptoms which he or she had learned from some other patient who might be suffering from some grave disease. The best differential diagnostic symptom was the minute details with which the symptoms were given in neurasthenia and which was nearly always present in the severer forms of this disease. As to prognosis, the outlook for the patient's living many years was good, though death might come when the disease took on a severe gastrointestinal type and the patient died of starvation. The most important treatment was prophylactic. The foundation for the greater number of cases was laid at home or in school. To get to the bottom of this disease they would have to commence with the parents and the home life and with the teachers in preparatory schools and colleges. Parents should avoid all demonstrations of nervousness and complaining, whether of hard luck or ill health, in the presence of their children, and should teach them to grow up strong, mentally and physically. Children should be taught that nervousness and worry from slight provocation were signs of mental weakness and cowardice, and that nervousness militated against success in life. They should be taught not to be impatient, that apparent failure at first often led to greater success in the future. Children should have plenty of fresh air and exercise; their muscles should be developed first and their minds afterwards. It was of prime importance in the schools to have conscientious, broad-minded teachers, who realized that they had undeveloped human minds to develop, minds that in a few years would be the brains of the nation if properly handled. In order to get properly trained teachers they should commence with the colleges for women, because their graduates became teachers in the normal schools, and the normal school graduates in turn taught developing children. Teachers should study the home surroundings of the child and should they find a child whose father or mother was weakened, either psychically or by disease, that child should receive special training. College instructors should remember that all of their students were members of the human race, and avoid favoritism to the popular and humiliation to the unfortunate. Laws prevented or regulated corporal punishment, but there was nothing to prevent far more dangerous treatment, unjust mental humiliation, which might forever warp or wither a mind that had every promise of being brilliant. The treatment of a case of neurasthenia was usually simple. If possible, the patient should have a change of scene, away from family and sympathizing friends, with a companion adapted to those cases. There should be proper rest, judicial exercise, tonics, and everything should be done to improve the physical condition of the patient. The diet should be supervised, elimination promoted, the nervous system sufficiently stimulated, and an abundance of sleep, not induced by drugs, should be had if possible.

Dr. Mary E. Dunning of Newburgh said that the school children in the public schools were allowed to remain indoors five hours a day, and, outside of the larger cities, were not given any physical examination to determine their fitness for close confinement. Many were not taught how to breathe, often the air itself was bad, and they were not properly nourished. They fell backward in the work year after year, and grew up to be defective. Again, they should take it upon themselves not to permit school teachers to be so overworked and underpaid.

The Application of Anthropometry to Neurological Practice.—Dr. H. L. Winters of Cornwall made this preliminary report. He stated that, in his experience, a large number of patients presenting themselves for treatment for the various forms of functional neuroses were physically inferior. The subject of physical stigmata was very old, and had, in a measure, fallen into disuse because of the extravagant claims made for it, but he had had the opportunity of following the subject in detail in the Department of Anthropology of the Pathological Institute of the New York State Hospitals for the Insane, and he had made the following measurements and observations: Heights, patient standing, to the external malleolus, to the head of the fibula, to the trochanter of the femur, to the anterior superior spine of the ilium; the patient being seated, from the seat to the acromion process of the scapulæ. Circumferences were measured over the iliac crest from central point of spinal column, at umbilicus from same point, at the ensiform cartilage from the same point, and at the insertion of the third rib and sternum from the same point. All of these measurements were made on both sides, and the amount of deformity was shown by comparison. The deformities looked for were flatfoot, severe knock-knee or bowleg, deformities of the coccyx, spinal curvature, and special deformities of the chest wall. Over one thousand examinations had been made, but only five hundred had been looked over and tabulated. Analysis of these showed that over 56 per cent. of the patients had physical deformities. Of this 56 per cent., 71 per cent. were deformities that could be corrected; 19 per cent. could be partially corrected, and 9 per cent. could not be remedied. Of those cases in which physical deformities were corrected, 83 per cent. recovered or improved without treatment. The object of the paper was merely to call attention to the value of such an anthropological examination, but a close analysis developed several striking conditions. Of the neurastrenics over 63 per cent, showed deformities, while less than 5 per cent. of hysterias were irregularly developed. Almost all of the facial neuralgic cases presented some deformity; all of the localized neuritis cases, every case of angioneurotic edema, a small percentage of migraine, and a large percentage of cephalalgias likewise presented deformities. The apparent inference was that some of the so-called functional neuroses were more dependent upon the maintenance of general physical balance than others. This difference was strikingly shown to exist between neurasthenia and hysteria, and the fact that the one case of hysteria which showed deformity was not benefited when the deformity was corrected bore out the idea suggested by the figures, that hysteria probably had a more definite pathological basis than neurasthenia. Further similar comparisons were possible. A comparison of results obtained by deformity correction, without treatment, and the usual treatment in cases without deformity showed over 60 per cent. of cures by the former method and little more than 31 per cent. by the latter. The results showed the necessity for a system of measurements for use in routine practice.

Anesthesia and Anesthetics.—Dr. Robert Cordner of Middletown, in discussing this subject from a practical standpoint, protested against the indiscriminate habit of touching the eyeball with the finger while the patient was under the influence of an anesthetic. Contusions of the cornea were liable to occur, with their accompanying complications. The majority of surgeons to-day favored ether because it did not require so much care in administration. It was a good rule in the administration of either of these drugs to allow the patient plenty of fresh air and to use as little of the anesthetic as would accomplish the object of the operation. The special methods of anesthesia for operations about the head, nose, and throat deserved more attention. He referred to rectal anesthesia and to an ether vaporizer operated by a foot pump and conducting the ether vapor by means of a rubber tube to an ether tube located in one of the jaws of the specially constructed mouth gag. It was easier to prevent collapse of a patient than to treat such collapse, and to this end supportive measures during certain operations should be resorted to, heat should be applied about the cardiac region and extremities, hot saline with whisky as rectal enemata, and hypodermics should be given. Nitrous oxide gas preceding ether obviated to a large extent the disagreeable features of ether anesthesia alone. This method should be more generally employed. Whenever possible, the patient should be given the benefit of previous preparation for the anesthetic. The urine, the heart, and the pulse should be examined before giving an anesthetic. The anesthetist should be provided with a mouth gag, tongue forceps, sponge holders, and small squares of gauze previously moistened with water. Mathieu's tongue holding forceps was preferable to the needle forceps. There was a point which needed clearing up, and that was whether morphine safeguarded the respiratory and circulatory systems during anesthesia or not. This was a problem needing more research work. The danger from anesthetics depended largely upon the condition of the patient at the time of operation. When grave symptoms arose it was well, in addition to the usual restoratives, to tilt the table so that gravity would assist the flow of the blood to the head. Dr. Cordner referred briefly to the various local anesthetics.

Some Further Considerations on the Employment of Solid Carbon Dioxide as a Therapeutic Agent.—Dr. William S. Gottheil of New York read this paper. He stated that carbon dioxide was being increasingly used, and with gratifying success, in a variety of obstinate dermatoses and deformities. Everything depended, however, in drawing it from the gas tanks in suitable form and in a proper degree of coldness and hardness. The technique was simple, and required nothing more than a towel and some bandages. The author rejected as needless and inappropriate the various forms of apparatus that had been proposed in order to facilitate the process, and gave in detail the method which he employed. The severity of the congelation, frequency of application, etc., varied with the results to be attained. Every grade of effect, from an amount of destruction so slight as to leave absolutely no scar, to complete destruction of the entire integument could be obtained at will. When scar tissue was produced the resultant cicatrices were smooth, soft, and non-contractile to a degree unattainable by any other method. The pain of the application was very moderate indeed, hardly more than that of freezing by ethyl chloride. Carbon dioxide was essentially an anesthetic cauterant, and could be used in infants and old people without hesitation. Over nerves, and in the immediate neighborhood of structures like the eye certain protective measures had to be employed. The remedy had passed the experimental stage, and was in almost daily use by the author and his assistants both in private and in public practice. It was employed with most satisfactory results in nevi and angiomata, in pigmentary and hairy congenital growths, in xanthomata of the lids and other benign tumors, in papillomata, in senile warts, in rodent ulcer and fungating epitheliomata, in the precancerous keratosis, in malignant degeneration of the skin following radiodermatitis, in lupus erythematosus; in fact, everywhere on the skin where a non-painful, effective, extremely manageable and cosmetically desirable destructive agent was required. The field of its usefulness was being constantly extended; but in the above mentioned affections it had been thoroughly tested and its value ascertained. It was especially useful in the extensive obstinate cases in which one was

formerly almost helpless. The author did not hesitate to say that in the domain of dermal therapeutics its field was larger, its results more certain, and its value greater than the *x*-ray.

The Treatment of Pelvic Infection with Special Reference to Bacterial Vaccines.—Dr. Frank R. Oastler of New York read this paper. He said that it was not very long ago that ovaries, tubes, and uteri were removed as proper treatment for conditions which to-day were successfully handled by less radical methods of procedure. A more accurate knowledge of the many disagreeable features of the artificial menopause had possibly led to this result and now, with the introduction of antitoxins and bacterial vaccines, there was a possibility that radical methods might be further curtailed. He said it was not the purpose of his paper to go into the minute details of the common treatment of pelvic infections, but simply to dwell at some length upon certain features in the treatment which seemed important and new. They all appreciated the fact that the streptococcus, the staphylococcus, the gonococcus, and the *Bacillus coli* were the common parasites that invaded the pelvis. They understood that infection might travel by way of the broad ligaments to the tubes, ovaries, and peritoneum on the one hand, and by way of the uterus and tubes to the ovaries and peritoneum on the other. Secondary infection might also develop from inflammations of other organs in the pelvis or neighborhood, and infection by direct transmigration of the colon bacillus from the intestinal canal was much more common than was formerly supposed. It had furthermore came to his knowledge of late that pelvic infection might be brought about by the pneumococcus with the consequent localized pelvic peritonitis and tubo-ovarian involvement. He was able to report six such cases. With the invasion of the pelvis by these various pyogenic bacteria, examination of some two hundred cases led to the conclusion that the exact rôle played by these organisms had not been fully determined. In fifteen cases of the more virulent forms of puerperal septicemia treated, the *Streptococcus aureus* was found alone in five cases, mixed staphylococcus and *Bacillus coli* in six cases, pure *Bacillus coli* in one and *Streptococcus pyogenes* in three. In the determination of the treatment of the various conditions resulting from the introduction of these organisms into the pelvis, they must first remember that the pelvic organs should be considered separately, and secondly that they had to deal with (*a*) simple inflammation or (*b*) a suppurative process resulting in disease of the uterus and tubes, or more rarely the ovaries. The pelvic organs naturally by their location were so situated in the abdomen that they could be more readily walled off by protecting adhesions than other organs in the abdomen, and, generally speaking, the virulence of the invading germs appeared to be of a milder character than those attacking other organs of the peritoneal cavity. This had led to the rule among gynecologists that it was the better policy to wait for the acute inflammatory process to become subacute or chronic before attacking them surgically, with the conviction that, when the disease was attacked, the process would have sufficiently subsided to have become so localized that it could be the more easily attended to and without the destruction of as many organs. And, too, what was of much more importance, the resulting pathological condition of suppurative inflammation, though present and active, was most always found to be germ free, thus allowing the spilling of pus in the pelvic cavity with a certain degree of impunity. That this general method of procedure was rational and advisable in most of the severe inflammatory conditions of the pelvis was beyond cavil, yet there were certain exceptions to this ruling to which attention was called. Simple inflammatory conditions generally responded to rest, the ice cap, free catharsis and, later, the douche and tampon. Curettage was necessary when the process was associated with endometritis, or retained membranes. Special treatment was required, depending upon the etiology of the particular inflammation. The invasion of the gonococcus into the pelvis through the uterus into the tubes, finally reaching the peritoneum, was very often of a violent nature, resulting in localized suppurative inflammation of tubes, or tubes and ovaries, with pelvic exudate, even, rarely, resulting in general peritonitis. A condition of inflammation often overlooked and a cause of sterility was in that class of cases where there had been continuous bleeding from the uterus for a long time as a result either of incomplete abortion or of severe chronic hypertrophic endometritis. For the past two years Dr. Oastler had been at work endeavoring to classify the variety of pathological conditions for which the bacterial vaccines were of value. Up to the present it would seem that the greatest good could be accomplished in the treatment of subacute or chronic pyemia or septicemia resulting from pelvic infection. The acute violent cases of puerperal sepsis did not respond to the bacterial vaccines. Knowing the tendency of pelvic infection to localize itself and gradually subside in the less severe cases, it was hard to determine how much good they did with the vaccines; but in the severe cases the value of the vaccines could often be estimated. Vaccines did not seem to cause infection, but simply to aid in stimulating increased resistance and so combating sepsis, often turning the tide in favor of the patient. They were indicated especially in conditions of poor resistance. The dosage was, as yet, in the stage of experimentation. Results had been more satisfactory with the *Staphylococcus aureus* and the *Bacillus coli*, and less with the streptococcus. Attention was called to the great frequency with which the *Bacillus coli* was found in pelvic inflammations. The treatment of pure gonococcus infections with vaccines had been very disappointing, especially in the treatment of gonorrheal urethritis.

Lactic Acid and Lactic Acid Bacilli.—Dr. W. S. Gleason of Newburgh presented this paper, in which he referred to the work of Massol, Metchnikoff, and Cohendy in relation to the Bulgarian bacillus. He said that the average practitioner should use judgment in selecting the best product to carry out successfully the application of this means of combating disease. At present one was able to obtain the lactic acid bacilli in one of the following forms: Ready soured milk, liquid cultures in bottles for internal administration, tubes of liquid ferment for souring milk, and finally a variety of dry ferments in the form of tablets. In giving the dry tablets it was necessary to follow the dose with sweetened water or malt, as a saccharine solution favored the growth of lactic acid bacilli. The ordinary lactic acid bacteria, as of buttermilk, were incapable of resisting the secretions of the digestive tract, and spontaneously soured milk was not the same as Bulgarian soured milk. The Bulgarian lactic acid bacilli caused the formation of lactic acid in the intestinal tract, which produced an antiseptic action checking intestinal putrefaction, a tropical action on diseased conditions of the intestine and also a constitutional effect due to the absorption of lactic acid. In the treatment of diarrheal diseases of infants and young children the reports, as a whole, were favorable. Cultures of lactic acid bacilli had been used successfully in sinus and nasal conditions. In atrophic rhinitis 88 per cent. showed decided improvement. A large proportion of frontal sinus cases were helped. The treatment of ethmoiditis and antrum trouble with the lactic acid bacilli had proved most satisfactory, but the best results were achieved in otitis media where the otitis complicated diseases of the nose and accessory cavities. Dr. Gleason reported the case of a previously healthy young man who was affected with subacute diarrhea of prolonged and un-

usual intensity. Diet, medication, and rest gave only temporary relief. Illumination of the colon disclosed a congested mucosa punctuated with minute ulcerations. Fecal examination showed a large flora of colon bacilli with streptococci and staphylococci. All medication was stopped excepting nitrate of silver irrigations; these were also gradually withdrawn, and Metchnikoff's lactic bacillary tablets in a sweetened media in four hour doses were administered. This plan was carried out carefully for several weeks in diminishing doses, the stools becoming less and less frequent until they became normal. There was a place for the lactic acid bacilli in combating the toxemias due to saprophytes or the bacteria of putrefaction in typhoid fever. Dr. Gleason had carried out this method in eight cases of typhoid fever, beginning the treatment at the middle of the second week so as to prop up the weakened barriers of the system against the increased autointoxication. Under this treatment the cases under observation showed a lowered temperature curve, the abdominal tenderness gradually disappeared, and the patients were manifestly more comfortable and convalescence was unusually rapid. These cases were of very severe type and were treated in other respects in the routine manner. The results seemed to favor a further trial of the lactic acid bacilli for the purpose of fortifying the system in typhoid until the vaccine treatment was on a better basis. The lactic acid bacillus was inert against the typhoid germ, but it would evidently destroy the putrefactive flora of the intestines.

Acute Diffuse Suppurative Peritonitis.—Dr. James E. Sadlier of Poughkeepsie read this paper.

Election of Officers.—*President,* Dr. Theodore D. Mills of Middletown; *Vice-President,* Dr. W. Stanton Gleason of Newburgh; *Secretary,* Dr. Charles Ellery Dennison of New York; *Treasurer,* Dr. James E. Sadlier of Poughkeepsie. Next place of meeting, Newburgh.

The Pathological Society of Philadelphia.

At a stated meeting held October 28 Dr. John M. Swan exhibited a specimen of "metastatic cancer of the lung from cancer of the breast." No operation had been performed and a general carcinosis developed. Dr. Swan exhibited also a specimen of "metastatic cancer of the liver from primary cancer of the rectum." The liver was studded with innumerable secondary masses, increasing its size to large dimensions. Dr. Alfred Gordon exhibited a specimen of "diplomyelia." The specimen was obtained from the body of a young man who lived to the age of fifteen years and for a long time presented only mental deficiency without motor phenomena. Toward the close of life convulsions set in and these increased in frequency until status epilepticus developed and terminated fatally. On post-mortem examination, in addition to porencephaly, a portion of the cord between the lower thoracic and upper lumbar divisions was found divisible in two parts, each of which represented an individual cord with areas of gray matter and tracts of nerve fibers united at their contiguous margins and enveloped in a single covering of dura mater. Somewhat higher up the cord contained a cavity of considerable proportions, involving the anterior horns. The cerebral dura contained deposits of bone adjacent to the longitudinal sinus. Dr. Warfield T. Longcope exhibited a specimen of "aneurysm of the vertebral artery and of the celiac axis." The patient was a man who had suffered from attacks of severe headache for a number of years. The last attack had lasted six or seven days before admission to hospital and had been attended with loss of consciousness and a fall. In addition there was rigidity of the neck and elevation of temperature, but no leucocytosis. Lumbar puncture was performed six times and on each occasion bloody fluid was obtained. On post-mortem examination the subdural space at the base of the skull was found distended with blood, from rupture of a vertebral artery, and the surface of the cord also was enveloped in blood. In addition, the celiac axis was found to be the seat of an aneurysm. Both formations were found to be in the nature of dissecting aneurysms, the blood finding its way between the layers of the vessel wall through a laceration in the intima. Dr. George P. Muller exhibited a specimen of "angioma of the liver." The specimen was obtained from the body of a woman presenting symptoms of suppurative appendicitis, with abscess formation, and also of cholelithiasis. The first incision was made over the gall-bladder, and the liver was found to be the seat of a new growth that bled profusely on incision and accordingly was not removed. Subsequently the appendiceal abscess was incised and closed. Septic infection, however, developed and the patient died. The formation in the liver was found to be a cavernous angioma of considerable size. Dr. Aller G. Ellis presented a specimen of "tuberculous ulceration of the stomach," and he referred to a specimen of similar kind previously exhibited. Dr. Karl Schaffle presented specimens of "multiple renal calculi." The pelvis of the kidney was converted into a polycystic cavity and its calicies were filled with numerous calculi, some of which were molded to the shape of the spaces in which they lay. Dr. George Draper presented a communication entitled "Multiple Calculi in the Intrahepatic Bile Ducts with General Infection with Bacillus Coli," and he demonstrated the specimen. The patient had presented repeated chills and feverishness at irregular periods, with a muddy rather than an icteric hue, and a moderate leucocytosis. Cultures from the blood revealed *Bacillus coli communis* in pure growth. After death the gall-bladder contained a single calculus, while a number of stones were distributed throughout the dilated biliary system. The ducts were patulous and bile flowed readily through all of them. Dr. John H. Musser presented a communication entitled "Self-Defense Against Disease, a Chapter in Pathologic Physiology." He cited the various defensive mechanisms that exist within the body to protect it against the invasion of pathogenic microorganisms and other forms of irritation that threaten harm to the organism and also those concerned in the conflict with established disease, as well as with the process of recovery. The physician has to do with the individual and with his reactions to morbid processes, and the recognition of this fact will prove a great aid in the intelligent application of therapeutic measures. He must ever be sure that at least he does no harm even if he does no good.

Philadelphia Pediatric Society.

At a stated meeting held October 12 Dr. Carson reported "A Case of Pica in a Mentally Defective Child," and he exhibited the patient, a child a little more than two and a half years old, that in the sequence of an acute illness, followed by convulsions, exhibited mental deficiency and a tendency to eat unusual articles, to gnaw wood, to chew and swallow substances like oilcloth, bedticking, and strings. Dr. Charles A. Fife read "A Report of Three Cases of Cerebral Spastic Paralysis in One Family," and he exhibited two of the patients. One of the latter was three months old and the other sixteen months old. Both presented spasticity, with exaggerated reflexes and athetoid movements, while another child that had died was said to have exhibited similar phenomena.

There were two other healthy children in the family. The labors had been easy, but not precipitate, and there was no history of traumatism or of infectious disease on the part of the mother during pregnancy. The mother, however, had exhibited during pregnancy profound mental depression, and this, it was thought, might have an influence in the development of the affection in the children. Dr. J. Claxton-Gittings read "A Further Report on a Case of Leukemia," previously exhibited. The patient had presented an enlarged spleen and liver, and a moderate increase in the number of leucocytes, with a marked preponderance in the number of lymphocytes. The patient had meanwhile died, but an autopsy could not be secured. Dr. Howard T. Karsner read a paper entitled "Mixed Leukemia." He dealt especially with the splenomedullary type of the disease, as it is observed in early life, and of which he reported a case, and also seven other cases collected from the literature. He contended that the affection had its own definite pathology and histology, by means of which it could be recognized. Dr. John H. Jopson read a paper entitled "Congenital Imperforate Rectum; Report of Two Cases." In one of these the entire colon was represented by a solid strand. An artificial anus was established in the left iliac region, but the patient did not survive. The meconium was thickly inspissated, and its removal was attended with great difficulty. In the second case the operative relief was successful, but the patient was surrounded by such unfavorable conditions that it died from malnutrition. Dr. Robert R. Walker read, by invitation, the "Report of a Case of Pelvic Abscess Due to Ruptured Empyema." The patient was a child presenting symptoms of rachitis, with an enlarged spleen and a contiguous mass, signs of peritonitis, and a moderate leucocytosis. On post-mortem examination a large abscess was found occupying the abdominal cavity and the pelvis, and communicating through an opening in the diaphragm with an empyema in the left pleural cavity.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Diseases of the Skin. By James Nevins Hyde, A.M., M.D. 8vo; cloth; 1126 pages: illustrated. Lea & Febiger, New York.

Clinical Manual for the Study of Diseases of the Throat. By James Walker Downie, M.B., F.F.P.S.G. 8vo; cloth; 432 pages; $3.25; illustrated. Macmillan Company, New York.

Tufts Medical Diet Chart (Charts A and B). Prepared by H. D. Arnold, M. D. W. B. Saunders Co., Philadelphia, Pa.

Surgical Diagnosis. By Daniel N. Eisendrath, A.B., M.D. 8vo; cloth; 885 pages; illustrated; $6.50 net. W. B. Saunders Co., Philadelphia, Pa.

Causes of Disability. By Charles Hamilton Harbaugh, M.D. 8vo; cloth; 650 pages; illustrated; $6.00 net. W. B. Saunders Co., Philadelphia, Pa.

Clinical Examination of the Urine. By J. Bergen Ogden, M.D. 8vo; cloth; 427 pages; illustrated; $3.00 net. W. B. Saunders Co., Philadelphia, Pa.

Clinical Studies for Nurses. By Charlotte A. Aikens. 8vo; cloth; 510 pages; illustrated; $2.00 net. W. B. Saunders Co., Philadelphia, Pa.

Pye's Surgical Handicraft. By W. H. Clayton-Greene, B.A., M.B., B.C. (Cantab.), F.R.C.S. (Eng.). 8vo; cloth; 590 pages; illustrated; $4.00 net. E. B. Treat Co., New York.

Der angeborene Schwachsinn in seinen Beziehungen zum Militärdienst. Von Dr. Theophil Becker. 8vo; cloth; 211 pages; illustrated; 5 marks. August Hirschwald, Berlin, Germany.

The Causation of Sex. By E. Rumley Dawson. Demy 8vo; cloth; 6 shillings. H. K. Lewis, London.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of November 20, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	528	181
Diphtheria	353	32
Measles	301	8
Scarlet Fever	232	14
Smallpox	—	—
Varicella	145	—
Typhoid Fever	77	16
Whooping Cough	57	3
Cerebrospinal Meningitis	4	4
Malarial Fever	—	—
Totals	1,697	258

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended November 19, 1909:

		CASES.	DEATHS
SMALLPOX—UNITED STATES			
California, Sacramento	Oct. 17–23	1	..
Georgia, Macon	Oct. 30–Nov. 6	3	..
Illinois, Danville	Oct. 30–Nov. 6	2	..
Kansas, Kansas City	Oct. 30–Nov. 6	1	..
Kentucky, Lexington	Oct. 24–30	1	..
Minnesota, Duluth	Oct 30–Nov. 6	1	..
Mississippi, Holly Springs	Oct. 30–Nov. 6	3	..
Montana, Butte	Oct 15–21	7	..
Tennessee, Memphis	Oct 30–Nov. 6	3	..
Texas, Eagle Pass	Oct. 24–30	3	..
Washington, Bellingham	Oct. 24–30	2	..
Wisconsin, La Crosse	Oct. 30–Nov. 6	1	..
Milwaukee	Oct. 30–Nov. 6	6	..
SMALLPOX—FOREIGN			
Argentina, Buenos Aires	Aug. 1–31	..	23
China, Shanghai	Sept. 27–Oct. 3	..	1
Chile, Valparaiso	Oct. 9–16	2	..
Gibraltar	Oct. 18–24	1	..
Hungary, Budapest	Oct. 3–9	..	1
Italy, General	Oct. 18–24	58	..
Naples	Oct. 18–24	9	1
Mexico, Acapulco	Oct. 19–25	1	In vicinity.
Medellin	Oct. 31	1	..
Orizaba	Oct. 31	..	Present.
Puebla and present along the lines of railroad	Oct. 31	..	Present.
Veracruz	Oct. 24–31	2	3
Persia, Meshed	Sept. 4	..	Do.
Philippine Islands, Iloilo	July 1–Aug. 31	237	142
Russia, Warsaw	Sept. 12–18	..	6
Spain, Barcelona	Oct. 19–25	..	1
Valencia	Oct 17–23	1	..
Vigo	Oct. 17–23	..	Do.
Turkey, Bagdad	Sept. 17–25	..	Do.
Constantinople	Oct. 18–24	..	..
CHOLERA			
China, Amoy	Sept. 26–Oct. 9	..	65
Kulangsu	Sept. 26–Oct. 2	..	3
Shanghai	Sept. 26–Oct. 2	..	Present.
India, Bombay	Oct. 6–12	..	3
Calcutta	Sept. 26–Oct. 2	..	8
Negapatam	Sept. 11–17	..	3
Java, Batavia	Sept. 26–Oct. 2	17	1
Japan, Kyoto	To Oct 26	200	98
Moji	Oct. 16	4	..
Shinkoku (island)—Matsuyama	Oct. 20	..	Do.
Wakamatsu	Oct. 16	..	Do.
Korea,* Chemulpo	Sept. 28–Oct. 9	..	Do.
Pyeng Yang	Sept. 28–Oct. 9	..	Do.
Seoul	Sept. 19–28	1,072	651
Manchuria, Dalny	Oct. 3–9	1	..
Netherlands, Utrecht (province)—Jaarsfeld	Oct. 20	1	1
Philippine Islands, Manila	Sept. 12–Oct. 9	73	58
Provinces	Sept. 12–Oct. 9	1,004	741
Russia, General	Oct. 3–10	570	254
St. Petersburg	Oct. 17–22	116	35
YELLOW FEVER			
Ecuador, Guayaquil	Oct. 1–15	13	4
PLAGUE			
British East Africa, Kisumu	July 10–Aug. 24	12	12
Chile, Antofagasta	Oct. 16	..	Present.
Iquique	Oct. 16	..	Do.
Mejillones	Oct. 16	..	Do.
China, Amoy	Sept. 26–Oct 9	..	71
Ecuador, Guayaquil	Oct. 1–15	..	16
India, General	Sept. 26–Oct. 2	4,377	3,460
Bengal	Sept. 26–Oct. 2	48	31
Bombay	Sept. 22–28	..	24 Present.
Calcutta	Sept. 26–Oct. 2	..	11
Rangoon	Sept. 26–Oct. 2	..	5
Japan, Kobe	Oct. 3–16	28	21 Do.
Shinkoku (island)—Kochi	Oct. 20	..	Do.
Matsuyama	Oct. 20	..	Do.

* Epidemic along the Yalu River.

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Original Articles.

THE FUNDAMENTAL FUNCTIONS OF THE MUSCLE-CELLS OF THE CARDIO-VASCULAR SYSTEM, WITH THE SUGGESTION OF A CLASSIFICATION OF ARTERIAL DISORDERS.*

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THE fundamental object of the art of medicine is the cure of disease. As physicians, we have no right to devote our time to any work that does not ultimately lead to this end. We can for a time cease to be physicians and become pure scientists, devoted to the discovery of scientific truth, and in doing so we become participants in a great and glorious work, but at the same time we cease to be physicians. The physician, as such, is devoted solely to the application of medical knowledge and the cure of disease as a vocation. He looks doubtfully upon those who indulge a tendency to plunge into the realm of theory and speculation.

So there are two great masses of medical knowledge, the one representing the great volume of records, facts, theories, and investigations that are carried on by scientists in connection with the subject of medicine. These are recorded in the minds of these scientific men and in the hundreds of thousands of volumes in medical libraries.

The other mass of medical knowledge represents the actual application of accepted principles to the alleviation of disease and the prolongation of life.

From time to time there is an opportunity to transfer knowledge from the realm of investigation to the realm of practical medicine, and it is to make a beginning in this direction, with regard to the subject of the paper, that I have undertaken to open the discussion this evening. To me this knowledge has converted the treatment of cardio-vascular disease from a matter of hopeless drudgery to a thoroughly satisfactory and delightful calling. The principles are so simple that they can be defined in a few words, viz., a due regard to the facts of evolution and physiology, without an undue regard to the appearance presented by pathological anatomy.

And here I would like to express the belief that the functions of the muscle-cells of the blood-vessels possess the same functions, modified, of course, by circumstances, that are found in the muscle-cells of the heart, and that in forming the mental picture of a case of circulatory disease, we must endow all the muscle-cells of the whole cardiovascular system with the functions of the heart muscle-cells.

We cannot proceed without giving credit to [illegible]kell, Mackenzie, Russell, and other English w[illegible] who have done so much to elucidate this su[illegible]. In the second chapter of Mackenzie's book on the heart we find the best brief enumeration of the fundamental functions of the heart muscle-cells.

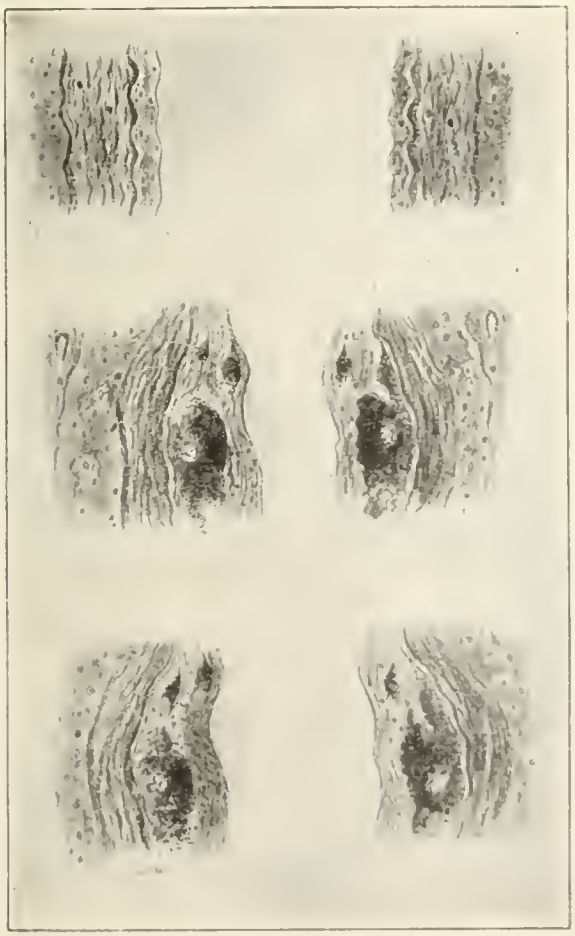

FIG. 1.—Hypertonia vasorum with atheroma; upper line, section of a normal artery; middle, atheromatous artery contracted; lower, atheromatous artery relieved of hypertonicity.

This I have adapted to the use of this paper. He says in part:

"From the consideration of the physiology of the cell, it may be said that every function possessed by a cell in the fully developed state exists partially developed in the primitive state. However specialized the function may be, nervous, muscular, secretory, these functions can be referred back to some property possessed by the primitive cell. The cells which constitute the primitive structure of the body all start equally endowed, and it is by a gradual

*Read before the Medical Association of the Greater City of New York, October 18, 1909. The illustrations accompanying this paper are taken, through the courtesy of E. B. Treat & Co., from the forthcoming third edition of the author's work on "Heart Disease, Blood Pressure, and the Nauheim-Schott Treatment."

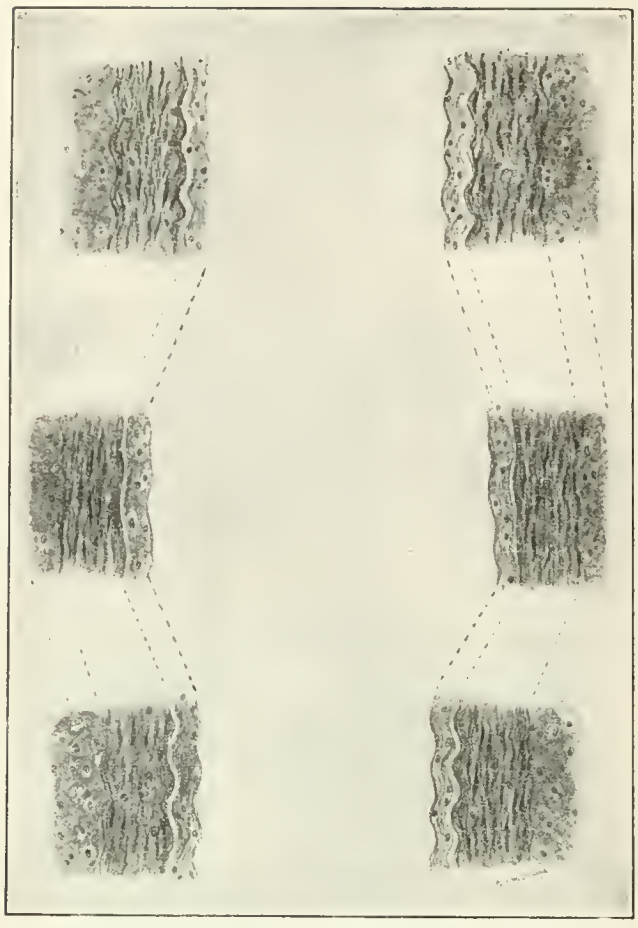

Fig. 2.—Hypotonia vasorum; upper line, section of normal artery; middle, section of dilated artery; lower, section of artery after restoration of tone.

process of specialization that each takes on its peculiar function, while as it acquires a high degree of specialization it gradually loses those functions it no longer exercises. The functions possessed by the primitive cells can be therefore deduced, not only from the results of direct observation, but from the specialized functions of the more differentiated tissues, even if these functions be so highly developed that they bear little resemblance to those found in the primitive cell. For instance, the excitability of the cell may become so specialized that it is only responsive to certain stimuli, such as, pain, light, sound, while all its other functions are apparently lost. If one looks at the functions of nerve and muscle-cells in the full developed state, it seems at first sight difficult to realize that they had originally identical functions. The primitive cells from which the heart developed had all the same characteristics, yet in their final evolution they present widely divergent characteristics, both in appearance and in function. That some such modification does occur must be inferred when we witness the change in function that takes place in the evolution of the heart from the primitive cardiac tube."

Mackenzie suggests this as a working hypothesis: "In the evolution of the heart-muscle fibers certain functions of the primitive cells were retained, some of these being more developed than others according to the duties the fibers had to perform, so that while they have come to resemble muscle-fibers, they nevertheless retain in a varying degree some functions which are highly specialized in the nerve cell. The special functions which Gaskell has demonstrated are five in number, viz.:

1. The power of producing a stimulus which can excite the heart to contract—stimulus production.

2. The power of being able to receive a stimulus —excitability.

3. The power of conveying a stimulus from fiber to fiber—conductivity.

4. The power of contracting when stimulated—contractility.

5. The power to retain a certain amount of contraction even when the active movement has ceased —tonicity.

Stimulus Production.—From this point of view it is assumed that muscle-fibers of the heart, if supplied with appropriate nutriment, possess a power to secrete internally a material which is capable of stimulating the fiber to contract. This material is being continually secreted, and during a pause in the heart's contraction, accumulates in the heart cell. When sufficient has been stored to excite the heart to contract, the whole store is used up in stimulating the muscle-cell. Immediately after the contraction the store begins to accumulate until sufficient has been produced to excite the heart to further contraction. This function, being continuous in its action, cannot control the rhythm of the heart, but by its cooperation with the other functions a rhythmical character is given to the accumulation and destruction of this material.

Excitability.—The heart muscle depends for its contraction upon its power of receiving a stimulus, that is, upon its excitability. Immediately after the heart has been stimulated to contract, excitability has disappeared, and the fibers are what is called in the refractory stage. The excitability begins at once to be restored, and increases very rapidly during

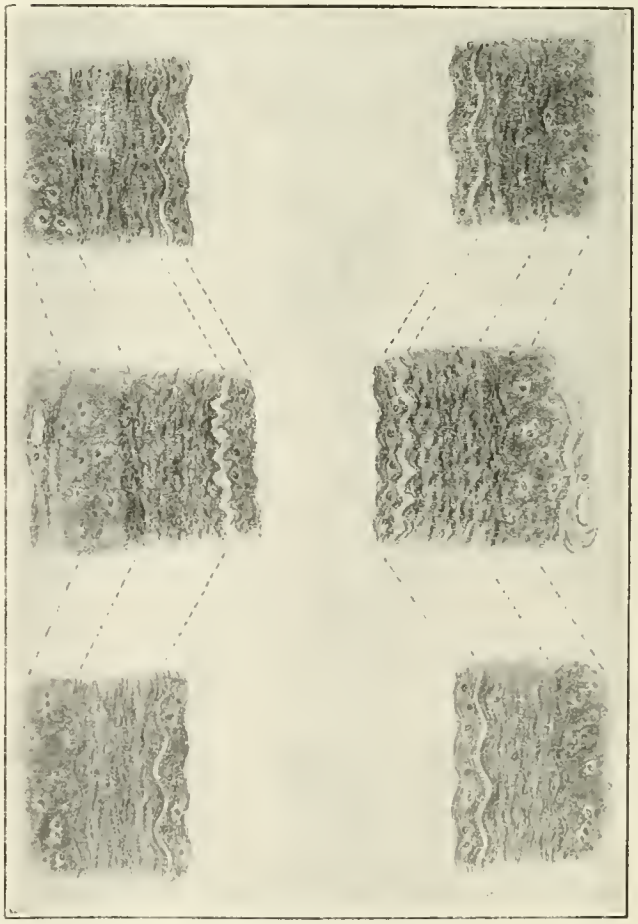

Fig. 3.—Hypertonia vasorum; upper line, section of normal artery; middle, section of contracted artery; lower, section of artery restored to its natural partial contraction.

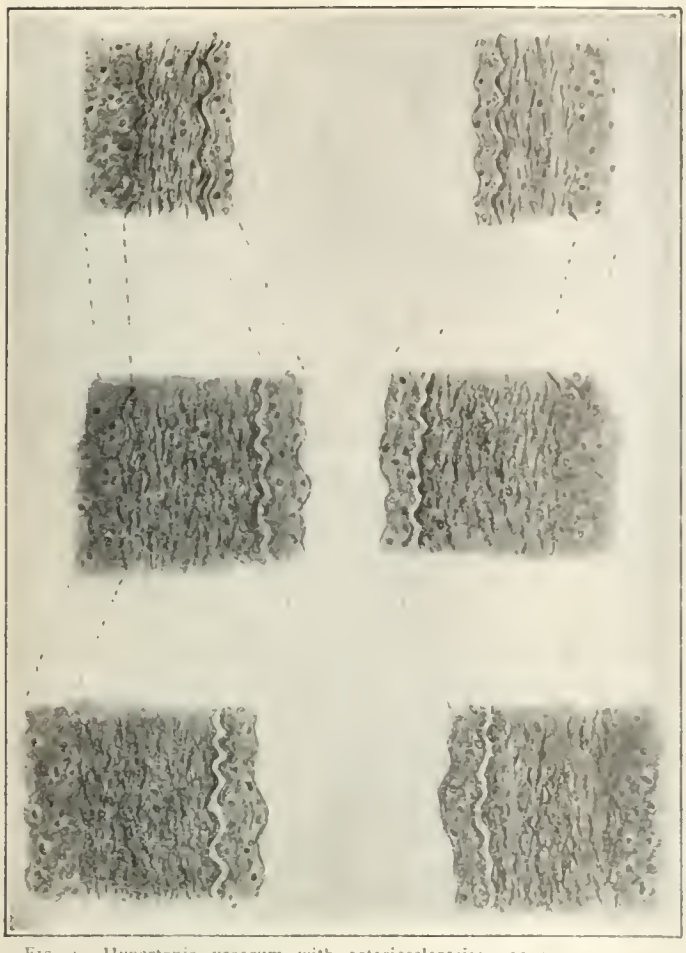

Fig. 4.—Hypertonia vasorum with arteriosclerosis: upper line, section of normal artery; middle, arteriosclerotic artery, contracted; lower, arteriosclerotic artery relieved of hypertonicity.

diastole. This is demonstrated by the heart being susceptible to weaker stimuli the longer the time since previous contraction. So long as the heart is capable of contracting, the rate of the heart depends upon the functions of stimulus production and excitability, and when the conditions are normal the equal action of both functions—the stimulus material being renewed at a uniform rate, and the restoration of the excitability taking place at a uniform rate—a regular rhythm of the heart's action results. Under normal circumstances, therefore, the heart's rate and rhythm are dependent upon the integrity of these two functions.

Conductivity.—In a mass of primitive cells the individual cell has a power of passing the stimulus on to neighboring cells. This function of conductivity is possessed by the heart muscle-fibers, for the stimulus is passed on from cell to cell from the point where it originated. The possession of this function by the muscle-fibers of the heart gives them a character which is typical of certain forms of nerve-fibers, but in the heart this is not so highly developed as in the specialized nerve-fibers, the conduction of the stimulus not being so rapid in all cases, and much more easily exhausted. Like every other function of the heart, it is entirely abolished after it has been exercised, and it returns gradually. The rate an impulse travels also varies in different fibers of the heart. Some fibers such as the more recently developed contractile fibers of the auricle and ventricle, conduct the stimulus with much greater rapidity than the fibers which convey the stimulus from the auricle to the ventricle.

Contractility.—The power of contraction is the most evident of all the functions of the heart. By the coordinated contraction of the fibers of the different portions of the heart, the circulation is maintained. After a contraction, this function is completely exhausted, and the power returns very gradually. Within certain limits, the strength of the contraction depends upon the length of the period of rest preceding the contraction, the function gathering strength during quiescence.

Tonicity.—The functions of the heart muscle do not differ, except in degree, from those of other muscular structures, and as tone is a very characteristic property of muscular tissue, it is certain that the heart muscle will possess it, and it is shown by the fibers not relaxing to their full length during diastole. On account of the rapid action of the heart it is not easy to demonstrate this function. Gaskell has shown that the degree of relaxation depends upon the amount of tone present, and that certain drugs increase or diminish the amount of relaxation. Thus, veratrine and digitalis prevent the relaxation of the heart muscle in the frog so that the heart remains longer in the condition of complete contraction, the relaxation gradually becoming less and less, till finally it is almost impossible to recognize individual beats. On the other hand, solutions of lactic acid and muscarine produce the op-

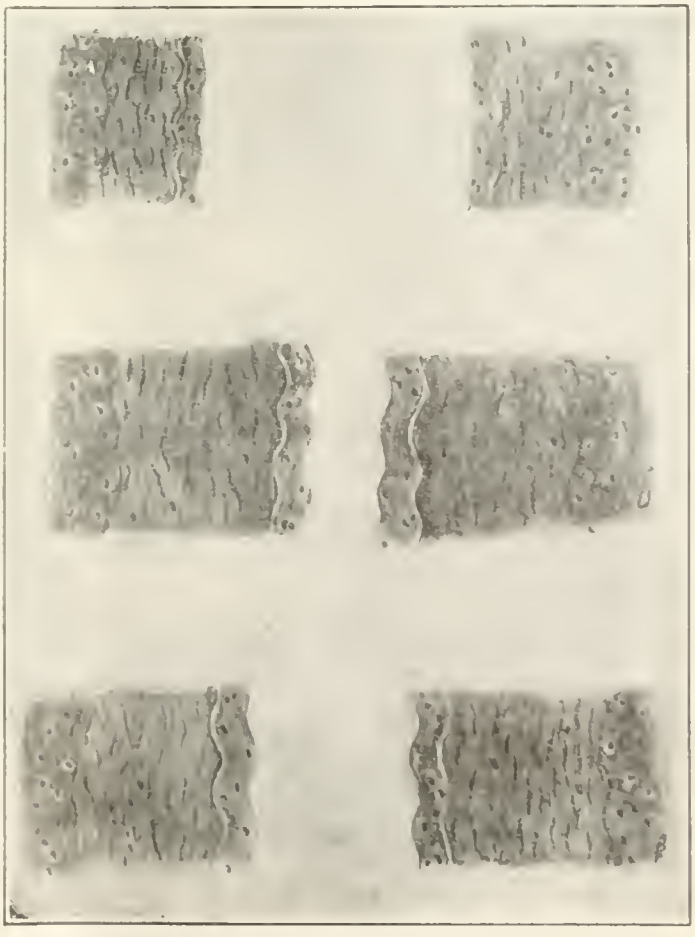

Fig. 5.—Hypertonia vasorum with hypertrophy of the media: upper line, section of normal artery; middle, artery with hypertrophy of the media, contracted; lower, the same relieved of hypertonicity.

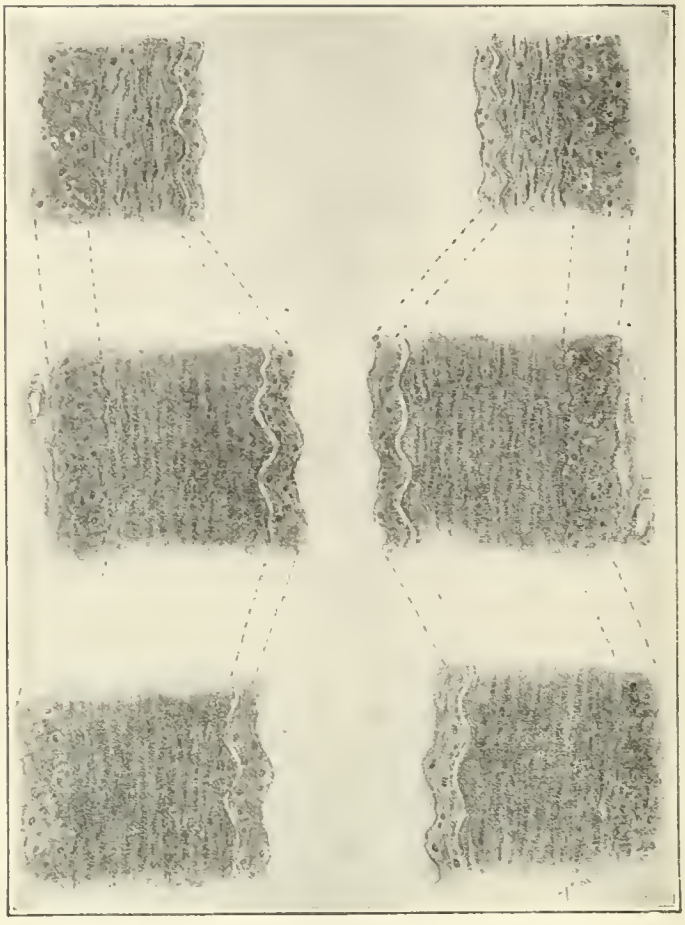

Fig. 6.—Hypertonia vasorum with hypertrophy of the media and sclerosis; upper line, section of normal artery; middle, artery with hypertrophy of the media and sclerosis, contracted; lower, the same relieved of hypertonicity.

posite effect, the heart becoming more and more relaxed, the contraction diminishing in size till the heart stands still in diastolic relaxation. Just as certain portions of the musculature have certain functions more highly developed, it would not be unreasonable, as Gaskell says, to expect that different parts of the heart should vary in their tonicity. That this expectation is justified will be manifest when all the symptoms of heart failure are considered, and it is only on recognizing that the heart possesses this very important function that we can understand some of the most significant features of heart failure.

Coordination of Functions.—When the complicated action of the heart is considered, it will be readily recognized that though all the fibers may be endowed with these functions a further specialization is necessary for the coordinated movement of the different parts of the heart. If all the fibers were equally endowed, then all would contract simultaneously. As it is, certain fibers at the venous end have the functions of stimulation and excitability more highly developed than others, so that after a brief period of rest the contraction starts in them. The stimulus proceeds then to adjoining fibers in such a manner that the process of stimulation and contraction sweeps over the whole heart, with the result that the different chambers and different parts of each chamber contract in that order and degree necessary to the efficient carrying on of the circulation.

Characteristics of the Functions of the Heart Muscle-Fibers.—While the heart may be said to carry on its work in consequence of its possession of these functions, there are other important features in each which have a practical bearing on the symptoms of disease and the principles of treatment. The integrity of these functions depends upon the supply of suitable nutriment and sufficient time of inactivity to recover after their exercise. When a contraction takes place, all the functions have been exercised to the full extent of the power possessed by the fibers at the moment of stimulation. No heart cell exhausts only a portion of its functions; when stimulated it uses all the energy which it possesses (all or nothing). For a brief period after their exercise, the functions cease to exist; recovery, however, begins at once during the period of rest, and each function in time regains its strength, so that, within certain limits, the longer the delay the more complete the recovery, and the more efficient is the subsequent action. It is by fully appreciating the effect of rest and proper nourishment that we gain the best conception of the principle that should underlie our treatment of heart failure. While all the functions when exercised use all the force they possess, they nevertheless manifest a quality whereby they can respond under certain circumstances, with a greater activity. Thus the rate may be suddenly increased and at the same time the stimulus passed on from the auricle to the ventricle with increased rapidity, and the contraction be executed the quicker. These changes are to a great extent under the control of the

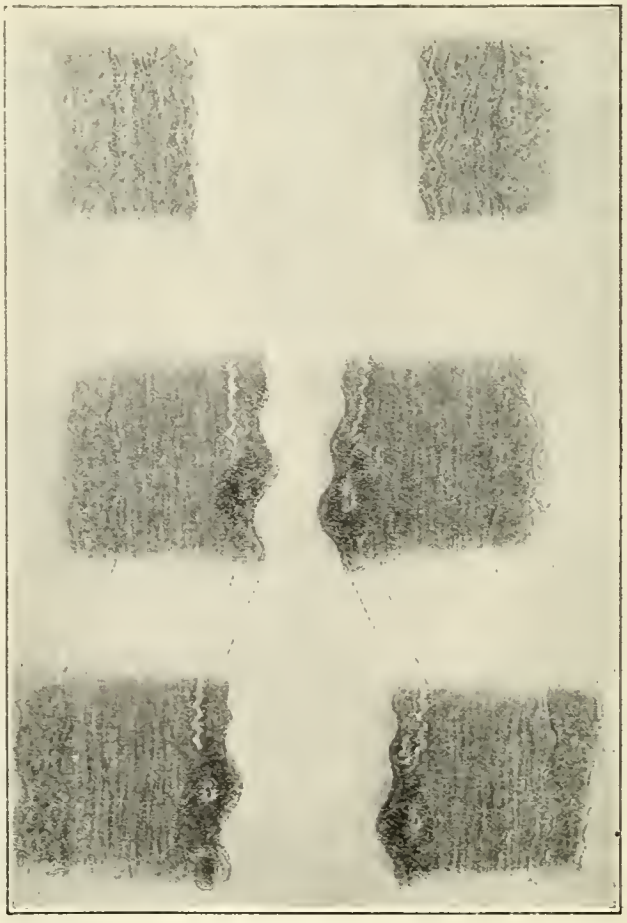

Fig. 7.—Hypertonia vasorum with hypertrophy of the media, sclerosis, and atheroma; upper line, section of normal artery; middle, artery with hypertrophy of the media, sclerosis, and atheroma, contracted; lower, the same relieved of hypertonicity.

nervous system, but they imply a quality possessed by all these functions which is of vital importance in study of the failure of the heart.

When one reflects that all the fibers of the heart are not equally endowed with the same functions, and that all the functions may not always be exposed to an equal strain, it is but reasonable to conclude that conditions may arise where they are unequally affected. As a matter of fact, that is what commonly happens, and it is an interesting and important question to consider in each case of heart failure what functions are specially at fault."

Passing from the functions of the heart muscle to those of the blood-vessels, we find that the function of the cells of the median or muscular coat of the blood-vessels which is of the greatest present importance, is tonicity, although I venture to believe that after a while we will eventually be able to understand the relation between arterial disease and the other functions, such as excitability, conductivity, and contractility.

It is certainly true that the muscle-cells of the blood-vessels are just as capable of acting independently of the nervous system as are those of the heart. So we shall probably have to add the property of stimulus production. At present, however, I have found in clinical work, the most useful classification of arteriosclerosis, using the term in the broadest sense, to be founded upon tonicity of the median coat.

The preceding diagrams attempt to show my own mental picture of the condition of the blood-vessels before and after successful treatment.

The first diagram represents hypertonus vasorum with atheroma, showing the effect of hypertonicity and the condition of the artery when this is relieved. Atheroma occurs almost as a certain event in the history of nutrition, as life advances. It may exist for years without any effect on the individual, as the diagram suggests, but if hypertonic contraction complicates it, serious results follow.

The second represents the condition of the arteries found in neurasthenia and from depressing diseases, which may be of toxic origin, and consists of a relaxation of the median coats of the blood-vessels. I have labeled it hypotonia vasorum. The diagram shows a section of the normal vessels, a section of the vessel when dilated, and a section of the vessel when restored. This condition must be familiar to all clinicians, and represents a temporary loss of tonicity of the blood-vessels. In shock of sudden onset, I believe this is always primarily present, but that if the heart is profoundly affected it is soon replaced by a compensatory hypertonus that gives the high blood pressure reading that has led to so much confusion.

The third diagram shows a simple hypertonicity of the muscle-cells of the median coat, the condition just mentioned as coming from shock. It represents physiological reflex to create the blood pressure that is required in the body. It is also supposed to be caused by direct action of the toxins of the blood-vessels, but this seems to us doubtful. It seems certainly to be caused by conditions of the nervous system. In this class of cases, the vessel is healthy in structure though disordered in function.

The fourth diagram represents hypertonicity of the muscle-cells of the median coat in simple sclerosis. This is a very important division because the diagram illustrates the effect of relaxation of the median coat on the caliber of the artery which may result from appropriate treatment.

The fifth diagram shows hypertonus with hypertrophy of the media. This condition is accompanied by hypertrophy of the heart and is a frequent association of those cases that are gone on to cardiac dilatation. It is the most serious lesion of the blood-vessels, and is ordinarily accompanied by an increase of the connective tissue and other lesions, as is shown in subsequent diagrams.

The sixth diagram shows hypertrophy of the media, with sclerosis; (*a*) a normal artery for comparison; (*b*) the artery contracted; (*c*) the artery with its hypertonicity relieved.

The seventh shows the same relative conditions with hypertrophy of the media, sclerosis, and atheroma.

It has seemed to me in clinical work that cases of arteriosclerosis, using the term in the broad sense covering all forms of arterial disease and degeneration, could be divided into groups corresponding to the changes shown in these diagrams, and that in all of them the important element to be considered is the condition of the fundamental functions of the muscle-cells, particularly the function of tonicity.

I am sure it is very easy to pick out among people with poor circulation from nervous and exhausting conditions, plenty who are distinctly suffering from loss of tone of the blood-vessels. It is likewise easy in clinical work to detect hypertonicity of the arteries. The small, cord-like, radial pulse, the high blood-pressure reading, often under conditions of heart failure, and the toxic appearance, all make hypertonicity easy to diagnose.

The onset of sclerosis in a case of arterial disease is not always so easy to prove, still quite early in the disease the pulse, the tortuous and visible temple arteries, the thickening of the artery at the wrist (when it is not contracted and the tension is not high), the symptoms of impaired circulation in the viscera, and the tendency to albuminuria, make at least a fairly clear diagnosis.

Atheroma of the arteries is easily detected in the arteries that can be palpated, by the existence of nodular irregularities; but barring the danger of accident from rupture, this lesion is not so important as sclerosis.

Hypertrophy of the media is the most important lesion in many cases, and it is to be suspected where there has been long-continued high pressure with hypertrophy of the heart. When it has developed, it is often extremely difficult to control the blood pressure. It is to be detected by a thickening of the artery which is more marked than in sclerosis. It is often a nice question to decide how much a thickened artery is due to fibrous tissue and how much to a contracted, hypertrophied median coat.

While cases are not infrequent in which these lesions, viz., hypotonicity, hypertonicity (both purely functional), sclerosis (by itself), atheroma (by itself), and hypertrophy (by itself), can be easily diagnosed by a little consideration, yet more frequently, we have combined disorders and lesions.

Hypertonicity leads to sclerosis and hypertrophy of the media, and as age advances or some diatheses comes into play, atheroma is apt to be engrafted on the already diseased artery.

A case with hypertonic contraction in the presence of sclerosis, atheroma, and hypertrophy of the media, is often difficult of interpretation; but when such a case through some mischance, suffers a loss of tone in the muscle-cells of the blood-vessels, then indeed we have a puzzling train of symptoms, for no matter how diseased the artery may be, short of certain

freak cases, where the arteries are actually calcified, there still remains a possibility of pathological relaxation.

Having thus traced the functions of the muscle-cells of the heart according to the Gaskell and Mackenzie teaching, and having submitted my own classification of blood-vessel disorders, founded upon an extension of a recognition of these functions in the cells of the blood-vessels, I submit the subject to the meeting, hoping that those who follow may particularly trace the therapeutic indication of these theories; for, as I said in the beginning of my paper, it is the treatment of disease that most concerns the physician and the patient.

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EARLY TREPHINING FOR SEVERE INJURIES OF THE SKULL WITH A REPORT OF CASES OPERATED UPON.*

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At the Lebanon Hospital, in the service of Dr. Parker Syms, all cases of severe injury to or over the vertex of the skull, with or without scalp wounds, are explored for fracture and all fractures are explored for depression. By severe injury is meant such cases in which the clinical history shows the traumatism to have been a violent one, and in which the symptoms, such as unconsciousness, pupillary reaction, vomiting, changes in character of pulse, and focal signs, have been present or exist at the time of admittance into the hospital. Cases in which there is a suspicion of injury to the cranium or its contents, even without lesion of the soft tissue and presenting no immediate symptoms referable to a lesion of the brain or its membranes, are held for observation, as it is well known that fracture as well as hemorrhage may exist even with the absence of typical signs.

In the course of two services, of a period of six months each, extending from November 1, 1907, to May 1, 1908, and November 1, 1908, to May 1, 1909, quite a number of traumatic injuries to the skull presented themselves. In speaking of traumatism to the skull, I include fractures simple or compound with or without depression, accompanied or followed by hemorrhage or inflammatory conditions of the brain or its membranes.

In some suspicious cases, later symptoms developed which required trephining and the operative findings showed the necessity of keeping such patients under strict observation.

It is true, patients with apparently trivial injuries to the skull and with no immediate symptoms, refuse to remain in the hospital and so we are not aware of the ultimate outcome of these. There is no doubt that a goodly number of such subsequently develop serious intracranial lesions and symptoms, as the literature abundantly shows.

In cases in which we have trephined for seemingly trivial injury, serious conditions existed either in the skull or its contents. In every case of trephining which we have made, the ultimate outcome, as regards operative interference and result, has been successful, and in no suspicious case did we regret making an exploratory operation. No case of exploratory operation ended fatally, developed meningitis or sepsis—in fact, every case ran a favorable course and was well at the end of ten days or two weeks, with primary union of the wound.

From our experience the expectant treatment of rest, purging, and local applications of cold, as taught in the text-books, is less advantageous, and does not give the same hope of relief or of saving life. We know today that severe cerebral injuries are amenable to surgical treatment, and therefore all cases of severe head injury, whether the diagnosis of fracture is made out or not, associated with grave cerebral symptoms, should be promptly subjected to operation as a safer course rather than the uncertain, hazardous expectant treatment. The immediate danger to a patient, after severe injury to the head, arises from compression due to extravasated blood; therefore, early relief should be instigated by means of the trephine.

Of the patients with compound fractures operated upon, only two died and in these the skulls were so crushed by the blows of a blunt weapon inflicted for the purpose of murder, that both frontal and parietal lobes of one side of the brain were lacerated and exposed to view by the large gaps made in the skull. In both these cases (mother and daughter) the injuries were on the left side and nearly similar in extent. Only the removal of the many fragments of crushed bone and excision of the lacerated brain tissue, with thorough cleansing, was made at the time of the operation. Both these patients were moribund when brought to the hospital, and both ultimately died on the fifth day from encephalitis notwithstanding the thorough aseptic treatment of the many and large wounds in the brain. The only other death in this series of 14 cases operated upon, was one in which I did a Cushing's subtemporal decompression operation, on both sides, with drainage for a simple bursting fracture of the skull involving vertex and base. The operation revealed an extensive fracture of the whole skull, with large epidural and subdural hemorrhages. My regret in operating in this case was only that I waited one week before I trephined for the relief of the pressure symptoms produced by the extensive hemorrhage. Perhaps if we had not waited so long the outcome might have been different. Cushing says "that in any serious cranial injury, in which unconsciousness has been present from the first, subdural bleeding is taking place either from the fracture itself or from some laceration of the brain. One cannot hope to disclose the oozing which may be taking place, but the chief indications in the face of compression symptoms are to bring relief by decompression and to furnish means of exit for the extravasating blood." One should not wait too long as delay in trephining is dangerous, because then the brain has been subjected to such pressure that destruction to its delicate cells and nerve fibers is inevitable. Continued increasing pressure leads to fatal anemia of the medulla. The results of all the cases of trephining which we have made, have shown us that insults to the brain and meninges by explorative puncture or incision, are well tolerated if done with strictest attention to aseptic precautions. Even extensive traumatic lacerations of the brain tissue are amenable to treatment. It is true that meningitis does not offer much hope to operative treatment, yet drainage is sometimes successful and not entirely hopeless, as one of our cases has shown, but, as said before, perfect asepsis in operation must be obtained by adhering rigidly to the most modern methods of surgical cleanliness.

*Read before the Medical Society of the Borough of the Bronx, November 10, 1909.

Technical skill and rapidity of operation are important requisites.

In operations for simple fracture with depression or with hemorrhage, the difficulties do not lie in gaining access to the cranial cavity, but frequently lie in the impossibility of making an exact preoperative diagnosis of the lesion. The diagnosis of fracture or laceration and hemorrhage, especially its extent; is more or less conjectural unless the injury is of such a nature as to allow inspection. Our results have shown that exploratory operations are not of doubtful expedience if one analyses accurately the history of the traumatism and the preoperative status and clinical picture of the patient.

In scalp wounds, with merely linear or fissure fracture without apparent depression, trephining has probably saved the patients from bad consequences, as many of these linear and fissure fractures of the outer table were complicated with comminuted of splintered fracture of the inner table. Infection and its consequences, meningitis and encephalitis, were more certainly stayed by operative interference. The elevation and removal of these comminuted and depressed pieces of the inner table prevent, in all liklihood, the development at some later time of epilepsy or other brain manifestations, for such symptoms do not always show themselves directly with the traumatism, but not infrequently are delayed. It is true that compression by blood or bone or laceration of the brain may be in some silent area and does not present focal symptoms at once, and thus, it may be said that where no exact or positive diagnosis of the lesion can be made, no operative treatment is rationally indicated. This is not altogether true. These are just the dangerous cases. The absence of immediate focal symptoms lull us into a false hope of security; meanwhile, changes of serious nature may be taking place in the interior of the skull. There is no doubt that there are many cases of depression of the inner table of epidural and subdural hemorrhage, presenting no immediate symptoms to warrant operative interference which presumably lead to spontaneous recovery. But there is no denying the fact that there are as many others which equally end fatally. Who knows that these presumably recovered cases will not have circulatory or destructive changes in the cerebrum in later life, due to the pressure sustained by the clot or depressed bone? The longer cerebral compression is allowed to continue, the greater the danger to the elements of the brain tissue. Pressure produces circulatory disturbances, causing hyperemia, then thrombosis of pial vessels, and ultimately degeneration of the cellular elements of the brain, with all its concomitant disturbances. This, therefore, makes the plea for instigating timely operative procedures the more imperative before such changes have taken place.

Medical literature abounds with cases in which patients have suddenly developed a change in their temperament from no assignable causes, or developed peculiar muscular twitchings or epilepsy, or have died suddenly, and the autopsy shows an old lesion of the brain or skull which, on careful inquiry into the past history of the patient, elicits some apparently trivial injury to the head that the patient had sustained sometime previously. Under such circumstances, the operative interference in all doubtful cases of depression of the inner table or hemorrhage is all the more impressive. There is no undue risk in trephining linear or fissure fractures, if strict aseptic precautions are taken. The *noli me tangere* principle may be followed by the development of focal symptoms years later. Blood clots may change to cysts. The pressure of cysts may lead to chronic cerebral irritation or fibrosis of the brain tissue, resulting in epilepsy or change in the mental condition.

That supradural or subdural compression is a contributing factor in the production of cerebral symptoms, is evident in many instances by the abeyance of these symptoms resulting from the elevation of bone or removal of clots.

Although the location of the hemorrhage, whether epidural or subdural, cannot always be directly established, yet the mere fact of trephining affords room for the expansion of the compressed cerebrum, and thus avoids compromising important vital vasomotor or respiratory centers. In recognized or suspected hemorrhage, there is no question about the necessity of operative interference. Procrastination is serious as death is imminent.

The few conditions resulting from traumatism either to the calvarium or its contents, namely fractures with or without depression, hemorrhage, serious effusion or laceration of the brain or its meninges, are therefore limited. The most important factors in determining us to make a presumptive diagnosis so that we may promptly arrive at a conclusion are: (1) History of severe injury to skull; (2) State of consciousness; (3) Condition of pulse and its rate; (4) The arterial tension; (5) The temperature; (6) Focal symptoms if patient is conscious; (7) Later headache localized or diffuse, and finally choked disc.

In our judgment, the majority of cases, with the history of severe head injury, with more than one of the above-mentioned factors, warrants operative interference if life is to be saved or future complications or sequelæ avoided. Of course, whether to operate early or to wait is a question upon which surgeons may differ. Is it more detrimental to the patient to operate than to wait for more urgent symptoms? Is there more risk from the shock of the operation than from the existing conditions? The indications are clear in many cases, but it is the border-line ones which tax our judgment. To wait until the onset of such symptoms, as are indicative of destructive conditions, adds only reproach to surgery, for then it is too late. One should bear in mind and recognize the serious consequences which may arise in unoperated cases, and appreciate the gravity of infection, of hemorrhage and pressure. A definite suspicion of intracranial lesion from our experience warrants exploratory operation. The institution of operative procedures immediately following the establishment of some lesion seems to me to be imperative. As said before, there is no undue risk in trephining, if strict aseptic precautions are taken. It is difficult and frequently impossible to distinguish clinically epidural from subdural hemorrhage or serous effusion, but each, to my mind, require trephining from the fact that the opening in the skull relieves pressure and affords room for the expansion of the compressed cerebrum.

Epidural hemorrhages are easily accessible, the operation for the same does not involve much risk, while the subdural ones are much more serious as they involve the greater liability of cerebritis and hernia, but the dangers of hernia and encephalitis from opening the dura are controllable and are

minimized by strict asepsis and careful closure of this membrane.

Recognizing and appreciating the serious risk of pressure from blood, bone, serous effusion, or edema of the brain itself, besides the great dangers of meningitis and encephalitis, relief should be early and promptly applied. The technique of craniotomy is simple and the cavity of the cranium can, under strictest asepsis, be invaded with as great impunity as any of the other of the body.

Having acted upon the statements and reasons, as set forth in this paper, it would perhaps be interesting to give a brief record of a number of cases operated upon, the findings of which conclusively proving that the operative procedures undertaken were in every instance indicated.

Case I.—J. P., aged 8, was admitted to the hospital January 11, 1908, with the history that half an hour before he was kicked in the head in the left temporal region by a runaway horse. He walked into the ambulance and on admission walked from the ambulance to his bed. He remembered everything and was not unconscious until an hour after admission. There was no bleeding from the nose, mouth, or ears. The pupils were equal, moderately dilated and reacted to light and accommodation. There was felt a slight depression about 1½ inches above and a little external to the left eye which extended upwards and backwards over a circular area about one inch in diameter. The skin was unbroken. Pulse was regular, fairly rapid, 100, temperature 98.6°, respiration 30. No paralysis, no loss of sensation, and lower reflexes normal. He vomited once in the hospital. One hour after admission patient had a tonic convulsion, lasting ten minutes, with head and eyes drawn to right and arms compressed against abdomen and legs drawn up. The convulsions were general.

Two hours after he received his injury I made a cross incision over the depression and found a comminuted, funnel-shaped depressed fracture, the fissures of the fragments radiating in every direction to a circumferential area, the diameter of which was about two inches. The depressed fragments had a larger circumference on their inner table than the outer ones and so were not easy to be raised. The fragments were carefully removed. The anterior branches of the middle meningeal artery and vein were exposed and some oozing from the dura was controlled by packing. There was an epidural clot which was removed. Some irregular elevation of the dura was noted and a small incision was made into it, liberating a considerable amount of clear cerebrospinal fluid, which was under such great tension that it spurted several inches into the air. The incision was then closed with fine catgut sutures. Most of the oozing had then ceased, but some blood still persisted to flow from some part of the middle meningeal vein which I controlled by passing through the dura a catgut ligature threaded on a small needle. Gauze drains were inserted and the scalp wound closed by numerous silk-worm gut sutures. The highest temperature was 100° and pulse 120 on the next day. The drains were removed on the fifth day and on the tenth day, an absolute primary union throughout the whole incision was found. There never was a symptom following the operation that indicated involvement of motor area—either irritation, muscular twitchings, or spasm. A noteworthy feature of this case is that we had to deal with a case of comminuted, funnel-shaped, depressed fracture of skull, with serous exudation under dura, without laceration of the brain, and without a lesion of the overlying scalp.

The boy made a perfect recovery. Had we waited and used the expectant treatment in this case, one can readily see what the consequences might have been. Constant oozing of blood without an exit would surely have produced fatal compression symptoms. Commencing intracranial pressure was evidenced by the force with which the cerebrospinal fluid was ejected after the incision into the dura.

Case II.—L. F., age 6 years, fell down a flight of steps, head first, and was picked up semiconscious and brought thus into the hospital. He did not vomit. The pupils were equal, moderately dilated, and reacted to light and accommodation. No hemorrhage from nose, mouth, or ears. Pulse was irregular, very rapid, of fairly good force and tension. On the head were found four scalp wounds, situated over the left parietal and occipital regions. There was a compound and depressed comminuted fracture of the vault near the posterior and upper border of the parietal bone; another compound linear fracture on the anterior part of the parietal bone; also a linear fracture from the depressed comminuted fracture passing down to the occipital bone where a compound stellate fracture was found. At the site of the comminuted fracture lacerated brain tissue presented through the wound as a hernia cerebri, about a teaspoonful being on the dressing. One hour after admittance I enlarged the scalp wounds by making cross incisions and by trephine and rongeur forceps removed the depressed spicula of bone over an area larger than a silver dollar. The protruding and lacerated brain (about a good-sized tablespoonful) was removed, the dura sewed over, and a small opening left for the insertion of an iodoform gauze drain. The other fractures were explored, cleaned, and drained, and the scalp wounds closed. Five days after the operation the scalp wounds were found to have healed by primary union, and three days later the drain to the brain tissue was removed, and the small opening allowed to close. At no time did the temperature rise higher than 100°. During the child's convalescence he showed absolutely no ill effects of the traumatism to his brain. His special senses were intact, he had no meningeal or cerebral symptoms, and from the time of his operation, January 21, 1908, up to the present day, no impairment of mental faculties. This I attribute to the lesion being in a silent area of the brain. The early operation, removal of spicula of depressed bone, excision of lacerated and protruding brain tissue, and free drainage, under strictest aseptic procedures, militated against infection and saved this little boy's life. It is conceded by all that in such conditions the only chance lies in early and prompt operation and thorough cleaning of contaminated brain tissue before infection has a chance to propagate.

This case illustrates that extensive lacerations of the brain and meninges are recovered from, if aseptically treated by surgical intervention, and shows that the brain is just as amenable to treatment as any other organ.

Case III.—On March 4, 1908, H. S., age 12 years, while on the third floor of a tenement, pulling up a dumbwaiter, received a blow from an iron bar which became detached from the top of the dumbwaiter-shaft and fell on his head. This so stunned him that he fell down the shaft from the third story to the basement. He was not uncon-

scious, bled profusely, was bandaged by a physician and sent to the hospital the next day. On admission the pupils were slightly dilated and reacted normally. He had a wound situated over the upper and posterior parietal region. At this point, a depressed fracture was made out. There were no cerebral symptoms. The wound was enlarged, and as the depression could not be raised, I trephined a little below the fracture and removed a small button of bone. The depressed bone was then cut away. The inner table was depressed and spicula of bone were found pressing upon the dura, so that with every pulsation of the brain the dura was subject to constant traumatism. These were removed, a gauze drain was inserted, and the skin flaps were closed. He was discharged cured, March 25, without an untoward symptom.

The condition found speaks for itself. Had this seemingly trivial depression not been explored, one can easily appreciate what the consequences would have been of a pulsating brain impinging constantly against the spicula of the depressed inner table. It also shows the importance of trephining every compound depressed fracture, no matter how slight the depression may be, or how insignificant the fissure may appear, for the slightest solution of continuity of the external table may be complicated by a larger or more serious fracture of the inner one.

Case IV.—F. A., age 39, was admitted November 24, 1908, with the history of having received various injuries in a fight in which the weapons used were a hatchet and razor. He was struck on the head and face with the hatchet. He was never unconscious and when brought to the hospital complained of pains over the wounds. He had no vertigo and did not vomit. His nose was completely severed from the face on the left side. The malar bone was broken but not splintered. The right side of the nose was intact. He had five scalp wounds on the head and lacerated wounds on the lip. The pulse was regular, of good force and quality. Pupils were equal and active, no twitchings or unconsciousness. Four of the wounds on the vault extended over the right side, one on the frontal bone, three on the parietal, the fifth over the left frontoparietal junction in the midline. The first wound was enlarged and found to be a compound depressed splintered fracture, situated on the posterior inner portion of the right parietal bone. The depressed fragments were removed with chisel and rongeur forceps. The fracture was an inch in diameter. Epidural clot removed. Dura not perforated and brain found pulsating. Gauze drain inserted to dura and scalp sutured to the drain exit. The second wound was in the middle of the right parietal bone, and was about three-quarters of an inch long. It was enlarged and a depressed splintered fracture found. The fragments were raised and dura found intact. Epidural clots removed, gauze drain inserted, scalp sutured to drain exit. The third wound was also about three-quarters of an inch long and situated over the outer posterior portion of the parietal bone, on the right side. This was enlarged, but no fracture found. The fourth wound was found extending from the left posterior middle part of the frontal bone to the inner anterior part of the right parietal bone. The vault was found to have had a fissured fracture involving the outer table only. Rubber tissue drain inserted. The fifth wound was over the right posterior portion of the frontal bone, about an inch long; it was enlarged and the vault showed a fissured fracture, also only of the outer table, which was explored. The scalp was sutured, with insertion of rubber-tissue drain.

This patient made a good recovery. The wounds healed by primary union, except at site of drain, which, when removed, closed speedily. The patient was out of bed and well after the tenth day and discharged cured.

Case V.—D. P., age 28, in a fight with the previous patient, whose case is recorded, was admitted at the same time, namely, November 24, 1908. He had two razor cuts on left side of neck, each about three inches long. The vault contained three scalp wounds: One in the posterior portion of the right parietal bone, about one inch long; another through the middle of the sagittal suture and another over the mid-anterior part of the left parietal bone. The pulse was regular and of good quality. The pupils were unequal; there were no twitchings or loss of consciousness.

The posterior wound was enlarged and a depressed comminuted fracture, about one inch in diameter, found. The depressed fragments of the stellate fracture of the inner table lifted from the underlying dura. Epidural clots removed and dura found intact.

The middle wound, just above the longitudinal sinus, was one and three-quarter inches long. It was enlarged and the vault found fractured and depressed to an area of one and three-quarters of an inch. A small piece of metal, wedged tightly, was gradually chiseled from the whole thickness of the skull, and when lifted out was found that it penetrated the dura. This piece of metal was a broken sharp edge of an axe, and measured about one-quarter by one-half an inch. The depressed fragment of the outer table was raised and the inner table found to have sustained a comminuted depressed fracture. The fragments removed and dura found perforated, gauze drain inserted, and scalp wound sutured.

The anterior wound was enlarged and skull found depressed at both outer and inner tables, to an extent of about three-quarters of an inch. Depressions were raised and fragments removed. The dura was exposed, clots were removed, a drain was inserted, and the scalp was sutured.

This patient, like the previous one, made an excellent recovery. The wounds all healed by primary union except where drains were inserted, but which also promptly closed when they were withdrawn. This patient was out of bed and left the hospital at same time as the other one. At no time did either of these patients show any disturbance of motor or sensory functions, neither did either show any meningeal symptoms notwithstanding the numerous and multiple depressed fractures pressing on the meninges. The tolerance of the brain and meninges to the numerous insults produced by the multiple depressed fragments and foregn body was apparent in these cases, but there is no doubt that the prompt and thorough aseptic operative interference contributed not a little to the successful outcome of both these cases, for pressure was relieved, the dura repaired and drained, and that bugbear of all operative procedures, infection, certainly prevented.

Case VI.—On December 31, 1908, while at play, J. G. was shot in the forehead by a 22-caliber revolver. He was immediately brought into the hospital in a semi-comatose state, with apathetic facies. The eyes were normal, no inequality of the pupils, no subconjunctival hemorrhage, and no convulsions. His reflexes were normal; the pulse 100, of fair

force and regular. A little to the left of the median line, over the nasal portion of the frontal bone, was a small perforated wound, about the size of a pea, from which there exuded blood and a whitish-gray substance, presumably brain matter. There was no other wound in the skull. An aseptic dressing was applied. On the next day, January 1, pulse became irregular, and patient was drowsy during the whole day. On January 2, in the morning he seemed brighter, but in the afternoon became drowsy again. On January 3, he was restless, but seemed a little brighter and talked several times. Meningeal symptoms then commenced to show themselves. He was very restless during the night, complained of severe pains in head and neck. Temperature 101°, pulse 56, respirations 28.

On January 4, the boy was drowsy, had flushed face and complained of pain in gluteal regions. Pulse irregular. He was then seen by Dr. Syms and by Dr. Leszynsky, neurologist to the hospital. There was no evidence of paresis. There was slight rigidity of the posterior cervical muscles. Both knee-jerks were slightly accentuated and Kernig's sign was well marked. Plantar reflexes normal. Visual field normal. Temperature 103°, and evidence of meningitis being well marked. At the suggestion of both Dr. Syms and Dr. Leszynsky, it was thought wise to trephine the original wound of entrance so as to drain more thoroughly. Accordingly, it was enlarged to about two inches and a one-quarter inch perforation exposed in the frontal bone. Small spiculæ of bone were removed by gouge and chisel. In doing so there was a sudden gush of dark blood in a steady stream; no spurting and supposedly an accessory straight or longitudinal sinus was perforated. This was quickly packed with iodoform gauze, which also acted as a drain for the laceration in the brain, and a dry sterile dressing applied. From that time on his temperature dropped until the 15th day, when it was practically normal, while during this time all his meningeal symptoms gradually disdisappeared. He was kept in the hospital, however, for observation until February 12. The bullet is lodged, as one can see from the radiograph, in the cerebrum, and has in this situation never produced in the boy the least changes either in his mental faculties or special senses, nor caused any motor or sensory disturbances.

It is very remarkable that a 22-caliber bullet, passing through the brain, should produce no focal symptoms or leave any permanent defect. To attempt to remove this bullet while it is lying in this silent area, where it is causing no disturbance, may produce more harm, by hunting for and extracting it from normal surrounding brain tissue, than it is doing in its quiescent state. Small foreign bodies, it is well known, have become encysted in the brain and have remained there without causing the least disturbance to cerebration. The boy goes to school, is carefully observed, and should the slightest evidence of any effects of the foreign body show themselves, operation for the removal of the same would then be imperative. I think this case can be regarded as a triumph of surgical intervention for the relief of an incipient meningitis.

Case VII.—On the day of admission, February 20, 1909, J. S., age 13, was struck by a truck while roller-skating and thrown to the ground with quite some violence, his head receiving the brunt of the fall. He was picked up unconscious and brought in this state to the hospital in the ambulance. There was no wound on the scalp. The pupils were unequal, the left contracted, they reacted to light, but not to accommodation. There was no subconjunctival hemorrhage. The boy was pale, his respiration superficial and sighing. Pulse slow, full, and bounding. Kernig's symptom was present on both sides and slight rigidity of neck muscles was apparent. The next day patient was very restless, and had to be catheterized. The pulse and unconsciousness not improving, and finding a small area at the junction of frontal with the parietal bone, which felt like a depression, an exploratory incision was made over this region. The incision was about two inches to the left of the sagittal suture. The bone was exposed and a depression about the size of a silver dollar was found, which was trephined, and the depressed bone removed. Pulsation of dura was evident. From this depression fracture a fissure fracture, 1-16 inch wide, extended posteriorly to the occipital region, from which there was quite a deal of bleeding. An incision was made in the dura, but no subdural hemorrhage found. It was closed with interrupted catgut sutures and a rubber tissue drain placed over the whole length of fissure fracture, and a gauze drain over the dura incision. The next day the boy was restless, but took nourishment, and seemed brighter towards evening. For the next few days was noisy and restless, but responded when spoken to, and on February 24 voided voluntarily for the first time. From now on the cerebral symptoms gradually improved. On February 26 wound was dressed. On February 28 signs of croupous pneumonia were evident. This complication ran its course, with high fever, until crisis set in on the ninth day. On March 11 the wound was found entirely healed, and only for a little weakness, the boy was entirely well and made a perfect recovery, both from his craniotomy and complicating pneumonia.

Immediate explorative incision of the scalp, in the region of the injury, revealed a depressed and fissured fracture, from which there was quite a deal of hemorrhage which had no outlet. In spite of the absence of a lesion in the scalp, infection may have taken place (especially in this case by the pneumococci), with all its dire consequences. In severe traumatism to the skull, one should not ignore the possibility of a fracture over a suspicious spot, for, in many cases, there will be revealed on the exposed skull a serious lesion. Drainage, no doubt, sufficed to ward off the consequences of the systemic pneumonic infection.

Case VIII.—Nicholas B., age 14, on February 26, the day of admittance to the hospital, was hit by one of his playmates, with a stone about the size of a brick, which struck him with extreme force on the left side, back of his ear. He fell to the ground, but immediately rose and ran to a physician who sent him to the hospital. He was never unconscious or irrational, and remembered all that occurred. There was quite some hemorrhage from a gaping wound, which was on the scalp, in the left occipital and temporal region. Through this wound there was felt a depression of the skull. There was no bleeding from nose, mouth or ears. The pupils were equal and reacted normally. There was no rigidity. Pulse full and bounding. No Kernig, no ankle clonus.

The wound in the scalp was enlarged by cross incisions, and a depressed, splintered fracture, about the size of a quarter of a dollar, was found. Dirt, small bunches of hair and lacerated pieces of scalp were removed from the lacerated brain

and six loose fragments of bone which had been driven into the brain substance proper, to a depth of about one-half an inch, by the force of the blow, were removed with forceps, after the skull wound had been enlarged with rongeur forceps. There was quite some hemorrhage, which was easily controlled by compresses. An iodoform drain was inserted and scalp wound closed to the drain.

The boy made an uninterrupted recovery, was sitting up in bed reading a book the next day after the operation without the slightest rise of temperature, and was discharged absolutely well at the end of two weeks. The successful outcome must be attributed to the early operative interference, thorough cleansing and removal of all foreign substances, with thorough and adequate drainage, thus eliminating as far as possible all source of infection. Extensive, lacerated wounds of the brain, even when contaminated—such as the one above recorded, are just as amenable to prompt surgical intervention as extensive injuries to other tissues of the body.

Case IX.—Louis G., age 30, admitted March 29, 1909, with the history of having fallen off the seat of a wagon, striking his head on the ground. He was unconscious, and was in this state when brought to the hospital in the ambulance. There was a hematoma on the left side of the scalp. The pupils were equal and reacted to light only. There was no hemorrhage from the ears, nose, or mouth, or ecchymosis under the eyelids. The pulse was 42, bounding, and of high tension. He vomited twice, was very restless. Ankle clonus and Kernig's sign were present. This unconsciousness continued all day. The pulse remained low and restlessness increased. At 9 P.M., a horseshoe incision was made over the region of the hematoma, and the flap retracted. The coronal and sagittal sutures were found burst asunder to about 1/16 of an inch, with blood oozing from the separated bones. The beginning of a fissure fracture was found in the right parietal region, about three inches behind the frontal bone. In order better to expose this fracture, an incision in the scalp was carried across the right side anteriorly, also one posteriorly, the flap retracted, so that the right parietal bone could be exposed. The fissure fracture was then seen to start at and running at right angles to the sagittal suture, across the parietal bone. The skull was trephined over this fissure at about three inches from the midline and an epidural clot found. The bone was bitten away, so that an exposure of about 2½ inches long and 1½ inches wide was made. The large epidural clot was about 1/16 of an inch thick. This was removed as far as possible from under the edges of the large defect. Dural pulsasations were observed. It was, nevertheless, incised, no blood escaped, but instead free cerebrospinal fluid, under quite some pressure, spurted from the incision. The dura was then closed with interrupted catgut sutures. Two small rubber tissue drains, placed on dura, one in the lower and one in the upper corner of the wound. Dura covered with iodoform gauze drain, and scalp sutured.

The next day the patient was very restless, vomited, and voided involuntarily. Towards evening he became quieter and was rational for a short time. His pulse ran between 52 and 64. The second day after the operation he recognized his wife and responded to questions. During the next few days the pulse ranged from 56 up to 80, he became gradually brighter and gradually regained his normal mental condition. On April 5 the dressing was changed, and wound found healed by primary union. Outside of a headache the man never had a focal symptom, and was discharged well, May 1.

Complete and continued unconsciousness, with a slow pulse and history of severe traumatism to the skull, were indicative symptoms to explore over the hematoma. A separation of the coronal and sagittal sutures—in other words, fracture by diastasis, is rare. In adults it is more than a separation, as the union is firmer than in the young and separation cannot occur otherwise than by a break. Thus, this was an extensive bursting fracture of skull, with epidural hemorrhage, and was only revealed by exploratory operation. From the history and clinical symptoms present, no one will question the propriety of an exploratory operation in this case.

Case X.—Geo. N., age 11, on April 5, 1909, while playing in the street, was struck by an automobile which threw him to the ground. His head struck the pavement with considerable force. He remembered nothing following the immediate accident. He was unconscious up to one-half hour after having been brought to the hospital by the ambulance. About an hour after this he developed a convulsion. Both arms and hands were involved in the convulsive movements. After persisting for about half an hour they subsided, to be succeeded by intermittent contractions of the right upper extremity. The lower limbs were not involved. He regained full consciousness about three hours after admission. There was no bleeding from nose, mouth, or ears. The scalp showed no laceration. A hematoma, situated at the left parietal and frontal region about the size of a goose egg, was found. No depression could be made out. The pupils were equal and reacted to light only. No subconjunctival hemorrhage, no rigidity of neck. There was slight ankle clonus and Kernig's symptom was present. He vomited a few times, the vomiting being projectile in character. After regaining consciousness, he was fully aware of his surroundings.

From the history and clinical symptoms, four hours after his injury, I decided to make a local scalp exploratory incision. An incision was made over the hematoma. A fissure fracture was discovered, extending from about the fissure of Rolando anteriorly across the coronal suture to the frontal eminence. The bone was trephined about one inch to left of median line and one inch anterior to the coronal suture, and a button of bone removed, about the size of a silver dollar. The dura was found bulging and not pulsating. It was opened by an incision, one inch long, running downward and outward. There was escape of free blood, a little darker than arterial blood, and a small clot removed from the surface of the brain. The dura was closed with fine interrupted catgut sutures and a rubber tissue drain inserted to the brain under dura. Dura was covered then with an iodoform gauze drain, and both it and the rubber tissue drain were drawn through a counter opening in the scalp, and another rubber tissue drain placed along the course of the fissure fracture; the scalp was sutured. The next day ecchymosis and swelling around left eye appeared. The boy looked drowsy, but had no focal symptoms. He vomited twice. The day following ecchymosis and swelling around right eye appeared. Subconjunctival hemorrhage was now evident. Temp. 100.2°, pulse 100.

On April 9, the drain from the brain was removed. From this day on the temperature gradually dropped to normal and pulse never went higher than 96. He was perfectly rational, slept and ate well, and on

April 12, seven days after operation, all sutures were removed, and primary union obtained. At the end of two weeks patient was out of bed, walking around perfectly well. Notwithstanding the fissure fracture of the vault, with subdural bleeding, and clot and fracture at the base in the anterior fossa, as evidenced by ecchymosis and subconjunctival hemorrhage, the boy never had any further evidence of interference in cerebration, neither did he show any further focal symptoms, either motor or sensory.

Early operation in this case evidently shows that the removal of a subdural clot and drainage of the subdural space caused an abeyance of the irritation to the motor tract over which the hemorrhage had taken place. The blow to the cranium must have torn some pial vessels causing the hemorrhage, and had not relief been early instigated for drainage and control of the hemorrhage, increased bleeding would, in all likelihood, have caused increased pressure over a larger area of brain and compromised more motor centers, with probably irritation and finally irretrievable destruction of the same. Exploratory scalp incision revealed a fracture. Exploration of the fracture revealed a bulging of the dura. Exploration of the dura revealed a subdural hemorrhage and permited its control.

All these explorations, under aseptic precautions, were safe, and the positive findings certainly demonstrated the value of early trephining. We not only were able to save the life of a patient, but probably averted future paralysis and changes in temperament or disposition.

There was another case in this series, operated upon with recovery, but as the fracture only involved the outer table of the frontal bone, produced by the kick of a horse, the case is not recorded as the cavity of the skull was not invaded and the brain not exposed by operative procedure.

That none of these cases became infected, must be attributed to the absolute adherence to the strictest rules of aseptic surgery. Apparently the good results were to a great measure obtained by the rapidity of operation, by the control of hemorrhage, and, especially in the compound fractures, by prompt intervention, with more than thorough cleansing of the wounds.

While it is true, in a great many cases of severe traumatism to the skull, intracranial lesion may be presumptive, and though it would seem that an exact knowledge of what is to be encountered is essential before trephining ,from our experience the value of an explorative incision nevertheless has not been overestimated and cannot be gainsaid, even though the nature of the cranial lesion was conjectural.

The propriety of exploring fractures of the cranial vault, by incision of the soft parts and elevation of bone, if depressed, is conceded by the majority of surgeons. In compound fractures, exploration is positively indicated. In presumptive simple fractures, with a history of severe trauma, whether a depression is felt or not, whether there exists a hematoma or not, and with general symptoms, such as the state of consciousness, character of pulse, temperature, and respiration, accompanied with muscular or nervous symptoms, expectant treatment, to my mind, is hazardous.

I do not wish it to be understood or believed that I advocate the indiscriminate use of the trephine in every injury to the skull.

A survey of the cases reported and their results fully bear out the opinion as expressed in this paper that an early exploratory operation is indicated in every severe injury to or over the vertex accompanied by such symptoms as would lead us to presume that there may exist a lesion either of the skull, or, what is more important, its contents. We must always bear in mind that in considering severe injuries to the skull, it is to the more serious lesions of its contents which so frequently accompany them that importance must be attached rather than to the fracture itself.

71 East Sixty-sixth Street.

CANCER OF THE FEMALE BREAST.

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Statistics seem to indicate that the prevalence of cancer is continually on the increase. It is stated that the annual death rate from cancer in England is to-day four times as great as it was fifty years ago. And this despite the fact that millions of dollars have been expended on laboratories for cancer research and the entire lives of many of the ablest and most scientific investigators in our profession have been devoted exclusively to this problem. Some day perhaps in the golden future the secret will be solved and this scourge will yield as others have yielded and are yielding to the banishing dictates of preventive medicine. As yet to-day, however, we must contend with its increasing prevalence and bend our efforts as practicing physicians and surgeons to secure a cure of that which we are as yet powerless to prevent. Even here, alas, our efforts are too often of little avail, though year by year, with increasing thoroughness of work and earlier recognition of the disease, our results are showing greater encouragement.

Next to the uterus the mammary gland is of all organs of the woman most prone to malignant disease. And here likewise, should be the most favorable field for early recognition of the disease and accordingly earlier institution of radical therapeutic measures. The mammary gland being the most superficial glandular organ and subject ever to much attention and observation, affords great opportunity for the earliest possible recognition of the beginning of any diseased process, and a correct diagnosis of its pathological character.

At the very outset it is of the utmost importance to remember that from 80 to 90 per cent. of all tumors of the breast are malignant. According to Billroth's statistics embracing 440 cases, eighty-two per cent. of all tumors of the breast are cancer. Schmidt, of Heidelberg, found 82.66 per cent. malignant; Bryant, 83.16; Gross, 82.47. The author of the chapter on breast tumors in Von Bergmann's "Surgery" states that in his clinic of 359 tumors of the breast, 306 were carcinoma or 80.9 per cent.; 34 were sarcoma, 9.1 per cent., making the net percentage of malignancy 90 per cent., while but 19 of the series were benign growths. Jonas, of Omaha, in a recent report embracing 260 cases from his experience, found 218 cases or 87 per cent. malignant and 42 or 13 per cent. benign.

When it is further remembered that many cases apparently benign at the outset finally undergo or manifest malignant development the figures become most impressive. C. H. Mayo in his clinic tersely remarks "that 80 per cent. of all breast tumors are primarily malignant; that of the remaining 20 per cent. of primarily benign growths, one-half ultimately become malignant, raising the final percentage of malignancy to 90 per cent., and that the

remaining 10 per cent. must be viewed with great suspicion."

The correct diagnosis of breast cancer is therefore of vast importance, and to the first attending physician one of gravest responsibility. For as William Francis Campbell of Brooklyn has so forcibly said, "Given a patient with cancer of the breast in the first stage, consulting a physician on its first detection, the fate of that woman is in the hands of the doctor whom she first consults, provided she follows his counsel."

Of much suggestiveness at the outset are certain general etiological facts pertaining to cancer of the breast. (1) Age: Cancer of the breast is, generally speaking, a disease of middle life the average age according to Crile being 49. The complete statistics of the Massachusetts General Hospital show, of a total of 309 cases, 5 occurring between the ages of twenty and thirty, 56 between thirty and forty, 120 between forty and fifty years, 107 between fifty and sixty, and 21 between seventy and eighty. It is also noteworthy here that, while cancer of the breast is quite rare under thirty, yet it does occur. On the other hand it is quite probable that most malignant tumors show themselves at an early age in the woman's life. Indeed I feel that we may generally assume that a tumor in the breast of a woman under thirty years of age except with pathognomonic evidence of malignancy, is probably benign, while after we pass this age the probability of cancer becomes so much greater that we will be much safer in assuming malignancy as a fact. (2) Heredity, on which in the past much stress has been laid, is of little importance and in only about one-third of our cases can a hereditary history of cancer be found. (3) Lactation factors likewise are of little significance since, according to Crile, 35 per cent. of his cases had not borne children and in but 11 per cent. was there distinct a history of lactation complications. It is quite probable, however, that chronic mastitis has something to do in producing a favorable nidus for cancer as is true in chronic inflammations elsewhere. (4) Injury likewise has some influence but is of too little importance to be significant. In fact it is too easy to find a history of injury antecedent to any condition to which the human flesh is heir, if we but ask for it.

Giving whatever weight we wish, however, to etiological factors, we are finally forced back to physical findings for correct diagnosis in a given case. It is undoubtedly a fact that almost without exception the finding of a tumor in the breast is the first sign that calls the patient's attention to the existence of disease. This was true in 94 per cent. of Crile's cases, while subjective symptoms such as pain, tension, stinging, etc., preceded in but 6 per cent. It is furthermore worthy of note that in but one-third of these cases was pain a symptom at all while two-thirds of them were free from pain. This should warn us forcibly against the folly of waiting for pain as an evidence of cancer. It is generally a quite late symptom, one only manifest often when the disease has so far advanced "that a wayfaring man, though a fool, could not err" in diagnosis.

Palpation, therefore, becomes probably our most accurate recourse in diagnosis. The intelligent manipulation of a hand trained in the sense of touch becomes therefore of paramount importance. For the exercise of this faculty it is essential that the flat of the fingers and palm of the palpating hand should be pressed gently down upon the breast and the tumor thus defined between the hand and the unyielding chest wall behind. Pinching up the breast between the fingers has doubtless led to many fallacies, oftimes I am sure leading to the removal of mammary glands in which there was actually no disease present whatsoever. When we remember that the breast is a lobular organ, it follows that in pinching up a breast, as I have seen many do, we can find an apparent tumor, certainly a mass in all. With the hand or fingers flatly applied to the chest, however, and gently compressing the breast between it and the bony wall, then moving the breast beneath horizontally over the underlying ribs with the skin fixed by contact with the hand, any existing tumor even though small can be detected with surprising ease and accuracy. The nodule may be exceedingly small, yet the stony hardness of a cancer growth will be striking and characteristic. Careful comparison in all manipulations should be made with the healthy breast, though here it should be remembered that bilateral disease, while infrequent and therefore improbable, is not impossible. A carcinomatous tumor is generally single, and multiple tumors speak agansit malignancy. The cancerous growth likewise infiltrates the normal breat tissue, and this not being circumscribed, it moves with the breast in which it is definitely fixed. It is also quite apt to become fixed early either to the skin overlying in superficial growths, or to the pectoral fascia beneath in deep-seated growths. The skin attachment is easily recognized. The facial attachment may only become evident when the arm is carried upward and outward, rendering the pectoral muscles tense. Then oftimes the tumor and with it the breast becomes absolutely immobile on the chest wall. "Dividing the breast into a central or areolar portion and four quadrants, we find the frequency of location in the following sequence: Upper outer, central, upper inner, lower outer, lower inner." It is also important to observe the relative amount of normal gland remaining outside the area of the tumor. Inasmuch as the cancer grows at the expense of the breast, and fibrous tissue contraction accompanies the process, there is oftentimes but little normal gland tissue left. The extent of this ratio is oftentimes also an evidence of the rate of growth which may be of service in prognosis as well as in diagnosis. In simple tumors, on the other hand, the normal breast tissue is pushed aside but not consumed.

The tendency of the fibrous tissue trabeculæ to shorten and thus to fix the breast, may also give visual evidences even at a very early stage of the disease, in the slight dimpling of the overlying skin evidenced by moving the breast over the chest wall, producing also a sensation of tugging to the examing hand. Halstead especially lays great stress on this sign, even going so far as to say that "the faintest conceivable trace of a difference on the two sides in a minor pectoral crease, for example, may suffice for the diagnosis. Frequently there is no sign, but this almost imperceptible suggestion of pull which, when the faintest possible, is, of course, elicited by dislocation in one direction only. This sign, however slight, is all that is needed for the diagnosis." Surely, however, we must remark, extreme care must be taken in this test, and only an experienced examiner of breast tumors could follow the refinement of Halstead's test in its entirety. When well developed, however, it is surely trustworthy. Minute comparison of both breasts is, of course, essential.

The sign of retraction of the nipple on which so much reliance was formerly put, is not now given

quite so much prominence. In some subjects it will be found that this characteristic is found normally and is then present in both nipples. When present in one nipple alone it is still a highly significant sign. Its absence, however, is of little value in negating a diagnosis. In fact, Crile found it present in only 33 per cent. of his cases. It must be remembered that this sign is likewise dependent upon shortening of the trabeculæ, and unless the growth is in the central area or quite near the nipple, no retraction will occur except in a large or well-advanced cancer.

The fat overlying a cancerous nodule, if it be superficial, is oftimes absorbed, also lessening the freedom with which the skin moves over the tumor and oftimes making the tumor stand out so prominently as to be at once apparent to the inspecting eye. In early diagnosis, particularly in that of deeply seated nodes, it is valueless.

The involvement of the axillary glands and their enlargement comes sooner or later, alas often too soon. It is to be remembered that acute inflammations, tuberculosis, etc., can likewise produce enlargement of the axillary glands. The local evidences of infection and inflammation, however, are usually so easily recognized in these diseases as to lead to no confusion in their differential diagnosis. With these inflammatory causes set aside the evidence of enlarged axillary glands is quite conclusive of cancerous disease. In fact, the diagnosis should be made before this symptom is evident.

As to the evidence of ulceration, emaciation, and cachexia, we will only say that they are such late evidences as to be of no service to a clinician. By the time these symptoms are manifest a housemaid could make a diagnosis.

Finally as to diagnosis I would say with Crile, "An indurated, invading, solid, somewhat irregular mass when gently pressed against the breast, with or without retraction of the nipple, with or without discharge from the nipple, with or without absorption of fat over the tumor, with or without dimpling, with or without pain, with or without hereditary history, with or without cachexia, ulceration, or metastasis, should be treated surgically, either explored or excised.

After, however, all is said as to physical diagnosis, and all the various diagnostic signs have been fully exhausted, we must yet admit the fact that in many cases preoperative absolute diagnosis is impossible. This is particularly true in the earliest stages of the disease. And here is to be found, therefore, the somewhat plausible excuse for a course of hesitation, palliation, and delay, so fatal in the end to the fate of the unfortunate woman. When, however, we reflect that even a benign tumor never disappears except by removal; when we remember that from the aspect of general probabilities alone the chances are nine out of ten in favor of malignancy; when we realize that a simple incision will make a diagnosis absolutely clear, is there then left any possible excuse for the responsble physician to counsel a course of procrastination which, as we shall later see, probably robs the sufferer of one-half her chances of life? Certainly not. Exploratory diagnosis must, therefore, in doubtful cases be insisted upon. If the tumor prove benign, without harm or risk to the patient in the least, local excision alone has at least removed a source of menace which should be removed anyway.

On the other hand should the evidences of malignancy be found, the operator should be prepared to push his operation at once to immediate complete amputation. With Bloodgood we believe that the experienced surgeon should have relatively no difficulty or doubt in the diagnosis of cancer after incision from the mere gross appearance of the tumor tissue. If in doubt, however, a competent pathologist must be at hand for immediate microscopic diagnosis from the frozen section, a proceeding which adds exactness with a delay of less than ten minutes at the farthest. We cannot too strongly condemn the policy of excision, delay for fixed specimen diagnosis, and secondary operation once in vogue, since Halstead has shown that in cases of cancer of the breast where this course has been pursued not one single case has ever been finally cured. Fortunately immediate diagnosis is now the practice of all operating surgeons, and such fatal mistakes will not occur.

Once an absolute diagnosis is made or even a probable diagnosis, the treatment becomes the responsible question between patient and physician. Is it too much to say to-day that radical surgical treatment is absolutely the only treatment? Certainly no physician to-day would for a moment consider salves, caustics, or local applications of like nature, methods now happily employed only by absolute ignorance or quackery. Thus far, moreover, the writer has never known nor heard, nor read in scientific literature of a single case of breast cancer cured by the *x*-ray. Injection of trypsin or allied preparations have not a single record of cure to their credit. It is, of course, easy to find reports of cases where from such various methods temporary shrinkage or apparent disappearance of the growth has occurred. But does this prove a cure? Volkmann many years ago established the dictum, since universally recognized in surgery, that to class a case of cancer cured at least three years must elapse with absolutely no evidence of recurrence either local or remote. Even this limit is oftimes transgressed in apparent safety with yet later recurrence until to-day we are rather inclined to push our limit of time standard forward to five years. If this be the criterion by which the cure of cancer is to be measured, how ridiculous the often bombastic claims of methods based on apparent results of but a few months' test at best. Undoubtedly all honest surgeons look forward with earnest hope to some time when we can cure cancer of the breast without the horror of the knife. Likewise undoubtedly most all honest physicians admit that up to the present hour there is nothing but surgery which offers the faintest hope of success.

At this point possibly the patient or her sceptical attendant will ask: "And what can surgery offer?" I must confess that during many years of our earlier work, before accumulative evidence was at hand, our answer would needs have been, faith. But time and evidence have converted faith into very encouraging facts, some of which I beg now to record.

Halstead, reporting the final results in 210 fully traced cases from the records of Johns Hopkins Hospital, all passed the three-year period of time since the operation, shows 89 permanent cures, a percentage of 42.4 in detail as follows:

Pathological Variety	No. Cases	No. Cured (3 years)	Per Cent.
Cancer cysts	6	2 (1?)	33.3
Adenocarcinoma	32	24	75.
Medullary carcinoma	25	12	48.
Circumscribed scirrhus	28	13	46.4
Small infiltrating scirrhus	80	30	35.5
Large infiltrating scirrhus	39	8	20.5
Total	210	89	42.4

It is furthermore worthy of note that from this gross number there were 60 cases operated upon in which there was no glandular metastasis, and of this number 45 (75%) were permanent cures and 51 or 86 per cent., were free from recurrence on the three-year limit. This clearly demonstrates the absolute importance of early diagnosis and early operation whereby the chance of cure is absolutely twice as good.

Glandular Involvement	No. Cases	Permanent	Per Cent.	3 Years	Per Cent
Axilla and neck negative....	60	45	75	51	85
Axilla positive, neck negative	110	27	24.5	34	31
Axilla and neck positive.....	40	3	7.5	4	10

In the Massachusetts General Hospital, Boston, between the years 1894 and 1898 inclusive (first five years), there were 160 cases operated, of which 26 were cured, or 16.2 per cent. In the years 1899 to 1903 (second five years), of 157 cases 41 were cured, or 26 per cent., almost double the percentage of the first five years, surely a convincing evidence of improving results. Here also we find that whereas the percentage of cures where the axillary glands were enlarged was but 12 per cent., when the axilla was negative the percentage was 29.

Pathological Variety	Cases	Surviving Operation	Cures	Per Cent.
Medullary.....	136	104	19	18.2
Scirrhus.....	46	43	10	23
Adenocarcinoma.....	24	21	10	47.6
Colloid.....	4	3	2	66.
Cancer.....	127	107	18	16.8
No. pathological report.	39	31	8	25.8

Crile of Cleveland, in a traced record of 91 cases, found that in cases with glandular involvement his percentage of cures was 14 per cent., while in cases where no glands could be found prior to operation his percentage of cures was raised to 80 per cent.

Cabot of Boston, in an experience of 42 cases has had 9, or 21 per cent. of cures.

Dennis of New York, in a series of 116 cases reported before the American Surgical Society in 1891, showed 45 per cent. of 3-year cures. In 1895, in the report of a smaller series to the same society, he recorded 77 per cent. of cures.

Willy Meyer of New York, in a series of 80 cases reported 28, or 35 per cent. of cures. Of these there were 16 cases operated on, 10-12½ years, of which 3 (18.75 per cent.) are alive to-day; 27 cases operated on, 5-10 years, of which 6 (22.2 per cent.) are alive to-day; 20 cases operated on, 3-5 years, of which 10 (50 per cent.) are alive to-day; 17 cases operated on during the last 3 years, of which 9 (50 per cent.) are alive to-day.

Vander Veer of Albany, N. Y., in a series of 103 cases reports 70 cured, or 68 per cent.

Ochsner of Chicago, in 98 fully traced cases, reported 54, or 43 per cent. cured.

Oliver of Cincinnati, of 35 cases, reports 12 cured from 3 to 10½ years, or 34 per cent. cures. Here also we learn that in cases where the tumor has been known to exist for one year or more, the per cent. of cures was 28.5, whereas in cases where tumor had existed over from 6 months to one year the percentage was 50.

Jonas of Omaha, in 177 traced cases, found 105 cured 3 years, or over 56 per cent.

Rodman of Philadelphia, reports that in cases from his private practice 70 per cent. were cured.

Cheyne of England, in 34 private cases had 17, or 50 per cent. of cures alive after 6 to 16 years.

Childe, in 46 cases, had 17, or 36 per cent., well after from 5 to 20 years.

Dowd's analysis of 199 cases from the clinics of Bull, Rotter, Helfreich, Cheyne, Dennis, and May shows 39.6 per cent. cured.

A summary of this rather extended evidence shows a percentage of cures ranging from 25 per cent. at the lowest to 75 per cent. at the best. This, in a disease otherwise absolutely fatal, is certainly most encouraging, and has furnished a magnificent proof for the faith in surgery. Two other facts likewise stand out prominently. First, that in cases of early diagnosis and early operation the percentage of cures is practically doubled. Surely the responsibility resting on the first attendant is enormous. Second, the results in private cases are vastly better than in those selected from crowded tenements of pauper population. Have we not, therefore, particular ground for encouragement with a class of patients to whom fresh air, glorious sunshine, and good food is not a luxury but an every day possession.

But perhaps again some doubting Thomas or some timid subject may inquire, Is there not great risk to life in a formidable surgical procedure which furnishes such results? To this we reply, Halstead had but 4 deaths in 232 cases, 1.7 per cent. mortality. Crile in 91 cases had no deaths. At the Massachusetts General Hospital in 416 cases operated on by over twenty various surgeons, there was but 3.6 per cent. mortality, and in the later years (1899-1903) but 2 per cent. Cabot in his 42 cases had no deaths. Ochsner had 5 deaths in 164 cases. Jonas had 6 deaths in 255 cases. According to Haggard, in the analysis of 600 operations in the hands of twenty-one different surgeons, the mortality was but 9 per cent. The writer in his personal experience has had no deaths from operation nor has he known of one in the service of colleagues.

In conclusion permit me to epitomize the following conclusions:

I. At least 90 to 95 per cent. of all tumors of the breast are malignant and no possible intelligence can determine which of the remaining 10 per cent. will remain benign.

II. There is no known cure for any tumor of the breast, benign or malignant, except through surgical removal.

III. From 25 to 50 per cent. of cases of breast cancer are permanently cured by radical surgical removal. With early diagnosis this percentage could be raised to 80 per cent.

IV. Every tumor of the breast, therefore, should be considered malignant and treated as such at the very first moment of its detection, unless incision has proven it benign, in which instance local excision should at least be insisted upon.

V. To trifle with tumors of the breast is, therefore, practically nothing short of criminal.

Radium Therapy in Gynecology.—Paul Petit says that the use of radium in the treatment of cancer of the breast is only justifiable when operation is impossible. Its greatest utility is for the purpose of preventing recurrence in the cicatrix. The rays have beneficial effects on all kinds of inflammatory processes, its effect being analgesic, decongestive, and resolutive. It may be used in a tube placed within the uterine canal for metritis or cancer. In the vagina it is used for cancer and for perimetritis. On the vulvar orifice it is useful for leucoplasia, cancer, pruritus, vaginismus, and dermatoses. On the adominal wall it is useful for localized peritonitis.—*La Gynécologie.*

A SUPPLEMENTAL REPORT ON THE OPERATIVE TREATMENT OF GONORRHEAL EPIDIDYMITIS.*

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This supplemental report† of 12 new cases of the operative procedure in gonorrheal epididymitis is presented with the hope of obtaining a fuller discussion, especially from the members who have employed this surgical procedure since the presentation of this subject last year. The series of cases now reported permit me to answer in greater detail questions which then arose as to whether there were organisms to be found in acute gonorrheal epididymitis other than the gonococci.

Bacteriology.—Careful bacteriological examinations have been made on all the later cases. In the 21 cases reported last year either no organisms were present, or, if present, the gonococci alone were noted. In this series of 12 cases, gonococci were present in the epididymis in five cases. In six of them no organisms could be demonstrated in culture or cover slips; in one case a diplococcus was present morphologically like the gonococcus decolorizing by Gram's method, but growing luxuriantly on ordinary media. Dr. Wilkinson, assistant pathologist at Garfield Hospital, thought this organism was some contamination. In the 33 cases reported by me no organisms other than the gonococcus have ever been demonstrated. This fact is rather interesting, as I have never been able to secure any bacteriological data relating to gonorrheal epididymitis.

Fluid in the Tunica Vaginalis.—In cases 5 and 9 of this series a condition was observed in the tunica vaginalis which was not present in the other cases. In all the other cases there was fluid present in the tunica vaginalis. In case No. 5 the epididymitis was present seven days before operation and in case No. 9, three days. The condition in both of these cases was similar, namely, that no fluid was present and a great amount of fibrinous lymph was observed, resulting in an agglutination between the parietal

*Read before the American Association of Genito-Urinary Surgeons, May, 1909.

†The two previous papers on this subject appeared in the MEDICAL RECORD, December 1, 1906, and *Annals of Surgery*, December, 1908.

Case	1	2	3	4	5	6
Previous attacks of Epididymitis.	None.	None.	None.	None.	None.	None.
Duration of Gonorrhea.	Relapsing attacks.	9 days.	6 weeks.	4 weeks.	3 months.	1 month.
Duration of Epididymitis prior to operation.	5 days.	5 days.	2 weeks.	3 days.	1 week.	3 days.
Character of Pain.	Quite severe.	Very severe.	Very severe.	Severe.	Severe.	Very severe.
Degree of Tenderness on Palpation.	Quite severe.	Excruciating.	Very severe.	Very severe.	Very greatly increased.	Excruciating.
Size and appearance of Scrotum.	8 inches in circumference.	Not greatly enlarged. Skin markedly indurated and thickened.	Not greatly enlarged. Great thickening of skin.	8½ inches in circumference. Scrotum not indurated.	Not greatly enlarged, only 8 inches. Skin reddened with great thickening.	11 inches in circumference. Very slightly indurated
Induration of Cord and Epididymis.	Slight in cord; Marked in epididymis.	Great in cord. Epididymis twice the size of testicle.	Marked in cord. Very great in globus minor.	Cord marked. Quite marked in globus minor.	Marked in cord. Marked in the whole epididymis.	Very slight in cord. Very marked in globus minor.
Appearance of Epididymis at Operation.	Covered with lymph, congested and hemorrhagic, especially in globus minor.	Congested and injected. Covered with thick fibrinous lymph.	Hemorrhagic. Covered with very tenaceous lymph.	Intensely inflamed. Covered with lymph.	Greatly thickened and congested.	Globus major practically normal. Globus minor much indurated.
Condition of Tunica Vaginalis.	Contained 1 oz. of fluid.	Contained 1 dram of bloody fluid.	Contained 2 drams of fluid.	Contained 4 drams of fluid.	Contained no fluid, but much fibrinous lymph, difficult to separate layers.	Contained 1 oz. of fluid. Very slightly inflamed.
Pus and its Location.	Present in globus minor.	1 dram present in globus minor.	1½ drams present in globus minor.	Few drops of pus.	No pus.	10 drops of pus.
Pain after Operation.	Absent.	Absent.	Absent.	Absent.	Absent.	Absent.
Maximum Temperature day before Operation.	101°.	101°.	101°.	102°.	102°.	100°.
Maximum Temperature day after Operation.	100°.	100°.	99.6°.	100°.	99.6°.	98.8°.
Leucocyte Count day before Operation.	12,000.		18,000.	11,600.	10,800.	15,000.
Leucocyte Count 24 hrs. after Operat'n			14,000.	8,000.	13,400.	
Gonococcus in Epididymis.	Present in cover slip and culture.	Present. No other organism.	Present in cover slip, but not on culture.	Cover slip negative. In culture no organisms.	No organisms on cover slip or culture.	None.
Gonococcus in Tunica Vaginalis.	None.	None.	None.	None.	None.	None.
Completion of Resolution.	Rapid.	Very rapid.	Rapid.	Rapid.	Rapid.	Rapid
Discharged from Bed	In 4 days.	In 3 days	In 4 days.	In 4 days.	In 5 days.	In 5 days.
Result.	Cured.	Cured.	Cured.	Cured.	Cured	Cured.

and visceral layers of the tunica vaginalis, and so firm was the adhesion that it was only with difficulty that these layers could be separated. Of the 21 cases reported last year, 13 came to operation on or before the seventh day of the disease, in all of which fluid was present in the tunica vaginalis. Of the 12 cases reported now, 10 were operated upon within seven days and in only two was there an absence of fluid.

Pus.—In 25 out of the 33 cases reported pus was present. In this connection case 12 is of particular interest because of the early development of suppuration. For ten days this patient had been under treatment for an acute gonorrheal prostatitis and had no symptoms of involvement of the scrotal contents. At 11 o'clock on the morning of December 16 he reported to me that during the previous two or three hours he had tenderness which he referred to the inguinal region. Palpation discovered no enlargement of the inguinal glands; however, there was tenderness of the cord near the ring, but there was neither pain, tenderness, induration, nor other sign of involvement of the epididymis. There was no change in his condition for twelve hours, when excruciating pain suddenly developed in the left testicle; this continued until 11 o'clock the next morning, when I saw him. At this time he had a well-marked epididymitis with marked swelling, the circumference being about 12 inches, and all of the characteristic signs of a most acute epididymitis—temperature 101°, leucocyte count of 18,000; there had been no chill. He was operated on three hours later—within fourteen hours of the first pain referred to the testicle.

At operation the tunica vaginalis contained two ounces of clear fluid, the globus minor was greatly thickened and covered with lymph; hemorrhagic areas were seen over the visceral layer of the epididymis; three distinct abscesses were found on puncture of the globus minor, one containing about half a dram of pus and the others about 20 drops each.

General Results. Pain.—Of the 34 cases operated on, with but one exception, which I mentioned last year, pain has been absolutely relieved by operation.

Induration.—I believe there is no question that the induration is much less following surgical treatment than after palliative treatment. In none of the cases have the hard and tender nodules, seen in cases treated palliatively, persisted after operation; although in a few of the cases, especially in those in

7	8	9	10	11	12
None.	None.	None.	None.	One.	None.
15 days.	27 days.	Relapsing since 1901.	16 days	6 weeks.	Relapsing attacks for 3 years.
2 days.	2 days.	3 days.	4 days.	1 week.	14 hours and acute prostatitis for 3 weeks.
Very severe.	Slight	Very severe.	Very severe	Very severe.	Excruciating.
Excruciating.	Moderate.	Excruciating	Excruciating.	Excruciating.	Excruciating
9 inches in circumference. Not indurated.	8 inches in circumference. Not indurated.	9 inches in circumference. Skin thickened.	8½ inches in circumference. Skin indurated	9 inches in circumference. Skin indurated.	12 inches in circumference. Skin tense, not infiltrated.
Marked in cord and epididymis.	Very marked in cord and epididymis.	Cord, epididymis and testicle all very hard and indurated.	Very marked, both in cord and epididymis.	Marked in cord. Globus minor thickened and tender.	Quite marked in cord. Very marked induration in globus minor
Greatly inflamed and indurated. Abscess at juncture of body and globus minor	Greatly indurated and reddened. Lymph over epididymis.	Intensely inflamed. Covered with thick fibrinous lymph.	Intensely congested. Covered with thick lymph.	Intensely congested. Covered with lymph.	Greatly inflamed. Covered with lymph. Hemorrhagic areas throughout 3 distinct abscesses in globus minor.
2 drams of fluid. Heavy deposit of lymph on inner surface of tunica.	4 drams blood stained fluid. Lymph on inner surface of tunica.	No fluid present. Parietal and visceral layers adherent	3 drams fluid.	1 oz of fluid present	2 oz. of fluid in tunica vaginalis.
10 drops of pus.	No pus	15 drops of globus minor	No pus	No pus	1 dram in globus minor
Absent except in cord.	Absent.	Absent	Absent	Absent.	Absent.
102°.	100°.	101.8°.	101.6°	102.2°.	101°.
99.4°.	99.4°.	100°	99.2°	99.2°	99.4°
15,000.	12,000.	18,400.	12,000.	13,000	18,000
13,000.		12,000.	11,000		
None in cover slip. Diplococcus in culture, morphology of gonococcus, decolorized by Gram.	Culture and cover slip negative.	Gonococci in cover slips. No culture taken.	Culture and cover slips negative. Culture remained sterile	No organisms in culture or cover slips.	Gonococci in cover slip. No culture taken
None.	None	None	None	None	None
Rapid	Rapid	Rapid.	Rapid	Rapid	Very rapid.
In 4 days.	In 3 days.	In 5 days	In 4 days	In 4 days	In 4 days.
Cured.	Cured.	Cured.	Cured	Cured	Cured.

which the epididymitis has been of long standing, a general induration of the parts has persisted for some time.

Testicle.—In none of the cases have I been able to note any involvement of the testicle; the tension has not been increased, and no areas of induration were present.

Urethral Discharge.—I have had but one case that has had the recurrence of a profuse urethral discharge, such as is seen in the beginning convalescence in the cases not operated on. This occurred in case No. 12. By this I do not mean to say that patients do not have any urethral discharge after operation, as some have had a scant discharge due to inflammation of the urethra or its adnexa.

Recurrence.—I have had but one recurrence after operation; this was in a case I was invited to operate on by Dr. Tilden Brown at Bellevue Hospital. This was a very mild case, and not one I would have operated on from choice. There was no pus present and only very slight involvement of the globus minor. The patient made a good recovery, but returned in two weeks suffering from a recurrence on the same side.

There has been but one case with a double epididymitis; this is a recent case, and although the induration has almost entirely disappeared, no spermatozoa have been noted yet in the secretion; but one examination has been made. I am still hopeful that after complete resolution we shall find spermatozoa present.

Epididymotomy shortens the duration of the disease (the average period of confinement in my last series was about four days); it relieves pain immediately, convalescence is rapid; my results justify the conviction that the operation has a place in surgery.

1725 N Street.

A URINARY PROTEIN RESEMBLING BENCE-JONES ALBUMOSE, WITH CLINICAL HISTORY AND POST-MORTEM FINDINGS.

By J. E. DALE, M.D.,

FORT COLLINS, COLO.

Male, 27 years of age, married four years, bookkeeper, moderate drinker, denies syphilis, father dead, mother said to be consumptive. In good health up to December, 1907, when he was taken sick with what was said to be typhoid fever, this was on the strength of a Widal test by a competent pathologist. He was living in Kansas City at this time. He was taken to a hospital, where he remained for one week. There may have been some doubt as to the diagnosis, as he was seen by a number of physicians during this time. Tubercle bacilli were found in the sputum, and albumin in the urine. At the end of one week he was taken from the hospital on a stretcher and sent to Colorado. He survived the trip, and on reaching Denver was placed in the charge of a physician who put him on the usual milk, eggs, and rest-in-bed treatment for tuberculosis. After about three months his temperature became normal, his cough disappeared, and his weight came up almost to normal.

By September, 1908, he considered himself well enough to resume work, and came to Fort Collins, where he had secured a position. After three days he was forced to give it up on account of his eyesight, which he found to be very bad, though he had never had any trouble of this kind before. This trouble either grew better after a time or was less noticeable because the eyes were less used. No examination of the eyes was made.

In December he developed a troublesome diarrhea. Dr. Brinkman, at that time located in Fort Collins but now of Denver, was called, and

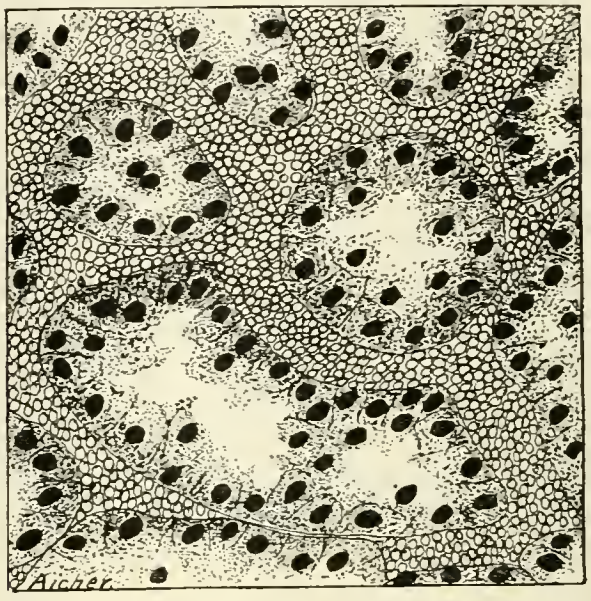

Fig. 1.—Section showing congestion and albuminoid degeneration.

had charge of the case for about six weeks, or until his removal. The writer was called for the first time on January 7, 1909, and found the patient very weak, moderately emaciated, voice hoarse, quite deaf, purulent discharge from the right ear, temperature slightly subnormal in the morning, but never above normal at any time in the twenty-four hours. The diarrhea was still persistent; stools fluid, grayish, bad odor, no occult blood or solid matter. Blood count was not made; hemoglobin was 90 per cent.

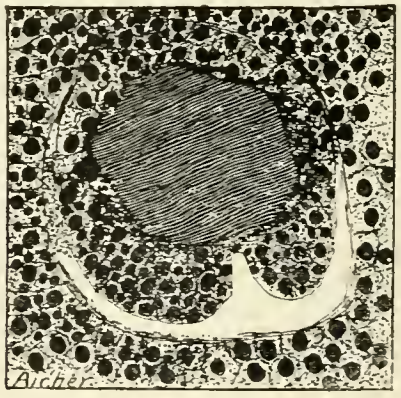

Fig. 2.—Inflammation and amyloid degeneration. Glomerulus.

On inspection, the left side of the chest was found somewhat flattened, the intercostal spaces retracted, and a very distinct, visible, cardiac impulse in the third, fourth, and fifth intercostal spaces immediately to the left of the sternum. The apex of the right lung was dull on percussion, the upper portion of the left side dull, the lower portion hyperresonant. There were moist râles on the right side; the breath sounds were faint or absent on the left side. The heart sounds were normal. Tubercle bacilli were found in the sputum. The ophthalmic tuberculin test was negative.

Urine: Amount for 24 hours 500 c.c., cloudy, color brownish red (No. 7 Vogel's scale), reaction acid, specific gravity 1.030, chlorides, fraction of one per cent. Microscopic examination gave numerous granular and few broad hyalin casts, blood, pus, and epithelial elements. Serum albumin was present in small amount, and another protein giving the following reactions:

(1) Precipitates with cold nitric acid, precipitate dissolves in greater part on heating, partly returns on cooling.

(2) Acidified with acetic acid, no precipitate.

(3) Saturated with sodium chloride in neutral solution, no precipitate.

(4) Acidified with acetic acid and saturated with sodium chloride, gave a copious white precipitate.

(5) Rendered strongly alkaline with sodium hydrate, upper portion in test tube, boiled and lead acetate solution added drop by drop, gave a very prompt and positive black precipitate (Boston's reaction).

(6) Saturated with sodium chloride and acidified with acetic acid and filtered, the filtrate was negative to 5, but gave a positive reaction for

Fig. 3.—Albuminoid degeneration and disintegration. Transverse section of tubules.

serum-albumin (a trace). Precipitate from above (6), dissolved in sodium hydrate solution, was positive with 5.

(7) Urine heated on water bath without either acid or alkali being added, faint coagulation began at 53° C. The coagulum was well marked at 55° C., but continued to increase to slightly above 60° C. Filtered after every 10 degrees rise in temperature the filtrate gave a faint reaction with 5, at 60° C., 70°., and 80° C., increasing slightly after 90° C., and after boiling, showing that a portion was being redissolved. Heated after saturation with sodium chloride the result was the same. Heated after acidifying with even a trace of acetic acid no precipitate was obtained before 80° to 85° C., the coagulum becoming flocculent and tough about 95° C.

(8) When a precipitate was caused to appear by heat in a neutral or unmodified specimen (the temperature not going above 80° C.), the addition of acetic acid promptly dissolved the coagulum.

(9) Heated to 55° C., filtered and the precipitate dissolved in 30 per cent sodium hydrate, the solution was positive with Millon's and biuret reactions (rose pink with the latter).

(10) Saturated with 95 per cent alcohol, filtered, precipitate washed with hot alcohol, then dissolved in boiling water, cooled, acidified with HCl and allowed to stand for some hours, then filtered, and the filtrate saturated with ammonium, and the resulting precipitate washed with the same until the wash water was negative to biuret test, precipitate then dissolved in dilute acetic acid, the resulting solution, gave reactions the same as the original urine. The precipitation with 95 per cent alcohol was not complete, the washings giving a precipitate with acetic acid and sodium chloride as well as the one with lead acetate, these reactions were faint but constant in all the hot alcohol washings.

(11) Saturation with neutral ammonium sulphate, precipitated all proteins.

(12) Nitric acid added drop by drop to urine heated in upper part caused a precipitate in the track of the drops, that, white at first, tended to become yellow on standing or with heat. No pinkish tinge was noted.

The patient never complained at any time of pain in any of the bones.

Under irrigation of the colon with physiological salt solution and a liberal diet the diarrhea disappeared, but the kidney conditions remained constant up to the time of his death, which occurred somewhat suddenly on January 25, 1909. The patient was feeling as well as usual up to 5 or 6 hours before death, when he suddenly began to complain of dyspnea, gradually growing worse. I saw him about 8 A. M. Respirations were 36 per minute, labored, pulse 95, soft, temperature 98.6°. By 11 A. M. the temperature was 99.3°, respirations and pulse both slightly quickened, moderate cyanosis. He died at noon, after being unconscious for about 15 minutes

Autopsy: Right lung, miliary tuberculosis, apex consolidated, no cavities. Left side, upper portion of lung almost completely consolidated, lower lobe hard and fibrous, almost unrecognizable macroscopically. The entire left lung drawn up and back. In the fibrous lower lobe, in the part in direct contact with the heart was a cavity, oval in shape, about 7 by 4 by 2 centimeters. The heart was less than normal in size, and drawn up and to the right, no dilitation or valvular lesion could be found. In the right side of the heart was a very perfect, firm, nodular, antimortem clot (described in the pathologist's report). No lesion of the blood vessels. In the abdominal cavity, liver, spleen, and pancreas were normal, there was no evidence of tuberculosis. Condition of kidneys is given in the pathologist's report. There was no evidence of change in any of the long bones (multiple myeloma). The heart, kidneys, and portions of the lungs were submitted to Dr. B. F. Kaupp, Pathologist at the Colorado State Agricultural College, who kindly examined them, and whose report is attached.

Attention is called to the fact that, with the exception of the solubility of the low temperature coagulum in acetic acid, and the precipitation with ammonia, the reactions of this substance (which the writer believes to be histon) apply to Bence-Jones albumose.

The following is the report of the microscopic findings of the specimens by Dr. B. F. Kaupp, Pathologist, Colorado Agricultural College:

"Heart: The right side contained an antemortem clot which presented some peculiar characteristics.

A pedicle like portion was adherant to the inner surface of the auricular appendage, extended down through the auriculo-ventricular opening forming a mass under the valves as large as a man's thumb. A microscopic examination of the pinkish mass showed it to be an ante-mortem clot. Lung: The sectioned surface (after passing specimen through the Keiserling fluid) presented for the major portion miliary tubercles, other portions showed areas up to one-half inch in diameter of cheesy degeneration.

Kidneys: The most interesting study is in the kidneys. Perhaps slightly larger than normal, they presented a grayish appearance. A microscopic study showed a parenchymatous inflammation. The following is a detailed description: Fig. 1 shows an area much congested and the cuboidal cells in a state of albuminoid degeneration. All areas did not show this congested condition. Fig. 2 shows a glomerulus in a state of inflammation and amyloid degeneration. This same condition existed in a major portion of the glomeruli. This condition is described as following long continued cases of tuberculosis as in this patient. Fig. 3 shows an area which is neither congested nor inflamed, but in a state of abuminoid degeneration. Some of the cells are disintegrating and desquamating."

Case II.—Bence-Jones Albumosuria. The following history is taken from notes made in 1904. Owing to the unfortunate failure to obtain an autopsy the case was not considered complete and was never reported. However, the comparative study of the chemical reactions obtained in these two cases will perhaps warrant its presentation at this late date and in an incomplete form. Male, laborer, age 19, unmarried, temperate habits, no diseases except measles when a child, and mild attack of smallpox in 1902. Home surroundings poor. Has worked for several years for various ditch contractors, living for the most of the time in tents. Work is hard, food is usually good, but water is bad as a rule. January 24, 1904, a specimen of urine was left at my office for examination, with the statement that it was from a case of "Bright's disease." This specimen was loaded with an albumose, with loosely combined sulphur.

Patient was seen the next day and the following history elicited: Five weeks before it was noticed that face and eyelids were swelling, a general anasarca developed and the patient became bedfast. Voice hoarse; urine scanty (reaction, specific gravity, total for 24 hours, etc., not noted, nor was the urine examined for albumin). A diagnosis of acute nephritis was made by the attenting physician, and the patient placed upon a milk diet, hot baths daily, and digitalis. The amount of urine was increased under this treatment, but little other improvement was noted, and he passed through the hands of several physicians during the next few weeks.

When, in company with the then attending physician, he was seen by the writer, the following conditions in addition to those already mentioned were noted: The mind was clear, vision and hearing normal, voice best described as husky and monotonous. A laryngoscopic examination showed the vocal cords slightly edematous with inability to approximate them. An area of cardiac dullness extended some distance to the right of the apex beat, there were no heart murmurs. There was a moderate bilateral pulmonary edema. There was well-marked tenderness over the inner aspect of the tibia on both sides, slightly more on the right.

Conditions remained unchanged up to about February 16, when he developed a troublesome cough. On February 18 he expectorated a quantity of bloody mucus and became very dyspneic throughout the day. The next day he complained for the first time of pain. This was in the region of the heart and apparently very severe, lasting about half an hour. These attacks recurred several times in the twenty-four hours until death. During the last three or four days he complained of constant and increasing chest pains that he described as "aching of the ribs." Several of the ribs became tender on pressure, particularly over sternal ends. The death of the patient occurred on February 25th. No autopsy was obtained by the attending physician.

Urine: Average amount for 24 hours, 1000 CC., specific gravity 1009, turbid, color reddish brown, reaction acid. In several of the specimens fibrin was present in considerable amount. There were some epithelial elements and a gradually increasing amount of blood. No casts were found, although searched for with care both in freshly voided specimens and in twenty-four hour mixed urine. Serum albumin was present in considerable amount. An albumose was present, giving reactions Nos. 1, 2, 3, 4, 5, and 6, as noted in Case I. These numbers were positive and similar in both cases. When heated on a water bath with the addition of acetic acid coagulation took place at from 51° to 56° C., varying decidedly in different specimens.

In order to determine the cause of this difference, a quantitive estimation of the various normal constituents of the urine was undertaken, and it was found that the coagulation point seemed to be uninfluenced except by varying proportions of chlorides. In all specimens the chlorides were very much diminished, though never entirely absent. As the proportion of chlorides was increased (by the addition of NaCl) the point at which heat caused coagulation was lowered, acidifying with acetic acid increased this tendency slightly. Up to 60° C. the coagulum increased; when it was filtered at this point the filtrate remained clear to about 70° C., but above this temperature coagulation of albumin took place.

The coagulum with heat was insoluble with acetic acid (see reaction No. 8 in Case I, which is the reverse). Reaction No. 9 was the same as in Case I, with a deeper shade for the biuret test. Reaction No. 10 was not worked out in detail, but the insolubility in acetic acid would seem to eliminite Histon. Reaction No. 11 was positive. Reaction No. 12 gave pinkish tint to precipitate, yellowish on standing. Millon's and biuret were positive.

Through the kindness of Dr. L. Napoleon Boston of Philadelphia, reprints or abstracted reports of cases of Bence-Jones albumosuria from the original report to the time this case was being studied, were made available for the writer. Dr. Boston also kindly examined a specimen of this urine, and stated that it probably contained Bence-Jones albumose. It is with regret and for comparison only that this incomplete report is submitted, as careful pathological studies based on post-mortem findings are clearly requisite to practical results from a study of these cases.

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THE REFORMATION OF FOOTBALL.

AT the close of the football season a review of the fatal accidents of this autumn demonstrates that the efforts at reformation and modification during the past few years have not been entirely successful. The elimination of the flying wedge in 1894, the restriction a few years later of the number of men to be allowed behind the line, and finally the increasing the requirements for keeping the ball from a five to a ten-yard gain, and the introduction of the forward pass and outside kick were all heralded as radical changes which would eliminate the dangers of football. Each of these restrictions seemed at first to be an improvement, as after each change the list of fatal and serious accidents fell, but fell only to rise again in succeeding years as coaches and players learned new methods of utilizing or avoiding the new rules. The ten-yard limit was to make mass plays unprofitable and thus to promote a more open game. What this has accomplished, at least from the viewpoint of the spectator, has been to make the mass play even more strenuous than before, the increased vigor demanded by the increased need, and thus to make the danger of injury, and especially of fracture of the vertebra, even more imminent. The recent reforms have surely failed, and, especially moved by the prominence of some of the victims this year, the general public seems to feel more strongly than ever that if the game is to be continued some radical changes must be made.

It is not within the province of this journal to express the popular lay opinions or to dictate to the athletic committees as to the technical changes to be made in the rules of a sport, but one suggestion has appeared from several sources which deserves medical comment. This is the proposition to adopt a rule to enable the referee to order off the field any man whom he deems to be physically incompetent or, as one writer suggests, to have a special medical referee for that purpose. The latter alternative is possibly too extreme and too liable to be used by the enemies of the game ever to be adopted. The first suggestion, however, of the referee ordering off "groggy" men, is certainly excellent. As long as the present system of secret signals is continued mass plays in one form or another will be carried out. When the entire team knows which particular opponent has been selected for the target, as many men as possible will concentrate their power on that one player. If secret signaling is abandoned, American football will lose its most striking characteristic.

A young, strong man, with what help he receives from his fellows, if in good physical condition and in perfect control of his faculties, can be expected to withstand the onslaught of a line plunge and come through uninjured. When, however, he is exhausted, in pain, or dazed, the situation is different. It was discovered by a careful self-analysis by the Harvard team a few years ago that a player to receive a serious injury was almost invariably either exhausted or in some other way abnormal. In an ordinary fall a man, for protection, should relax his muscles. In football, however, with the continued grinding force of the mass play, every muscle must be kept tense, the head, arms, and legs must be held rigidly in the proper position, and he who relaxes and allows himself to be twisted or have his head forced backward is in a precarious position, indeed. This was learned at Harvard, and the early withdrawal of the exhausted or slightly injured man and the substitution of another is practised. Where, however, good substitutes are few, the coach naturally is not inclined to withdraw a star player, and he may be allowed to remain too long in the game with the result that, as occurred at West Point, after a comparatively slight injury, he continued to play and serious consequences followed. In such cases the referee should be privileged and in duty bound to order off the field any man who in his opinion is physically or mentally not under perfect self-control.

It is not to be expected that the adoption of this rule alone will make football devoid of accidents or that such a minor change will by any means satisfy the opponents of the game. It does, however seem, from the experience of the past season, to be a suggestion distinctly worthy of consideration, as a possible means of at least reducing the liability to such a tragedy as a fracture of the vertebral column.

THE RIGHT THING IN THE WRONG PLACE.

THE citizens and winter residents of Lakewood, N. J., are engaged in an earnest effort to defeat the projected establishment in that resort of a sanatorium for the prevention of tuberculosis in children. They fear, and with reason, that the presence of an institution of that kind within the town limits will change the character of the resort and that the successful establishment of one sanatorium will be followed by others, to the detriment of the place as a winter residence and as a haven for convalescents and nervous invalids. There is, of course, no danger to any person in Lakewood from the presence of four hundred delicate boys and girls, the children of tuberculous parents and themselves in the "pretuberculous stage," whatever that may mean, or actually harboring the seeds of the disease, but this truth is not yet fully appreciated by the laity. The man in the street attends a tuberculosis exhibit, sees the pictures and models, and reads the warning

signs, all intended to impress upon his mind the necessity of caution on the part of the sick, lest by carelessness they infect others. The first lesson he learns is that the tuberculous subject is a menace to the community unless the utmost care is observed in his spitting, in his eating, in his coughing, even in his talking. He is told also that, if the tuberculous subject is properly instructed and acts upon the knowledge that he is a focus of infection, taking the most minute precautions in the disposal of his sputa and in catching the spray from his mouth in coughing and talking, there is no danger to others in his presence in the community. But this lesson is not so impressively nor so graphically taught as the other. Moreover, he learns that the safety of the well man depends upon the caution of the sick one. The latter is a man with a lighted cigar in a powder magazine. He is told not to flick the ashes, and maybe, probably indeed, he will not, but the average person naturally prefers, so long as he is in the powder magazine, that the man with the cigar should stay outside, or if he is already inside, the other man would rather keep away. That is the lay feeling in the matter of tuberculosis, and it will take a long campaign of education before this fear can be eradicated. Medical men know that the safest place for those predisposed to tuberculosis is in the neighborhood of a well conducted sanatorium, but the laity cannot be blamed if they are slow in learning this lesson as a corollary to the first one taught, which is that the careless subject of tuberculosis is a danger to the community.

Sanatoria for the tuberculous are necessary, and their establishment must be aided by the law, as in this State, if communities are not sufficiently enlightened to permit it otherwise. But those who establish the sanatoria should proceed tactfully and with an endeavor to minimize the antagonism of their neighbors. The Loomis Sanatorium is a model in this respect. It is said to be at Liberty, but it is far from the town, it even has a separate post office, and no one in the place need ever, except on his own volition, come within miles of it. The proposed sanatorium at Lakewood is very different. It is close to the town, in the town in fact. At present it is in what is called the Cleveland cottage, so named because President Cleveland once occupied it, but it is proposed, it is so reported, to utilize the Lakewood Hotel and fill it with four hundred children predisposed to tuberculosis. It is euphemistically and cacophonously called a "preventorium," and not a sanatorium, but the public will regard that as a distinction without a difference. Those who have the project in hand have been offered free of cost a tract of many acres of forest land in a convenient location, close to the railroad, a few miles below Lakewood, and if they are wise and are actuated by a single desire to benefit their charges, they will accept it, and free this resort from the stigma which the presence of a sanatorium, unreasonably, but none the less surely, would put upon it in the mind of the public. If the laity is to be educated up to tolerance of tuberculosis sanatoria, or "preventoria," the educators should refrain from such a tactless forcing of an object lesson upon a community where the presence of their institution would inflict a serious pecuniary loss and possibly ruin what is now deservedly the most popular winter health resort within commuting distance of New York.

WOMEN IN MEDICINE.

James J. Walsh contributes an interesting paper under this title to the third volume of the *International Clinics* (Nineteenth Series) which has recently appeared. We are so apt to assume that the entrance of women into professional life is such a late event that the title suggests a study of the recent growth of medical education among women that dates from the end of the last century. Walsh, however, tells of far-away times when medical education was at no lower level than at present so far as qualifications for practice are concerned, namely seven centuries ago. In Southern Italy and Sicily at that time the student was obliged to spend three preliminary years at the University, followed by four years at the Medical School of the University and a fifth year as an apprentice to a physician, and then only was granted the right to practise.

It was at that time that women were active in medicine, not in time of decadence, therefore, but when the profession was guarded by judicious requirements for special work and ability. At the University of Salerno the department of the diseases of women was under the direction of a woman, and her successors were likewise women. Trotula, a noted gynecologist; Abella, who wrote on melanchily; Mercuriade, who was a surgeon and wrote a book on ointments and the care of wounds; finally Rebecca Guarana, who wrote a book on fevers—these are the few names from among the *medicæ salernitæ* that have come down to us, and the mere enumeration of their activities in the various fields of medicine shows how high they must have stood in professional knowledge and efficiency. One Italian woman, Alessandra Giliani, took up anatomy as a specialty and originated the practice of filling the veins and arteries with colored material and then varnishing the specimens for preservation. She was a prosector for Mondino, and, quotes Walsh, "she would cleanse most skillfully the smallest vein, the arteries, all ramifications of the vessels, without lacerating or dividing them; and to prepare them for demonstration she would fill them with various colored liquids which, after having been driven into the vessels, would harden without destroying the vessels. Again she would paint these same vessels so naturally that, added to the wonderful explanations and teachings of the master, they brought him great fame and credit." This authentic passage from an old chronicle shows that most modern methods are little if at all in advance of the technique elaborated by the women physicians of seven centuries ago. It is only the subsequent centuries of ignorance and lack of all interest and reverence for the study of natural science that could have led to the total loss of the knowledge of the art and science of medicine gained by the men and women of the earlier times.

Lack of space forbids us to delve further into the

interesting data given by Walsh. His chief aim seems to be to show that association of women with men in the art and practice of medicine has always resulted in the benefit of mankind and of medicine in general.

A New Posture in Obstetrics.

There is probably no branch of medicine in which the familiar saying that "fools rush in where angels fear to tread" applies as it does in obstetrics, particularly when the "fool" is armed with a new pair of Simpson forceps. The introduction of forceps into midwifry was certainly a great advance in that science, and their use when actually indicated is a great boon to the woman in labor. It is, however, a good rule never to apply instruments while there is a reasonable hope of a spontaneous delivery, and the condition of the mother and child is good. When the head is low down, as long as there is any advance, be it ever so slight, it is far safer to allow nature to take its course. There are, however, certain ways in which nature may be aided without in any way adding to the danger to the patient, one of the most important of which is posture. In the *Deutsche medizinische Wochenschrift* for October 28, 1909, Max Samuel of Cologne offers a suggestion as to posture which he believes aids greatly in hastening the later stage of labor, when the head has passed the pelvic brim, and the inferior strait is causing the dystocia. Drawing an analogy from the Walcher position, in which by hanging the thighs over the edge of the bed or table, and thus hyperextending the hips, the diameter of the pelvic inlet is increased at the expense of the outlet, thus enabling the head more easily to engage, the author argues that, when the head has once passed this point and the pelvic outlet is causing the trouble, the opposite posture, flexion of the thighs, will increase the outlet at the expense of the inlet. He therefore advocates in all cases where there is any delay, after the head has reached the floor of the pelvis, that the thighs be flexed and the legs held in the patient's hands, the knees also being flexed. By this process Samuel says that the pelvic outlet is widened, the woman is better able to use her pains, and that the pains themselves are less agonizing. He has made use of the posture in a large number of cases, and believes it to be of considerable value in hastening and easing labor and in preventing the necessity of applying forceps to the head in the outlet. If such a simple procedure really does save the necessity of applying forceps, with their ever-present danger to mother and child, it may prove a valuable addition to the armamentarium of the conservative obstetrician.

Fulguration for Cancer.

Like so many proposed cures for cancer, fulguration has given disappointing results so far as a cure without surgical interference is concerned. What is really gained by the use of high frequency currents after the method of Keating-Hart is a very great stimulation of the tissues, and a rapid cicatrization of wounds, no matter how large their extent. Thus it is possible by removing the cancerous mass, without making a clean sweep of all possible infected tissues, to get a cure by applying the fulguration method to all the uncovered and surrounding tissues. The cells that are involved which are left behind lose their malignant power. Large wounds that could not be cicatrized in any other way will heal quickly, permanently, and without much scarring, the cicatrical tissues being soft and pliable, instead of hard and contracted. In cases that are rated as inoperable this method is of the greatest value, permitting something to be done to prevent the spread of the malignant process. In a series of articles by H. Duret and René Desplats in the *Journal des Sciences Médicales de Lille*, for August and September, 1909, these advantages are thoroughly discussed. Cases are reported in which vast masses of cancer, after removal, were prevented from recurring and the surfaces cicatrized. Such cases would be absolutely hopeless under any other method of treatment, and surgery gives no hope of even a prolongation of life. The only bad results obtained are due to neglect of asepsis and the use of too strong applications of the current. The results are not so good in cancers of the mucous surfaces as in cancers of the skin. Cancers of the breast have done well in the experience of the authors. The best results have come from cancers which had largely invaded the connective tissues. An element in the cure is the marked lymphorrhea, the result of the removal of lymphatic engorgement, which assists in carrying off toxic materials resulting from rapid tissue changes.

News of the Week.

The Report of the Secretary of Agriculture, just published, contains a number of items of considerable medical interest. The outbreak of foot-and-mouth disease caused a considerable reduction in the exportation of cattle and sheep. Export inspections numbered 397,925, including reinspections of 227,255 animals for export from the United States. During the year 473 inspections of vessels carrying live stock were made. In stamping out this disease 3,636 animals were slaughtered, the value of which was $90,033.18. The amount expended for the eradication of the disease was kept within the special appropriation of $300,000. Continued progress has been made in the extermination of ticks that spread the infection of Texas fever among cattle in the South. During the year upward of 13,544 square miles were released from quarantine because of its having been freed from ticks. The freed areas were in the States of Virginia, North Carolina, Tennessee, Arkansas, Oklahoma, and California. The Department made a great forward movement in enforcing the food and drugs act. It now has branch laboratories for the examination of samples at 21 of the leading commercial centers, about one-half of these being seaport cities. Samples of foods and drugs imported from foreign countries are taken by agents of the Treasury Department. Inspectors of the Bureau of Chemistry collect samples of domestic products and inspect factories. The number of factories inspected during the year was 1,300, and the number of samples of domestic products taken was 15,000. Nearly 10,000 of these were examined in the laboratories, and about 2,000 were forwarded to the Department for reexamination. Of the imported products more than 8,000 samples were taken; 2,500 of these were sent to Washington for reexamination. Some flagrant violations of the law have occurred and prosecution of the violators has been vigorous. The Department Solicitor has prepared and reported to

the Attorney-General for prosecution 494 cases, and of those tried but two were lost. Convictions and fines aggregating over $2,000 were secured in 85 cases; and in 98 cases decrees of condemnation and forfeiture were issued covering many tons of food and drugs. As a result of these operations, misbranded and adulterated products are rapidly disappearing from interstate commerce. By careful inspection of foods and drugs imported from foreign countries, and a vigorous enforcement of the law, marked improvement in the character of the imports has been secured, and very few fraudulent or misbranded articles are now offered for entry. Since the passage of the Food and Drugs Act the "prescription scheme" has arisen. Under this plan of selling proprietary medicines, a prescription is sent through the mails. The prescription will contain several well-known medicinal agents, but also a coined name of some unknown product. To fill the prescription the recipient must purchase the agent sold under the coined name. Analyses of these products have shown that they usually consist of the cheapest and commonest of ingredients, though advertised as panaceas for various diseases. Such remedies are plainly fraudulent, since they have no curative properties for the diseases for which they are recommended. It has been discovered that many mosquitos are sewer-bred, and that malaria-bearing mosquitos in dry summers will breed in the sewer traps, making it extremely important that all sewer traps be treated with kerosene. An investigation of the effects of certain drugs commonly used in headache remedies of the present day, showed that the indiscriminate use of remedies containing these drugs without the advice of a physician frequently produces poisoning, a drug habit, or, in some cases, death.

Prize Offered for Tuberculosis Cure.—A person, whose name has not been made public, has offered a prize of $100,000 for the discovery of an absolute cure for tuberculosis. Yale University is the custodian of this prize, and the physicians attached to the Yale Medical School are to act as trustees. The trustees have invited many well-known physicians to become members of an advisory board whose duty it will be to pass on the merits of cures submitted. Among the physicians selected as members of this board are Dr. E. L. Trudeau of Saranac Lake, N. Y., Dr. Simon Flexner of the Rockefeller Institute, Dr. William H. Welsh of Johns Hopkins University, Baltimore, Dr. Lawrence F. Flick of Philadelphia, and Dr. Herman Biggs, chief medical officer of the Department of Health in this city. The donor places few restrictions on his gift and it is open to any scientist or physician the world over. The money will be held in trust, it is understood, and the interest from it will go toward investigating any cures the trustees or members of the advisory board hear of but that are not submitted to them for examination. The advisory board plans to hold four meetings a year, and will hold others if the cures or alleged cures that are submitted warrant it. One of the duties of the advisory board will be the exposure of "fake" consumption cures which may come to their notice. So that the advisory board and the trustees will not be bothered with bogus remedies, one of the restrictions in the deed of gift is that the remedy must have been in use for five years and must be backed up by reliable testimonials that it has resulted in cures.

Opposition to a "Preventorium" at Lakewood.—A committee of citizens of Lakewood, N. J., recently held a meeting to protest against the establishment of a Preventorium in the city. The superintendent of the institution was arrested on the charge of bringing dependent children into the State without permission of the State Commissioner of Charities and was held in $2,500 bail. Appeal was made by the backers of the institution to Governor Fort on the ground that the children were not diseased but merely run down, to which the Governor has responded that the law to prevent the importation of tuberculous children into the State would be enforced.

Smallpox in Mexico.—A dispatch from Torreon, Mexico, states that there is a severe epidemic of variola among the miners of the Santa Barbara mine near there. The mine physician has eighty cases of the disease under his care, several of the patients being Americans.

Deportation of Alien Insane.—According to the annual report to the State Commission in Lunacy by its Board of Deportation, 489 insane and defective aliens were deported from New York during the fiscal year just ended. The commission estimates that the State saved from these deportations about $978,000. During the year there was an increase in the total number of immigrants passing through Ellis Island of 287,276, and the work of the board was increased 50 per cent. With the aid of the Lunacy Commission the board obtained the removal to other States of 165 additional insane patients who had found temporary domicile in the State hospitals.

Investigation of Christian Science Death.—A coroner's inquest has been investigating recently in Winsted, Conn., the death of a man, thirty-seven years of age, who died of a pulmonary trouble after an illness of one month. During that period he was visited three times by a Christian Science healer from Hartford, beyond which he had no treatment except that of the absent kind.

The Cuban Secretary of Health and Charities, Dr. Matias Duque, recently resigned and has been succeeded by Dr. Manuel Varona Suárez.

A Postgraduate Course in Tropical Medicine is announced by the Oakland (California) College of Medicine, to be given from January to March, 1910, under the direction of Dr. Creighton Wellman. It is intended that the course shall be as practical as possible, the students preparing and examining their own specimens. Especial attention will be paid to tropical diseases already endemic in this country. The course begins January 3, 1910.

Candidates for Blood Transfusion.—In response to an advertisement inserted in two New York papers recently, offering a substantial reward to a young, healthy man willing to be a donor in a transfusion operation, sixty applicants appeared.

Medical Needs of New York.—The annual report of the Charities Organization Society of New York calls attention to the great need of more beds and more hospitals for tuberculosis patients. The report also instances a number of local needs for varying neighborhoods. In the Greenwich district it calls for "healthful, decent tenements at moderate prices"; in the Chelsea district, "better housing accommodations, and a day camp for consumptives in addition to a free milk depot for the

benefit of tuberculosis cases." The Riverside district, situated on the upper west side, with its center at 127th Street, the report states needs a good general hospital, a night dispensary, a day camp, and a night camp for tuberculosis patients.

New Hospital for Brooklyn.—Plans for the new Bradford Street Hospital in the East New York section of Brooklyn were filed recently in the Bureau of Buildings. The hospital will cover the entire block on Dumont street between Miller and Bradford streets and will have a capacity of a hundred beds. It will be five stories in height with an extension of two stories. The building will be in the early Italian Renaissance style and will be constructed with a granite base and red brick with terra-cotta trimmings above and will be fireproof throughout.

The Bayonne Hospital was dedicated recently. The building is in East Thirtieth street. It is of brick and three stories in height. It is well equipped and it cost about $60,000.

Uniform Medical Civil Service Examination.—Standard examinations for all places of physician in the classified service have been established by the National Civil Service Commission in place of the different standards set up by the various departments. The change is important in that it will enable an applicant, by passing one examination, to become eligible for appointment in any branch in which physicians are employed. This departure is in line with the policy of the commission of providing standard examinations for all places for which the duties are the same.

American Society of Sanitary and Moral Prophylaxis.—The next regular meeting of this society will be held at the Academy of Medicine, Thursday, December 9, at 8:30 P. M. The general subject for discussion will be: "Shall the State Require a Medical Certificate of Freedom from Transmissible Disease as a Condition of License?" Papers will be presented by H. M. Johnston-Wood, Charlotte Perkins Gilman, and L. Duncan Bulkley, M.D.

The Southern Surgical and Gynecological Association will hold its twenty-second annual meeting at the Hot Springs Hotel, Hot Springs, Va., December 14, 15, and 16, 1909. The president of the association is Dr. Stuart McGuire of Richmond, Va.; the secretary is Dr. W. D. Haggard of Nashville, Tenn., and the chairman of the committee of arrangements is Dr. Lewis C. Boscher of Richmond, Va.

The Southern Medical Association completed its third annual convention on November 11, 1909. The following officers were elected: *President*, Dr. W. W. Crawford of Hattiesville, Miss.; *Vice-presidents*, Dr. J. F. McInstry of Florida, Dr. W. S. Leathers of Mississippi, Dr. I. R. Snyder of Alabama, Dr. H. L. Harris of Georgia, Dr. George Dock of Louisiana, and Dr. Frank Jones of Tennessee; *Secretary-Treasurer*, Dr. Oscar Dowling of Shreveport, La. The convention of 1910 will be held at Nashville, Tenn., during November.

The Second District Medical Society of Iowa, at its annual meeting held at Davenport recently, voted to meet again next year in the same city. The following officers were elected: *President*, Dr. L. W. Littig of Iowa City; *Vice-Presidents*, Dr. E. H. King of Muscatine and Dr. G. F. Harkness of Davenport; *Secretary-Treasurer*, Dr. John V. Littig of Davenport.

The Hardin County (Ky.) Medical Society, meeting at Elizabethtown, November 12, 1909, elected the following officers for 1910: *President*, Dr. C. C. Carroll of White Mills; *Vice-president*, Dr. D. E. McClure of Sonora; *Secretary* and *Treasurer*, Dr. J. M. English.

The Des Moines County (Iowa) Medical Society, at its annual meeting, at Burlington, Iowa, recently elected officers as follows: *President*, Dr. Charles F. Frantz; *Vice-president*, Dr. Fred Koch; *Secretary*, Dr. Julia Donahue.

The Italian Medical Society of New York held its first annual dinner at the Hotel Astor recently. More than 400 members of the Italian colony and invited guests attended. Dr. Antonio Stella, president of the society, was toastmaster.

The Harvey Society.—The second lecture of the Harvey Society will be delivered by Dr. Otto Cohnheim of the University of Heidelberg on Saturday, December 4, at the New York Academy of Medicine, at 8:30 P. M. The subject of the lecture will be "The Influence of Sensory Impressions on Scientific Deductions." All physicians and others interested are cordially invited to attend.

The Clinical Society of the West-side German Dispensary and Hospital was organized November 24, 1909. The society is composed of the members of the staff and the faculty of the New York School of Clinical Medicine. The following officers were elected: Dr. Robert N. Disbrow, President; Dr. Leon F. Garrigues, Vice-president; Dr. D. L. Morrison, Secretary. The meetings will be held on the first Tuesday of each month.

Obituary Notes.—Dr. WILLIAM T. ATKINSON died at Philadelphia on November 23 at the age of 76 years. He was graduated from Jefferson Medical College in the class of 1853. He was at one time lecturer on obstetrics and diseases of children in that institution and subsequently he occupied a similar position in the Medico-Chirurgical College. He was for many years secretary of the Medical Society of Pennsylvania and also of the American Medical Association.

Dr. JOHN PIERRE FRISHMUTH died at Philadelphia on November 20 at the age of 41 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1890. He was at one time connected with the American Hospital for Diseases of the Stomach and he was a member of the Philadelphia County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. JACOB QUICK died at Philadelphia on November 20 at the age of 84 years. He was graduated from Rutgers College in the class of 1847 and from the Medical Department of the University of Pennsylvania in the class of 1851. He enlisted in 1862 as surgeon in the 22d New Jersey Infantry Regiment and at the close of the war took up his residence in Trenton, N. J. He removed to Philadelphia in 1879.

Dr. I. NEWTON SNIVELY died at Philadelphia on November 23, following an operation for ulceration of the bowel, at the age of 45 years. He was graduated from Chambersburg Academy, from Gettysburg College in 1887 and from Bellevue Hospital Medical College in the class of 1889. He was for a time connected with the Medico-Chirurgical Hospital, and subsequently he became physician to the Samaritan Hospital and later Professor

of Materia Medica, Therapeutics, and Clinical Medicine in the Medical Department of Temple University and dean. He was a member of the Philadelphia County Medical Society, Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. Frank Bradford Sprague of Providence, R. I., died on November 17, 1909, aged 44 years. He was a graduate of the Medical Department of the University of Vermont in 1889. For the past fifteen years Dr. Sprague had confined himself to the diseases of the ear, nose, and throat, in which specialty he had attained a national reputation. He was aural surgeon to the Rhode Island Hospital and was a member of the Rhode Island Medical Society, the New York Academy of Medicine, the American Otological Society, the Medical Improvement Club of Providence, the American Laryngological, Rhinological, and Otological Society. He was a fellow of the Academy of Ophthalmology and Otolaryngology.

Dr. Esther H. Young of Minneapolis, Minn., died at the Asbury Hospital November 15, 1909, of carcinoma, aged 63 years. Her husband dying in 1891, she took up the study of medicine, graduated from the medical department of the University of Minnesota, in 1893, and became one of the best-known women physicians in the State.

Dr. James Wharton McLaughlin of Austin, Texas, died November 13, 1909, aged 69 years. A native of Ohio, Dr. McLaughlin was a Southern sympathizer and fought through the Civil War in the Confederate army, afterward settling in Texas and graduating from the Medical Department of Tulane University in 1867. From 1895 to 1907 he was Professor of Medicine in the University of Texas and since then has been a regent of the University. At various times Dr. McLaughlin has served as president of the Travis County Medical Society, the District Medical Society, and the Texas State Medical Association.

Dr. Samuel James Kelly of Fall River, Mass., died at his home November 15, 1909, aged 53 years. He was a graduate of the Ecole de Médecine et de Chirurgie in Montreal, in 1888, and was a member of the Fall River Medical Society.

Dr. Samuel Kahn of New York died at his home on November 26, 1909, of chronic nephritis, aged 55 years. He was a graduate of the New York University Medical College in 1877. Dr. Kahn was the founder, president, and attending physician of the German Poliklinik. He was a member of the German Medical Society and the Physicians' Mutual Aid Association.

Dr. Charles K. Cutter of Somerville, Mass., died suddenly on November 11, 1909, at his home, aged 59 years. He was a graduate of Tufts College in 1872 and of the Harvard Medical School in 1876.

Dr. Samuel Brightwell Smallwood of Long Island City died at the Post-Graduate Hospital November 27, 1909, aged 69 years. He was a graduate of the New York University in 1864, and was a member of the Queens-Nassau Medical Society and the New York State Medical Association

Dr. William Geoghan of New York died November 27, 1909, of heart disease, aged 55 years. He was a graduate of the Albany Medical School in 1874, and was a member of the Medical Society of the County of New York and the New York State Medical Association.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

INFLUENCE OF MIND OVER BODY—PSYCHOSES—THERAPEUTICS OF SUGGESTION, HYPNOTISM, ETC.—SIR HENRY MORRIS, P.R.C.S., ON CHRISTIAN SCIENCE—KING'S BIRTHDAY—SURGEON-GENERAL EVATT ON HEALTH OF THE PEOPLE—OBITUARY.

London, November 12, 1909.

For a considerable time there has been a recrudescence of interest in certain phases of psychology—hypnotism, suggestion, mesmerism, etc. The subject was even brought before that august medical body, the Royal College of Physicians, in the Harverian Oration, on the 18th ult., as I mentioned in a former letter. The orator this year was Dr. Savage of Guy's, whose reputation on mental disease must be well known to you, but even he remarked that in treating of these subjects he felt "on dangerous ground," and knew that many of his colleagues would shake their heads and doubt the utility of considering them. But the advice of Harvey was to "follow truth without fear as to whither it may lead." So far as he had gone it seemed to him more than likely that the two opposing forces—experimental psychology and hypnotism—may after all unite on scientific advance. As to hypnotism, he said he began with doubt, passed into a stage of indifference, and has now reached the stage of hope.

Dr. Savage accurately diagnosed the mental attitude of a proportion of his distinguished audience, though many were inclined, after the facts he related, to give consideration to the subject in all its aspects, especially in the scientific direction. The general interest in such matters was considerably increased by this oration, and was further shown by a discussion on the 28th ult. at the Harverian Society. This was opened by Dr. Claye Shaw, emeritus lecturer on psychological medicine at St. Bartholomew's. Suggestion, he remarked, was the insinuation of a belief or impulse into the mind of a subject by any means, words, gestures, emphatic declarations, etc. But there was also the impulse of trust and submission required to make the incitement effective. It is no new thing; it was applied in early ages and at various times since. There are two schools; one holds there is a purely mental element, susceptible to influence by appeal to it as a separate primary agent; the other says mental conditions are inseparably associated with nerve states, and denies the existence of such entities as will and active attention. The modern school of psychology is absolutely materialistic, and insists that will, attention, etc., are results, not causes, but many who have insisted on this find themselves saying there is yet something to be explained, for "I will" goes beyond "I must." Psychologists tell us that voluntary action and attention can be split up into certain components, and depend chiefly on the strength of emotion; but we know nothing of the real nature of emotion or what nervous or visceral condition may or may not be concerned in making it strong or weak. By telling a person afraid of something that there is nothing to fear, and insisting so, we may change his emotion and perhaps his will and attention, but we do not so impose our will on his. Moreover, the change is gradual, whatever it may be. No doubt many of us use suggestion without noticing it. We rouse hope or inspire confidence by personality, arousing dormant tracts of thought. In presence of one mental state it is difficult to recognize the existing of opposite ones which are dormant. That a person feels depressed does not imply that the brain condition correlated with joy and contentment does not exist. It is only dormant or overshadowed, and here perhaps is the explanation of treatment by suggestion, raising it to a reasonable hypothesis. There is then no need for theatrical tricks, but a right-thinking man may possibly think some things will enforce his legitimate suggestion, say, silence, fixed gaze, passes, and so on. Putting aside the doings of quacks and clever amateurs, and regarding only the work of medical men who have systematically used suggestion alone, or in combination with hypnotism, Dr. Claye Shaw asked whether there was valid ground for using it as a therapeutic agent, and replied that, personally, he believed there was.

Dr. Milne Bramwell, following, referred to Elliotson and Braid, who both desired to determine the mental influence of drug-taking. Some men, like Gall and Andrew Clark, obtained great successes with the simplest remedies, and their personal influence might be to some extent the cause. Dr. Hack Tuke held that he could do with suggestion what he could not by drugs alone, and Benedict said

the effects attributed to magnets were really due to hypnotism. James Braid's earlier work was well known, but many were unaware that later he found simple suggestion as useful as hypnotism, and had left the testimony that not one in ten of those he cured had passed into a state resembling sleep.

Dr. Bramwell, continuing, mentioned some of his cases which had greatly benefited after suffering for years. He said suggestion would cure some who were quite disheartened and suicidal. Its best cases were of obsessions, and no one supposed a dread of enclosed space or a morbid fear of cats yielded to drugs. He had cured a man with an obsession that he must throw himself out of a window, and the patient had remained well and doing useful work. He could not explain these cures, and he certainly had no claim to any mysterious influence. But he was glad the subject was getting more attention, that a society to study it was formed, composed of medical men, and 80 had already joined.

Dr. Seymour Tuke, as an alienist, could not report encouragingly. Only cases sane except on one point, *i.e.* when the power of attention and concentration remained, were benefited. Suggestion was wonderfully effective in inebriety if the will was under some sort of control. Possibly a mental physician constantly in contact with patients might get into a sort of communion with them and so exercise a slow suggestive influence.

Dr. Lloyd Tuckey had employed suggestion for twenty years, and said dipsomania and other diseases which drugs could not touch were amenable to it. He had never known it to harm, and the profession ought to employ it in appropriate cases. When they were trained in psychotherapeutics patients would come to them instead of going to quacks.

Mr. Stephen Paget spoke about "Christian Science," which he has done much of late to expose. Dr. R. H. Cole said he studied the subject at Paris twenty years ago, and was much disappointed. Hypnotic suggestion might be powerful for either good or evil, and should be used only by specialists. It would cure dipsomania, but he had never seen it benefit insanity with fixed delusions.

Dr. J. F. Woods had treated 4,000 cases—some with remarkable results—and he enthusiastically supported suggestion. It was not necessary to induce hypnotic sleep. He usually put the patient in an armchair and told him to compose his thoughts and relax his muscles. Sometimes he might stroke the forehead or epigastrium, and when the patient seemed comfortable make suggestions of quiet, rest, warmth, etc. In some cases he would then leave the patient for half an hour, and on returning it was not uncommon to find him asleep.

Mr. Armit said a stranger had more influence over a patient than his familiar doctor. People talked of the will, of mind, and the subconscious mind, of which nothing was really known, but because a thing could not be explained was no reason for denying that it had influence. To stop the doings of outsiders the profession must use these remedies properly.

Dr. E. L. Ash said verbal suggestion was often scarcely enough. In addition, hypnotic sleep might suffice, but material treatment was better. Giving a placebo and telling the patient what to expect was suggestion of a half-hearted kind which many had resorted to. Surely it was better that suggestion should take its place as an ordinary adjunct to other therapeutic proceedings. To make a specialty of it was as unscientific as it was retrograde.

Two or three other speakers mentioned cases in general practice, and Dr. Shaw, replying admitted that the testimony brought forward in the debate satisfied him that suggestion and hypnotism were definitely useful remedies.

Last night Sir H. Morris, president of the Royal College of Surgeons, addressed the Medical Society of the Middlesex Hospital, on "Superstition and Research." He said the great advances made were due, in the words of John Donne, to "the sacred hunger of science." As to the kind of science he would say physical. That, searched for truth by the method of research; at present quackery was rife in Germany as "natural treatment," in this country and America as "Christian Science." This last ignored the reality of sickness and called for "spiritual force" to remove the idea of disease, saying actual disease had no real existence. Mrs. Eddy and her followers practically claimed to work miracles none the less by talking of the "annihilation of illusion." But their miracles differed from those of the New Testament by requiring faith in the patient instead of in the healer, by refusing physical means, and by inability to do what they were told could be done under the Christian dispensation and was done by the apostles. The only passage they quoted said they should lay their hand on the sick. How could they do so when they pretended to heal at a distance? Why did they disregard the other endowments mentioned in that text? Let them speak with new tongues, take up serpents, drink deadly things, and so show that imputations of manslaughter and deceit made against them are not merited. Our repugnance to their presumption was because they misled the credulous, the ignorant, and the helpless into supposing that miracles would be wrought at their instigation, and so persuade or even enforce their victims to refuse physical means of cure. As medical men we were not concerned with their muddling with metaphysics, but with their meddling with medicine to the injury of the sick through their cruel and fatal practice. It was in the interest of the suffering one should oppose false teaching about disease and sickness. Within the last few days, Sir Henry said, his hearers might have read Lord Curzon's letter on a pretended interview between a notoriously hysterical journalist and the spirit of an illustrious dead person, to which publicity had been given as a political maneuver on behalf of an unpopular budget. In the same period also the trial and verdict for £1000 damages against a hypnotist whose cures and indifference to the "cage of death" were vouched for by many credulous witnesses. He commended the judgment of the judge in that trial to their careful perusal.

The honors list of the King's birthday is rather disappointing in some quarters, for medicine proper seems quite neglected. But chemical science is noted in Sir Henry Roscoe, F.R.C., who becomes a Privy Councillor, and in Professor Tilden, F.R.S., who represents that science in relation to pharmacy, and receives a knighthood. Dr. J. A. Haran is an M.D. and M.A. and the M.O.H. of Mombasa, and gets the C.M.G. Mr. J. M. Moody, M.R.C.S., has been for twenty-five years superintendent of Cane Hill Asylum, and gets a knighthood. So does Dr. G. H. Pollard, who is a Doctor of Medicine and a barrister as well, but his promotion is due to his being an M.P. and a supporter of the government.

Surgeon-General G. J. H. Evatt gave an address on the "Health of the People" on the 8th, in which he declared the higher type of doctor took up the study of prevention rather than cure, and of this type the army offered the first examples. It was, he said, of extreme importance that the officer sent to inspect barracks should not be subordinated to the one in charge, and just so the civilian medical officer of health ought not to be under the dismissal power of the local authorities without power of appeal. He believed that the temperance question had been solved in the army by doubling the entire space and by providing libraries and recreation rooms, and so the same result might be attained by the civil community enforcing the same measures.

Mr. H. H. Clutton, Senior Surgeon to St. Thomas' Hospital, died on the 19th inst., after a long illness, aged fifty-nine. He was a member of the Council of the Royal College of Surgeons and representative of that body in the senate of the University of London. He was a Cambridge graduate M.A., M.B., and C.M. His career at St. Thomas', where he had also been a student, was one of success. His works on "Diseases of the Bones" and on the "Surgery of Deformities" will be known to you, as will his contributions to the treatises of surgery, the medical societies, and the journals. Yesterday the Council of the College of Surgeons passed an appreciative resolution of regret at the loss of their colleague.

Deputy Surgeon-General J. E. Scott (retired) has died in Dublin, aged eighty-five. He took the Dublin M.D. in 1854 and M.R.C.S., England, in 1846.

OUR PARIS LETTER

(From Our Regular Correspondent.)

FRENCH ASSOCIATION OF UROLOGY—URETERAL CALCULI—IONIZATION IN GONORRHEA—URETHRAL BULBITIS—OPERATIVE INDICATIONS IN GENITAL TUBERCULOSIS—PENETRATING WOUND OF THE RECTUM AND BLADDER—BILHARZIONIS OF THE BLADDER—CYSTOSCOPY BY DIRECT VISION.

PARIS, October 30, 1909.

At the opening session of the French Association of Urology, Jeanbrau of Montpellier presented a very complete study of the anatomopathology of calculus of the ureter. He indicated what were the functional symptoms showing the presence of calculus in the ureter, whether in the lumbar region, in the juxtavesical region, or finally in the pelvis. From the point of view of prognosis, every calculus pursued fatally its destruction of the kidney which had formed it; further, it prepared anuria for the time when the obliteration of the opposite ureter should take place. The diagnosis might be made by palpation of the abdomen,

vaginal touch, rectal touch, cystoscopy, and ureteral catheterism. The precise diagnosis should always be made by radiography, which should be systematically practised always, of the entire urinary apparatus. The best means of avoiding all radiographic errors consisted in making the radiograph after ureteral catheterism with a sound with metallic staff. From the point of view of therapeutics the extraction of ureteral calculus must be made systematically and more quickly than in calculus of the kidney. In periods of anuria we should attempt to catheterize the ureter last obstructed, and that maneuver might be followed by re-establishment of the flow of urine. From the operative point of view three methods allowed of the removal of ureteral calculi—extraction through the upper part of the ureter after nephrotomy or pyelotomy, extraction by the lower orifice after cystotomy, extraction of the calculus by incision of the ureter or ureterolithotomy. The last operation gave excellent results and a cure often resulted without a fistula when the surgeon had verified the permeability of the ureter below the calculus and incised the stricture if it existed.

Legueu drew attention to a special symptom which was met with in calculus of the ureter, the defensive contracture of the abdominal wall. This sign often showed the point at which to operate. Legueu observed an interesting case in which an extremely mobile calculus of the ureter, following the position of the sick man, passed from the termination of the ureter to the pelvis of the kidney. He operated on this patient by nephrotomy in inclined posture, to make the calculus descend to the region of the kidney, where it was removed. George Luys believed that from the diagnostic point of view, aside from radiography, a simple means of ascertaining the presence of the calculus in the ureter was to catheterize the ureter; by withdrawing with slight jerks the instrument the roughness characteristic of the condition might be felt. From the therapeutic point of view a surgical operation should only be performed when attempts at extraction by the natural passages had failed. Among these we must remember how easily the lower extremity of the ureter could be reached with the cystoscope for direct vision. The duct could be easily dilated and the maneuvers practised directly in its interior. Desnos succeeded in three cases, in the course of nephritic colic, in causing the immediate passage of the calculus by ureteral catheterism. When the calculus had been held for a long time in the ureter we might try to practise ureteral catheterism, but softly and with a small and extremely soft sound, for perforations of the ureter had occurred. Tedenat of Montpellier said the diagnosis of ureteral calculus had been rendered more precise by radiography. Some calculi caused no shadow; uric acid calculi and other forms in different lesions might give the impression of ureteral calculi; such were calcification of the ureters, glands, and ligaments. We must know how to control our radiographs by knowledge gained by ureteral catheterism and previous attacks of colic which had or had not ended in the expulsion of the stone. Arcelin of Lyons insisted on the radiographic shadows of the pelvic cavity. Aside from radiographic shadows due to the presence of ureteral calculi, there were other shadows similar in all points to these, due to opaque bodies situated outside of the urinary passages. Radiography alone did not permit us to distinguish urinary calculi from other bodies opaque to the *x*-rays. Among these some had a fixed, others a movable, position. By radiography associated with catheterism of the ureters, with a sound opaque to the *x*-rays, we might distinguish calculi of the ureters and make a precise diagnosis. Henry Mariger of Paris had studied ionization applied to the treatment of chronic ureteritis, and gave his conclusions from 29 cases, of which 11 had remained cured for from six to twenty-four months. Paul Hamonic of Paris spoke of ureteral bulbitis, which was an inflammation of the juxtaurethral bulbar curve. This form was extremely rare, and Hamonic had seen it only seven times in twenty-four years. Blenorrhagia was the most important etiological factor. When the infection was intense little fissures were produced in the mucous membrane of the ureter, which acted as doors of entry for the germs. Wounds made in the course of catheterism had the same effect. The essential symptoms were a painful swelling of the bulb, which took the form of a little club; resolution was the rule. Suppuration began with extremely painful dartings. The disease might end in gangrene and death by infection. The diagnosis was made from Cowperitis, which was lateral, while bulbitis was median. Panchet of Amiens had fixed the operative indications of genital tuberculosis in men. Genital tuberculosis in man should be treated by total extirpation of the spermatic passages, epididymis, vas deferens, vesicles, and prostate, whenever the lesions were limited to one side and there were not advanced lesions of the urinary apparatus or lungs. The operation had three steps—inguinal, for the dissection of the vas deferens as far as the bottom of the pelvis; scrotal, for the resection of the epididymis or castration; perineal, for the extirpation of the vesicles and excision of the diseased prostate. The cure was complete and the final results were very good. Drs. Duret and Lepoure of Lille presented a case of perforation of the rectum and bladder by a penetrating wound. Penetrating wounds of the rectum and bladder by impalement were rare and up to the present time their treatment had not been established in a satisfactory manner. The evolution of penetrating wounds of the rectum and bladder was spontaneously favorable. But we must foresee the complications of a secondary nature that change the prognosis. An early cystotomy might be indicated in an analogous case.

Ernst and R. W. Frank of Berlin had examined at St. Peter's Hospital, in London, two cases of bilharzia of the bladder by cystoscopy. The two patients were infected during military service in South Africa from drinking water. After cystic pains there appeared dragging and burning pains in the lumbar region. Hematuria then occurred, at first terminal, then frequent and most intense, so that general enfeeblement and anemia ensued. The eggs of the Distoma were found in the urine of both patients. Gauthier of Lyon gave the indications for cystoscopy by direct vision. The author had made use exclusively of the instrument of Luys. Basing his conclusions solely upon his personal observations, he gave the following indications: ablation of foreign bodies, biopsy of tumor, diagnosis of the cause of an abundant hematuria at the moment of examination, ureteral catheterism (a) when the ureteral orifices, on account of stricture, prolapsus, etc., or the ureters themselves attacked by inflammation and stricture, would not admit sounds passed by means of the prismatic cystoscope; (b) when blood or pus fell momentarily from the kidneys or a vesical lesion, tumor, or ulceration made turbid the water introduced into the bladder for cystoscopy by the prism; (c) when the vesical capacity was very much reduced below 20 cubic centimeters. The instrument of choice for certain operations within the bladder, the Luys cystoscope, for exploration of the bladder and catheterism of the ureters, should give place to the cystoscope with prism. Jeanbrau of Montpellier showed a cystoscopic view of a leek which had been introduced into the bladder by a man forty years of age. This leek was 24 centimeters in length and 11 millimeters in diameter. It was removed by the hypogastric route on the twelfth day. The bladder was sutured and a healing took place by first intention.

Progress of Medical Science.

Boston Medical and Surgical Journal, November 18, 1909.

The Care of Club Foot in Infancy without Operation.—A. Ehrenfried's conclusions are as follows: (1). Practically all cases of congenital club foot are curable without operation if taken in hand before the child is six weeks old. (2). The younger the infant at the time of instituting treatment the better. (3). The results are better than if treatment is postponed until operation becomes necessary. (4). The routine treatment is manipulation followed by a plaster bandage every two weeks, progressively over-correcting the foot; as soon as the foot offers no resistance to over-correction and maintains the normal position naturally, continued manipulation, a tin splint to be worn at night, or a brace if the child is old enough to walk. (5). Relapses are bound to occur under any form of treatment if the after care is neglected; the patient should be kept under close observation for one year after apparent complete recovery.

A Review of Recent Experimental Work on Hemorrhagic Conditions.—This review is presented by W. P. Lucas, who says that some of the apparently unaccountable hemorrhages of childhood may be due to a chemical combination of the bile salts and the calcium salts, thus rendering the blood incapable of coagulating. In congenital or

hereditary cases the cause may be the absence of the tissue coagulins. Therapeutic measures viewed in the light of experimental evidence must supply the deficiency in each case or correct faulty performances of normal processes or act as stimulants for the production of such processes by the body cell. Calcium salts may be given by the mouth or subcutaneously, but experiments have shown that while the amount of ionizable calcium in the blood and this is the only form that counts, may be increased, this increase is so slight as to be unavailing. The use of gelatine is purely empirical. We have no evidence that it increases coagulability. Adrenalin as usually given is inert for it loses its power before it gets into the circulation. Subcutaneously there is no effect on the blood pressure, that is, no recognizable effect. Intravenously we get an increased pressure but this may increase the bleeding. Its action is entirely a mechanical one on the vessels, making osmosis more difficult by increasing the contractile tone of the vessels, especially the peripheral ones. In recent years the revival of blood transfusion promises more favorable results. These naturally follow more constantly in the hands of those surgeons who are operating all the time and who have acquired the necessary technical skill. The danger of this procedure is lessened if the blood is taken from a member of the patient's family. Horse serum is little powerful, rabbit's serum is more so, and human serum heads the list in potency.

New York Medical Journal, November 20, 1909.

Tonsil Removal.—E. V. Hubbard comments on the various views as to the tonsillar function and comments on the removal of the submerged variety. Obviously this should be as thorough as possible. He is not an advocate of some of the recent methods of deep dissection. He prefers the use of the cold wire snare and has devised a tonsil harpoon and a tenaculum to aid in thorough removal of the offending tissue; also a modified Mosely's snare and a special scissors to be used for blunt dissection. The use of the harpoon which has movable points is to raise the tonsil from its bed.

A Case of Uremic Amaurosis Following Scarlet Fever.—A case is reported of a boy of 13 years by A. C. Sautier, who says that this form of amaurosis is perhaps most often found as a complication of a post-scarlatinal nephritis. Almost invariably the eye lesion has occurred during the period of desquamation, being preceded and often accompanied by uremic manifestations, convulsions, vomiting, headache, etc. As a rule blindness sets in suddenly, involving both eyes, and is absolute. In most cases vision returns to normal with from one to three days. In most instances also the iris responds to the light stimulus even during the blind period. All of the reported cases who survived the constitutional affection recovered full vision. The case reported here was doing well in this respect when last seen. Vision may return and still the patient succumb to uremia. There has been considerable discussion as to whether the transient blindness of uremia is of cortical origin or due to a peripheral lesion involving the optic nerve or ganglion cells of the retina. Graefe laid particular stress on the retention of the light reaction and placed the lesion accordingly beyond the corpora quadrigemina, but cases since reported, in which there was no reaction to light, and a few cases in which the condition was complicated with visible peripheral lesions occurring synchronously with the amaurosis, suggest that under certain circumstances there may follow involvement of the peripheral ocular structures, optic nerve, or ganglion cells of the retina. The lesions have been variously ascribed to the effects of a transitory edema, to vasomotor disturbances, and to the direct action of the uremic poison upon either retina, optic nerve, or cortical cells. The latter hypothesis (the theory of uremic intoxication) is perhaps the most plausible one. While the results of post-mortem examinations have so far not led to any conclusive facts as to the nature or localization of the lesion, clinical evidence is in favor of attributing the condition in general to a cortical affection, including uremic blindness among the other cortical symptoms of the uremic state, hemiplegia, epileptiform convulsions, deafness, etc. Another factor in favor of such a hypothesis is the occasional occurrence of a typhoid homonymous hemianopsia.

Certain Contagious Diseases of the Skin.—F. C. Curtis refers specially to scabies, ringworm, tinea, and impetigo. He says that this class of diseases is spreading through the country, having gotten beyond the crowded centers of population. They are often unrecognized because they are new to a given locality and have changed their form under new conditions. In scabies the lesion is a multiform one for the reason that most of it is a secondary dermatitis. The areas involved are the interdigital skin, wrists, forearm, axillary folds, waist line, mammæ, genitals, and toes. The disease is found among those who are perfectly clean in their habits. Pullman car blankets frequently convey it. Ringworm is more common than formerly. It produces clinical effects according to the site of its growth; simple, on non-hairy-skin bald spots on the scalp, excessive folliculitis on the bearded face, and the extremely itchy eczema marginatum of the crural region. The last two have been the more common. The special region involved is along the line of the jaw and down over the bearded area of the front of the neck where the skin has a loose structure. All parasitic skin lesions should exclude school attendance. A week at home is long enough under proper care to destroy the infectiousness of a child. Ringworm is not so readily cured, but single cases yield. For scabies, the author recommends an ointment of one part styrax to two of lard. It should be preceded by a vigorous bath. For ringworm he advises mercurial ointment and iodine, the latter a one in ten solution in goose oil. Bichloride packs are not effective and moist applications in general are not desirable. For impetigo cases he advises frequent washings with soap and borax and a mild ointment of boric acid and ammoniated mercury. This disease is spread by barber shops and is seen more frequently than formerly.

Journal of the American Medical Association, November 20, 1909.

Pituitary Tumors.—A. B. Kanavel points out the difficulties of operating for tumors of the pituitary body according to the usual methods and proposes an operation which he thinks, after extensive study of the anatomy and repeated operations on the cadaver, offers an improvement on existing methods. It is an infranasal operation and the essential steps of it are practically as follows: "The nose is turned up and entrance made into the inferior part of the nasal cavity; the septum is cut along its inferior part and its attachments to the perpendicular plate of the ethmoid. The middle turbinates are removed and the septum deflected to one side. We thus have a perfect view of the field of operation on the sphenoid. The sphenoidal foramina are located, and the interfering attachment of the perpendicular plate of the ethmoid and the vomer are cut away. The anterior wall of the sphenoid cells is broken in, and by the aid of Hajek-Schmithuisen punch forceps the sphenoid cells are opened up and the tumor removed as in any other procedure." This method appeals to him for its simplicity, the minimum of time it takes, the control of hemorrhage, and the lessened chances of infection. The only real difficulty encountered was the variation in the sphenoidal sinuses and this of course is encountered in any transsphenoidal operation.

Cystocele.—G. R. White says that the reasons for failure of operations for the permanent cure of cystocele seems to be that the normal support of the bladder has not been sought for and restored, but that instead, an irrational removal of part of the anterior vaginal wall has been depended on for this purpose. The bladder rests on the anterior vaginal wall to which it is slightly adherent. The support of this wall is due to its attachment to the symphysis pubis and pubic bones in front, laterally to the white line of the pelvic fascia and ischiatic spine, and above and behind to the uterus. The uterus itself, being freely movable, is of little importance as a support and the real support of the vagina comes from its attachment to the white line of the pelvic fascia and especially a thick bundle of fibers attached to the spine of the ischium and radiating out on the anterior and posterior surfaces of the vaginal tube. If the fibers along the white line, and especially those from the spine, are divided, the vagina falls down and a cystocele results. It is easy to see how this can happen in difficult deliveries and he has had it occur under his eyes in a case of instrumental delivery. In the operation he describes: "The vagina is held open by two retractors, the ischiatic spine is located by palpation, and an incision from one to two inches long is made through the mucous membrane, parallel to the white line, and extending well up the vagina. The bladder is separated from the vagina by blunt dissection until the spine of the ischium and white line are reached and can be felt uncovered beneath the finger. Hemorrhage is seldom troublesome and can be controlled by a few minutes' pressure. The sutures, which are of chromicized catgut, are passed under guidance of the finger by a Deschamps handle-needle. The first suture goes back of the white line just as it joins the spine of the ischium. The handle-needle is taken off, and each end of the suture threaded on a separate needle; one needle is passed from within out through the median edge of the incision, taking a firm hold on the vagina; the other needle is passed in a similar manner

through the lateral edge of the incision. The two ends are then clamped and are ready to be tied. A similar suture is placed half an inch lower down on the white line, and when this is in place both sutures are tied, bringing the lateral sulcus of the vagina in contract with the white line of the pelvic fascia. Should there be any prolapse at the outlet of the vagina, the incision may be extended down alongside of the urethra and the vagina sutured to the dense fascia covering the pelvic bone. The opposite side is treated in a similar manner and when both sides are tied the anterior vaginal wall is drawn up in a normal position, and has no tendency to sag, even when the patient coughs or strains. The vagina reaches across from one ischiatic spine to the other, without any tension; it collapses when the retractors are removed and normal relations of the parts are restored." The advantages claimed for this operation are the restoration of the normal supports, no sacrifice of tissue, rarity of recurrences, and the fact that it can be done without interfering with any other plastic work about the vagina. In fact such work has been performed in connection with the operation in all the nineteen patients so far operated on. The article is illustrated.

The Stem Pessary.—J. H. Carstens advocates the use of the stem pessary in properly selected cases of amenorrhea, premature atrophy of the uterus, dysmenorrhea, and displacements. If amenorrhea is due to imperfect development, whether caused by poor hygienic living or otherwise, he has found so much benefit from the pessary that he has increased in the indications for its use ever since. When the morbid condition is due to premature atrophy from nonuse he has obtained great improvement by the insertion of a stem pessary, allowing it to remain for a year or more. To these cases may be added cases of superinvolution of the uterus following confinement or miscarriage which present about the same symptoms as the amenorrhea of puberty. There is still a third class of fleshy sterile women with nervous symptoms in which he has never seen any medicine do good but great benefit from the insertion of a stem pessary and proper hygienic measures. In the very difficult condition of dysmenorrhea we must see, first of all, that the pelvic organs are in normal condition, and if there is partial atresia only temporarily relieved by dilitation he always inserts the stem pessary to prevent recontraction. In membranous dysmenorrhea he thoroughly curettes the uterus and swabs it out with pure phenol and then inserts the stem and cures the patient. The so-called congestion and inflammatory condition usually means disease of the tubes or peritonitis, etc., and these require special surgical treatment. They do not need the stem pessary, which will be likely to do harm. It is indicated in those obscure cases in which we can not lay our fingers on any particular abnormal condition, the kind that used to be called neuralgic. In the other peculiar pain occurring just between the menstrual periods, which the Germans call *Mittelschmerz*, the pathology of which we do not understand, beneficial results are obtained by the use of the stem pessary. In his experience he has found that some cases of displacement in which there is a reflection or version, besides the other conditions requiring the use of the stem pessary, the latter has often helped the diplacement if worn long enough to enable the ligaments to regain their original tone. Sterility has also been relieved in some of his patients. Besides the contraindication already mentioned of congestion and inflammatory conditions, versions and flexions with adhesions and movable displacements also contraindicate it. All septic and inflammatory conditions would rightly exclude its use. Judiciously used it is a valuable aid, but injudicious use will bring it into disrepute. He gives his technic. Anesthesia is required and absolute cleansing of the vagina together with complete asepsis. The button at the end must be on the cervix. He uses the Chamber's hard rubber stem, though others may be as good, and keeps his patients in bed as a rule for forty-eight hours after insertion. Then they can get up and go about their usual vocations and never feel conscious of the presence of the instrument.

Opacities of the Cornea.—C. W. Cutler insists on the importance of examining for small lesions of the cornea in children by the general practitioner. In dealing with the eyes of children he says that it is important to remember that while epithelial damage is not vital, any infection or injury passing Bowman's membrane will leave an indelible trace, menacing vision if it lies within the area of the pupil. He describes the method of examination which may be difficult with a resisting child. But if there is a history of eye trouble and secretion on the lids or the child shuns the light or resists opening the lids, the cornea must be thoroughly inspected. This requires a good light and a lens, not for magnifying but to focus the light on the cornea. A little practice will suggest modes of procedure, varying with the case. There are three points to be considered in examining the cornea: the corneal reflex, the smooth surface, and the transparency. Any clouding of the normal glistening reflex indicates an active process, edema or infiltration, and any depression or defect of the surface indicates an ulcer. All infants with purulent discharge should be treated as though they had gonorrhea and special care should be taken in cleaning out the secretion not to spread the infection. The nutrition must be looked after and Cutler advises continuance of nursing if the mother is intelligent and can protect herself. Phlyctenular conjunctivitis is mentioned as an important matter as it appears insidiously and often is not detected until serious damage is done. Its tubrculous nature in the large majority of cases and its tendency to recurrence in conditions of lowered vitality are noted. Syphilis is also a potent cause of corneal opacities and the traces it leaves are as characteristic as Hutchinson's teeth. Special precautions in the management of the lids are emphasized as well as the examination with a lens by oblique illumination, which is easily acquired and should be practised in all cases in which the eyes show signs of irritation and as a means of diagnosis in obscure cases in which tuberculosis or syphilis is suspected.

Eye Symptoms in Pellagra.—From an examination of the eyes of fifty-five patients suffering with pellagra in the Peoria (Ill.) Hospital of the Insane, C. B. Welton finds that paralysis of the eye muscles occurs in the later stages in a small percentage and that conjunctivitis is not uncommon. Early forming cataracts are frequent. Inflammation of the optic nerve and retina is observed in a relatively large percentage of patients. Involvement of the choroid is common and is the most marked of all the eye changes. In none of the patients with eye symptoms could these be considered as pathognomonic of pellagra. The severity of the eye symptoms runs parallel with the general manifestations of the disease and renders the prognosis more serious, indicating in a large percentage of cases an early fatal termination.

The Lancet, November 13, 1909.

Removal of Foreign Bodies from the Stomach.—B. Pollard gives the following experience in removing foreign bodies from the stomach: The operator opened the abdomen by a longitudinal incision through the upper part of the left rectus muscle and seized the body (coin) through the wall of the stomach with his finger and thumb; an assistant passed a flexible forceps by the mouth into the stomach. The coin was adjusted in the grip of the forceps and care was taken to avoid the inclusion of the mucosa. Forceps and coin were then withdrawn together. The instrument used is on the type of Toynbee's ear forceps. The blades when uncontrolled spring apart, one fixed to a piece of copper wire around which a tube of spirally coiled wire is placed. The instrument is operated by the handles in such a way that the wire tube slips over the blades of the forceps and brings them firmly together. This method has the great advantage that it does not require opening the stomach.

The Enumeration of Blood Corpuscles by Simplified Methods.—R. Samut speaks of the tediousness of counting the cells in the squares of the Thoma-Zeiss instrument and commends the use of the Blenden-Ocular "Ehrlich." An ordinary No. 2 ocular is provided with a screen which cuts out a little square from the field of vision of the ocular. By means of a little knob this square can be narrowed to and reduced to 0 and by means of notches which divide one side of the square into four parts the reduction may be effected in exact proportion. In using the device a drop of blood is put on the Thoma-Zeiss slide in the usual way and allowed to stand five minutes. A No. 9 Leitz objective is used, and the ocular, the slit being adjusted by means of the knob so that four squares of the central platform of the counting chamber just coincide with it. The number of cells is counted and the preparation may be adjusted as many times as desired, each count representing the number of cells in four squares since the slit exactly corresponds to four of the squares. The total number obtained after several such counts being divided by the number of counts gives the number of red cells per field of four squares; hence division by four gives the number per square. A method is also described for the estimation of the number of leucocytes.

Radium in the Treatment of Cancer and Associated Conditions.—H. T. Butlin gives an account of his results in four cases of epithelioma, one case of a doubtful nature and three of leucoplakia. Of the epitheliomata none were permanently benefited except one which was of a very small size. The benefit to the patient was, however, very great. Two patients whose cases were deemed

suitable for radium treatment by the dermatologist in whose hands they were, did not benefit. As far as the author knows, the case first mentioned is the only authentic case in all England of a true epithelioma cured by radium. The doubtful case, one of suspected epithelioma of the penis, was apparently cured. Of the three leucoplakia cases two were cured and one benefited. Yet the author prefers to say that he does not yet know whether to advise patients suffering from leucoplakia to submit to radium treatment or not. He says that radium cures these lesions only by substituting thin scar tissue for them, but it does not restore the mucous membrane to the condition it was in before the development of the lesion. Radium has the great advantage over surgery, however, in that it is almost painless and that no inflammation or open sores are produced when the applications are made by experienced operators. Radium is admirably adapted for rodent ulcers of small or moderate extent. The application is practically without pain and there is very little danger to life or health. It is also possible to procure the healing of epitheliomatous ulcers of very small extent and to remove the induration around the ulcers. It is doubtful whether radium will affect lymphatic glands or not even if it heals up the primary lesion. Whether the application of radium over the glandular area before it is obviously affected will be found to exercise a protective effect or not, the author does not know. At present the glands must be treated as heretofore, by excision.

Typical and Fractional Pneumonia.—Clifford Allbutt says that as there are no two individuals exactly alike so there are no two cases of the same disease exactly alike. So, too, diseases do not confine their lesions to the exact anatomical bounds marked out for them in medical treatises. Our diagnosis must be made by a comparison of the grouping of the various symptoms. The "type" case is the one which we never actually see either in bed or in book. Many groups of symptoms drop out of the reckoning in a given case. For instance cough and expectoration may be wanting in a given case as in old persons or in the insane, and with the evasion the febrile group may also be absent. We may perceive that in one case cardioarterial, vasomotor, and gastric symptoms are due in great measure to irritative processes in the bulb while in another they are due severally to direct impairment in heart, lung, or stomach itself. Organisms may often go long astray from their usual habitat, as the *B. coli* for instance, and sometimes the pneumococcus is found in the knee joint. Two illustrative cases are given. Case 1 was that of a young woman who was taken with obstinate vomiting, rapid pulse and respiration, and occasional sputum. She defervesced on the sixth day. Not until the fourth day was it possible to detect a small patch of pneumonia in the axilla. She had scarcely any fever and her symptoms appeared due to a medullary disturbance. There was no delirium whatever. Case 2 was that of a young woman in whom the toxins seemed to spend themselves particularly on the cerebral centers as she was semi-comatose, had violent delirium with contracted pupils, and occasional twitchings. It was not possible to make out signs of pneumonia till the third or fourth day and then only over a small and indefinite area at the back of one lung. She also recovered, the crisis coming about the sixth day. A recurrence of the hepatization was followed by a return of the cerebral symptoms, but eventual recovery ensued. Persistence and severity of the chest pain are in the author's experience bad omens. In fact he regards it of almost fatal significance. He is disposed to think that in these cases there is a mixed infection, perhaps streptococcic.

The Treatment of Chronic Ulcer of the Leg.—W. Evans thinks that when a traumatic ulcer will not heal there is some such factor as sepsis behind it or perhaps the unfavorable influence of varicose veins. He also believes that 90 per cent. of these sluggish ulcers are due to syphilis. The cremation of the margin is another feature of these specific sores. In such cases the amount of alcohol consumed should be reduced to the lowest possible limit. Mercury and the iodides should not be given internally together. Organic iodides should be preferred to the metallic. They should be well diluted and may be alternated with courses of strychnine particularly when, after a period of improvement, the ulcer becomes sluggish. If the two remedies, mercury and the iodides, be given together, the red iodine may occur in the system and much pain will be felt in the ulcer. For a general antiseptic application the author advises a dram of boroglyceride in half a pint of hot water. Locally, mercurials may be used in the form of the black or yellow wash, or we may use solutions of carbolic, 1 to 100, or even iodine tincture, diluted one to 4 or 5 of hot water. For ointments the ammoniated mercury or the yellow oxide are preferable. If the dry treatment be preferred three drams of zinc oxide and half a dram of calomel may be mixed with enough "*kieselguhr*" to make an ounce. *X*-rays have benefited some cases. There are some ulcers which resist cure even when given a long rest. This is probably due to the tethering of the ulcer edge to the underlying bone. To free these edges fomentations should first be used to reduce the septic complications of the ulcer; then the whole of the ulcerated surface should be scraped with a Volkmann's sharp spoon and the whole of the edge undercut with a scalpel. The edges may then be drawn together and if at the same time the margin of the skin is freshened, a very thin border being cut off, the healing process will probably start afresh and the granulation will be rapid and sure.

British Medical Journal, November 13, 1909.

Spontaneous Post-Mortem Delivery.—J. B. Wilkinson reports the case of a young robust unmarried woman who committed suicide on account of pregnancy. Her body was discovered floating on a warm water reservoir near a large mill. It was removed and laid out for burial on a Saturday. Decomposition had already set in, parts of the body being quite discolored. The mortuary was then closed till Monday, when it was discovered that the woman had given birth to a seven-months child still attached by the cord to the body. The body of the child was but partly discolored, while that of the mother was quite black, and the abdomen was much distended with gas.

The Etiology of Epilepsy.—A. King says that all epilepsy is not due to one cause but believes that it is due to a complex of interacting causes, and probably the factors are not in relative proportion in all cases, that is, a person with nervous instability would require a smaller dose of toxin to cause an explosion than another with a firmer and more poison-proof nervous structure, while impaired intestinal function would further pathogenic growth, etc. Furthermore, the alimentary channel may not in all cases be guilty as a contributory party. But the author holds that at times there is circumstantial evidence of it, and in these cases it is not unreasonable to infer the existence of something entogenous (at least not immediately introduced) and that something to be a low order of vegetable life. Treatment based on this theory has, in the author's experience, been attended with good results. Among the various remedies which at different times have been proposed are the zinc salts, salicylates, creosote, borax, tar (a lay remedy) and the sulphocarbolates.

Present Position of the Neuron Theory Doctrine in Relation to Neuropathology.—This subject is discussed in an elaborately illustrated paper by F. W. Mott. A neuron is a nerve cell, and all its processes, including protoplasmic processes or dendrons and the axis cylinder process with its cone of origin, its collaterals or side-branches, and its terminal arborization. The neuron theory is that the nervous system consists of innumerable such anatomically independent nervous units in contiguity but not continuity. The author believes that the trophic and genetic independence of the neurons has been established. The question arises how are they connected with one another? The method of Golgi appeared to show that the neurons are arranged in systems, and numerous experiments were made to show that the dendrites exercised ameboid functions and little buds or gemmules on the processes of these cells were supposed to appear and disappear owing to the contractility of the protoplasm, thus leading to varying degrees of contact influence of one neuron upon another. In the lower orders of life there is a fibrillary continuity through several ganglion cells. As we rise in the scale of life it becomes increasingly difficult to demonstrate such a continuity though it would have certain functional advantages, did it exist. Are the number of fibers in the pyramids of the medulla equal to the sum of all the fibers in the anterior roots? Clearly the fibrils of the Betz psychomotor cells must be connected with a number of spinal motor neurons forming the common final patch for a multitude of different voluntary muscular activities. Moreover we know that there is not a direct connection between the upper cerebral neurons and the lower spinal motor neurons for intercalary neurons with axons which do not leave the gray matter intervene and the terminal arborization of sensory afferent neurons, cerebral, mesencephalic, and bulbar efferent neurons combine with spinal association neurons, through the intercalary neurons, in augmenting and inhibiting the outflow of energy of the spinal motor neurons whereby the most varied, refined, and complex muscular reactions in adaptation to environment are effected. The nervous energy is expended in the gray matter of the brain and spinal cord. Other points re-

ferred to by the author are the significance of the nodes of Ranvier, theories in reference to the functions of the interfibrillary chromophilous substance of the ganglion cell and the dendrons. Is this chromophilous substance the source of the energy, and if so, is it used at the site of its formation or is this substance, which in the dead cell corresponds to the Nissl granules, a store of energy-producing substance in the latent state analagous to the preferment of the sweat glands, a substance which is transformed into the active energy-producing substance at the terminal arborization of the neurons? In general the author regards the neuron theory as resting on a surer basis than ever before.

Berliner klinische Wochenschrift, November 1, 1909.

A Case of Sporotrichosis of the Skin.—Arndt reports a case of sporotrichosis of the right forearm. The differential diagnosis is discussed, which was finally determined by smears and cultures in which the characteristic threads and ovoid spores were found. Sporotrichosis may occur in solitary local lesions or as a disseminated disease. The disseminated disease is more common. It occurs without general symptoms or especial subjective discomfort as very numerous (50-80) round, hard, painless nodules, freely movable in the subcutaneous tissue, over which the skin is normal. As these grow they involve the skin, which is at first pale red, then deep red, even blue red; the center is elastic and later fluctuates. The nodules may remain as such for a long time, finally, however, they perforate and form ulcers, which may be either clean-cut, with infiltrated edges, or, more commonly, with irregular jagged border, not infiltrated, bluish, and undermined. These may remain if untreated for a long period. They heal with a smooth scar of bluish color and pigmented at their edges. The prognosis under treatment is good. The therapy consist of potassium iodide 30 to 60 grains a day, which causes recovery with remarkable rapidity. Whereas the skin and subcutaneous tissue is the most frequent site of the disease, it may occur also in muscles, bones, or joints; in the epididymus, larynx, or eyes. It is probable that sporotrichosis of the lung may occur. In these organs the clinical diagnosis is especially difficult.

Laboratory Infection with Cholera Vibrio Obtained from Water.—Zlalogoroff reports the case of a woman of 27 who as a student in St. Petersburg was working in the laboratory with water from the Neva. To do agglutination experiments, she made an emulsion of a vibrio grown from this water, and in her experiment sucked into her mouth from her pipette about 0.1 c.c. of it. At the end of fifty-eight hours she developed a diarrhea which increased, and was associated with heart weakness, cold, and cyanotic extremities, but no abdominal pain. The stools showed vibrios which were obtained in pure culture and agglutinated at 1:5000. After two days the diarrhea stopped and in ten days the patient was discharged. Numerous previous cases of laboratory cholera are cited, all of which occurred from vibrios obtained from man. This is the first case of a water-borne vibrio producing the disease in the laboratory.

Deutsche medizinische Wochenschrift, October 28 *and November* 4, 1909.

Serological Studies of Infant Feeding.—Noeggerath has studied the colostrum and milk from thirty women in respect to the complement content described by Pfaudler. As a result of his investigations he states that woman's milk may, without doubt, contain complement, but that this occurs only in traces and irregularly. In the milk of many women there was never any complement demonstrable during the entire period of lactation, without this absence in any way interfering with the curative or nutritive value of the milk as compared to other women. In colostrum from his investigation he was never able to find complement. Investigations of a large series of infants' blood sera showed similar results, that a complement might be found, but this was not the rule, and was not especially common, on the contrary, not uncommonly he found quite negative results. Finally he found that the presence of complement in the sera of the infant bore no relation to its constitution or to the form of its nourishment. These results disagree with the earlier findings of Pfanndler.

Comparative Measurements of Blood Pressure by the Palpatory and Auscultatory Methods.—Sterzing compares the common method of sphygmometry with the modification in which instead of feeling the pulse the pulse tone is heard by means of a phonendoscope. By listening below the constricting cuff of the manometer on the reduction of the pressure, a pulse tone is heard when the circulation commences. This represents the point of maximal pressure. The disappearance of the tone again represents the diastolic pressure. The method is much better than the palpatory in cases in which the pulse is small and hard to feel, especially in fat persons, children, and with a weak heart. The systolic pressure registers several m.m. higher than by palpation and the diastolic considerably lower. One hundred cases were investigated. The author concludes by stating that the method does not give absolute blood pressure, but does designate accurately any rise or fall therein. The auscultatory method requires no extra apparatus, and is easy to learn. It is recommended for clinical work, especially when the diastolic pressure is desired.

Tearing of the Rectum in Fracture of the Pelvis.—Harras reports two cases in which in a fracture of the pelvis the rectum was torn away from the anus. From experiments on the cadaver he finds that tremendous force is required to separate the anus and rectum, if the power is applied to the former, and he therefore offers the theory that this accident is probably the result of a direct pinching of the lower rectum between the two halves of the pelvis at the time of the accident. The organ is seized by the traumatic approximation of the two tuber ischii, and is thus torn away from the anus.

Prognostic Significance of Blood Pressure in Diphtheria.—Brückner has studied the blood pressure in two hundred cases of diphtheria, taking daily records with Gartner's tonometer. He found a regular course of the blood pressure, without daily variations, to occur in both the uncomplicated cases and in certain of those with mild cardiac involvement. Cases with irregular blood pressure curves showed various clinical pictures. They occurred in uncomplicated cases when the variations were not over 15 mm. and in the milder myocarditis cases. In every case marked falls of pressure were associated with definite signs of myocarditis. Falls of as much as 50 mm. appeared only with severe myocarditis. This was the greatest drop observed in which recovery occurred. The steady, progressive fall of pressure was present in the fatal cases. In every case, with one exception, the marked falls in pressure were accompanied simultaneously by signs of cardiac involvement; in one case only did the fall precede the clinical signs.

Tuberculosis in Infants.—Mallinckrodt on the basis of recent literature and his own observations states that tuberculosis in infants localizes itself first in the lungs, whereas the digestive tract is usually a secondary infection. The source of infection is the tuberculous surroundings; not the food. Most important is the significance of von Pirquet's reaction for the recognition of tuberculosis in the infant, in spite of Schlossmann's statement that this was merely a simplification, not an improvement, of the subcutaneous method. For the practitioner and the clinic, every simplification is an improvement, and without the cutaneous reaction the early diagnosis of tuberculosis in the well nourished nursling is not possible.

Preventive Vaccination in Bacillary Dysentery.—Ch. Dopter says that epidemics of bacillary dysentery in localities where the people are ignorant and have no knowledge of hygiene spread very rapidly. Isolation is impossible, and disinfection of the discharges cannot be efficiently carried out. Attempts have been made recently to prevent its spread by obtaining immunity by preventive vaccinations. In a family in which the disease has shown itself we may prevent its spread by injecting under the skin of each person ten cubic centimeters of anti-dysenteric serum. A single injection is not sufficient and should be repeated in eight or nine days. Vaccination may be done with serum or with serum-virus. Both are efficacious, but the use of serum is attended by no local or general reaction due to the bacilli of dysentery.—*Le Progrès Médical.*

Oxygen in Serious Cases of Whooping-Cough.—E. Weill and G. Mouriquand describe their experience with the use of oxygen by inhalation in serious cases of whooping cough and in pneumonia following this disease. It will serve to prevent the occurrence of pneumonia in many cases that are threatened with lung involvement. It also diminishes the severity of the paroxysms of cough, although it does not seem to lessen their number. Their cases amount to thirty and in all of them oxygen seemed to act as a sedative of the first order. It acts not as a depressant of the system, but enables it to struggle against the disease. Cyanosis is lessened, appetite is better, and somnolence diminished between the attacks. It acts as an antiseptic in the lungs, and prevents the extension of pneumonia to new localizations.—*Lyon Médical.*

Book Reviews.

Minor and Operative Surgery, Including Bandaging. By Henry R. Wharton, M.D., Surgeon to the Presbyterian Hospital, and the Children's Hospital; Consulting Surgeon to St. Christopher's Hospital, the Bryn Mawr Hospital, and Girard College; Fellow of the American Surgical Association. Seventh edition, enlarged and thoroughly revised, with 555 illustrations. Philadelphia and New York: Lea & Febiger, 1909

The general plan and arrangement of this edition are the same as in its predecessors; but the book has undergone some necessary revision. Matter now obsolete has been omitted, and new material and new illustrations have been inserted. Some new surgical procedures are incorporated, among them are two, the omission of which we noted in our review of the last edition; viz., the treatment of ingrowing toenail, and the removal of foreign bodies from the nose, ear, etc. This small volume is a standard work and, in spite of its title, it contains practically all the surgery that the general practitioner requires.

A Text-Book of Materia Medica, Pharmacology, and Therapeutics. By George F. Butler, M.D. Professor and Head of the Department of Therapeutics and Professor of Preventive and Clinical Medicine, Chicago College of Medicine and Surgery, Medical Department Valparaiso University. Sixth Edition, Revised and Enlarged. Philadelphia and London: W. B. Saunders Company, 1908.

As this book is now in its sixth edition it has apparently met the requirements of the physician and medical student of this country, possibly due to the fact that such a large amount of information is contained in such a relatively small space. The book is arranged for a reference book, not for a book to be read. The study of materia medica in its classical form vies with anatomy in being the most dry, uninteresting, and difficult to learn of all the branches of medicine, and this, too, when the science of the action of drugs upon the animal body can be made one really of fascinating interest if properly taught. In the first part of the book appear the pharmaceutical preparations, six pages of syrups and five more of elixirs, with long lists of tinctures, fluid extracts, pills, *et cetera*. The drugs themselves are classified according to their physiological action, a method very desirable in a book which is to be read consecutively, but in a reference book making an index quite indispensable. The book gives one the impression of being a reduction of the pharmacopœia with very little new which has appeared since the former edition of that most useful book. For example under bismuth we find no mention of that drug's important use in *x*-ray examinations, or of the cases of poisoning which have followed that use. Calcium chloride and lactate, two widely used drugs, are not mentioned. An effort is made to give the pronunciations of the names of the drugs, but unfortunately there are so many errors in the indications of the Latin quantities that it would have been better had this feature been omitted entirely.

Medical Gynecology. By Samuel Willis Bandler, M.D. Fellow of the American Association of Obstetricians and Gynecologists; Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School and Hospital; Associate Attending Gynecologist to the Beth Israel Hospital, New York City. Second Revised Edition. With Original Illustrations. Philadelphia and London: W. B. Saunders Company, 1909.

Operative gynecology is a special field of practice and is well represented by special treatises in the literature of medicine. On the other hand, every general practitioner is called upon to do a great deal of nonoperative work in gynecology and it is his side of the matter that forms the subject of Dr. Bandler's book. The author has not merely given the usual facts in the symptomatology, diagnosis, and treatment of gynecological affections but has paid very earnest attention to the anatomical and physiological peculiarities of women that form the substratum of these affections. His work is, therefore, more than a text-book; it is a logical presentation of the relation between causes and effects in the deviations from the normal conditions in the sexual organs and functions of women.

The first portion of the book is taken up with the consideration of the principles of gynecological examination and the methods of medical treatment. The latter subject contains not merely the more usual therapeutic procedures, but a careful presentation of hydrotherapeutic measures, massage, mechanical treatment, such as supporting bands, corsets, etc., hyperemia, and mineral waters. Then the following special conditions are studied *in extenso:* Disorders of menstruation, uterine bleedings, pelvic pain, sterility, disorders of urinary functions, associated nervous disturbances, constipation, gonorrhea, syphilis, and finally affections of the special structures belonging to the urogenital system of the female. Presentation of the symptoms of each affection is followed by a careful analysis of their causation and only then the treatment directed to the removal of the causes is described. Symptomatic treatment is, of course, not neglected, and the practical value of the book for the student or the busy practitioner is enhanced by the recital of specific measures and actual prescriptions used in the practice of the author.

Practical Dietetics. With Special Reference to Diet in Disease. By W. Gilman Thompson, M.D. Professor of Medicine in the Cornell University Medical College in New York City, Visiting Physician to the Presbyterian and Bellevue Hospitals. Fourth Edition, Illustrated, Enlarged and Completely Rewritten. New York and London: D. Appleton & Co., 1909.

In the fourth edition of this work we find over one hundred pages added to the first edition of 1896. All of the text has been rewritten and revised and much work has been necessary to bring the subject matter thoroughly up to date. The arrangement, however, is essentially the same, the first part dealing with food and food preparations and giving complete information such as clinicians desire to know; Part II takes up stimulants, beverages and condiments. The author here takes up the middle ground position with reference to the value of alcohol. Part III deals with cooking, the preservation and preparation of different foods, and the quantity necessary under different conditions. In the fourth division he considers special states, such as childhood and age, race and heredity, and their relationship to food. The next chapter takes up food digestion and the various influences which affect it, pointing out the influences of emotion, excessive mastication, and the general physiology of the digestive processes. Part VI deals with insufficient feeding, overindulgence, poisoned foods, idiosyncrasies toward various articles of diet, etc. The next parts, the most interesting, and the parts where the author is at his best, take up the questions of diet for the sick, what foods and methods of feeding are best fitted for certain diseases, dealing with these affections separately and practically. The advice is sound, not too fixed or rigid, and the author shows his bedside experience and ability to recognize that the sick patient may have preferences that are sometimes wisely consulted. An appendix and index complete this work of over nine hundred pages.

The book may be recommended as safe and sane, thoroughly up to the times, practical, and interesting. It is equally well adapted to students, general practitioners, and specialists. To the student much new knowledge is offered, to the practitioner plenty of detail which he can use and which he should know; to the specialist it gives a breadth of view and points out the limitations of unperfected science.

Diseases of the Personality. By Prof. Th. Ribot, Paris. Translated (with Homeotherapeutic Annotations) by P. W. Shedd, M.D. New York and Philadelphia: Boericke & Tafel, 1909.

Prof. Ribot is not a physician, but a pure psychologist. His work on "Diseases of Personality" has reached its fourth edition, and continues of interest as psychology. The young homeopathic translator, however, in his enthusiasm states in the preface that while Prof. Ribot himself "is quite unacquainted with homeotherapeusis," his work is most illuminative of it. It may, therefore, be of peculiar value to the homeopathic practitioner.

The Proteins. By T. Brailsford Robertson. University of California Publications in Physiology, Vol. 3, No. 16. Berkeley: The University Press, 1909.

This monograph contains the Herzstein Lectures of the University of California for 1908-1909. The first lecture is devoted to the chemical structure of the proteins as based upon the work of Fischer and his pupils and the synthetic formation of the polypeptids. The second and fourth lectures are devoted to a consideration of the physical chemistry of the proteins in its relation to the viscosity of their solutions, and the action of heat and other agents in coagulating them; their osmotic pressure and dissociation constants. The third lecture is devoted to the compounds of the proteins with alkalies, acids, and dyes. The fifth lecture reviews the main facts about hydrolysis by acids, alkalies, and ferments, and also the reversal of this process; that is, the synthesis of proteins by the ferments. The pamphlet, therefore, offers a convenient review of the subjects mentioned for those interested in the recent chemistry of the proteins.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held October 25, 1909.

DR. H. SEYMOUR HOUGHTON IN THE CHAIR.

THE evening was devoted to a symposium on infant feeding.

Biology as the Basis of Infant Feeding.—Dr. HENRY DWIGHT CHAPIN considered it unfortunate that there was not a common standard of infant feeding. In one locality the calorimetric basis was advocated, thus making the problem of infant feeding one of physics; in another locality the percentage method was in vogue which made the problem largely one of mathematics, and in still another place the efforts at the solution of this problem took the form of chemical manipulation, such as the addition of citrate of soda, etc. While it was true that physics, chemistry, and mathematics might play a part in the problem of infant feeding no one could successfully feed infants by confining his efforts to any one of them. Infants had been fed successfully by all of the methods that had been proposed, but analysis showed that other factors than those given prominence had been involved in such success. The problem of infant feeding belonged to biology, the science of living things, and not until infant feeding was treated from this point could there be a common ground for teaching and discussion. In studying the life history of all forms of animals it was observed that all commenced life in an exceedingly simple form and for a time their development proceeded along lines so nearly parallel that it was impossible to determine to what species the embryos belonged. As development proceeded a divergence of form and structure was noticeable. This divergence was so great that at birth there was no difficulty in distinguishing species. The variation in the function of nutrition at this time was not so very great, especially in mammals. At birth the milks of different mammals could be made interchangeable for many individuals of the young of various species, but at the end of the suckling period no such interchange of food would be possible. To realize what a divergence in the digestive functions had taken place during the suckling period, imagine an infant, a calf, and a kitten all being fed successfully on cow's milk. It was evident that during this period the difference in their digestive powers was not very great, but in one short year the divergence had been so great that the natural food of the calf was then wholly unsuited to the infant or the kitten, yet the chemist found that the foods of all three at this time contained the same basic nutritive elements as at birth. An important matter which seemed to have been generally overlooked in infant feeding was that milk was a food for a digestive tract that was constantly changing its form and function, and that the differences in the digestive properties of the milks of various species were for specific purposes. The relation between the placenta and the infant was so evident that their perfect adaptation attracted no attention. Few seemed to realize that problems of infant feeding centered largely around the adaptation of the mammary secretions to the developing stomachs, and that the mothers' secretions adapted themselves to developing stomachs that were rapidly diverging in form and function. While the fats and carbohydrates in different milks in their composition and reaction to the digestive secretions were a good deal alike, the proteins were essentially different. The protein might coagulate in a solid, gelatinous, or flocculent matter. Biological science showed that while there was a certain amount of protein present in the milk of all animals which was necessary for tissue building and growth, this protein must not only be coagulable, but must curd in a certain specific way in each species of animal. The protein was thus the least readily interchangeable of the ingredients of milks of different species. The protein had a developmental, as well as a nutritive function, to perform. While immediate nutrition was of great importance to the growing infant one must not put all food in a form for quick absorption and neglect to give proper work for the secretions and musculature of the digestive tract. From the biological standpoint the main points to be considered in infant feeding were, a sufficient supply of proteins to permit the production of new tissues, enough energy food to supply the necessary amount of energy to carry on the vital processes, and the adaptation of the form of the food to suit the peculiarities of the individual infant. This adaptation must be brought about by some of the means already indicated, either chemical, mathematical, or physical, or a combination of these various methods. Infants did not perform work outside of the internal work of the body and hence did not need food primarily for its energy contents, nor for its heat producing effect. Biology taught that no two animals or plants were exactly alike; hence no fixed and absolute rules for the feeding of infants could be laid down. Different forms of food might be developed from time to time and different methods of feeding might be advocated, but their success would depend on conforming to a few simple laws that applied to all animals, and biology alone could furnish those laws. Before any of the details of infant feeding could be accepted as scientific and thus of permanent utility, it had to be decided in how far they were in accordance with biological laws. Biochemistry, physics, and quantitative manipulations all had a certain value, but one must be careful to put them in their right relation with each other and not over-emphasize any of them. Emphasis was always to be placed upon true tissue forming material in a body that was undergoing rapid growth. This was the defect of measuring food values on a calorimetric basis for the young when growth should form the principal factor for consideration.

Pasteurization of Milk.—Dr. ROWLAND G. FREEMAN said all were agreed that what was wanted was a safe raw milk, and hence the only question for discussion was whether we could obtain a safe raw milk for feeding infants, and, if not, whether milk was injured by heating, and to what extent, and by what temperature. It was possible to secure a much safer raw milk to-day than it was five or ten years ago in New York. Tuberculosis was one of the lesser dangers in milk under present dairy conditions. The diseases concerning which we had most tangible and incontrovertible proof were typhoid fever, diphtheria, scarlet fever and epidemic sore throat. Our sanitary dairies did almost all that was possible to protect from these diseases, but epidemics still occurred from the sale of certified milk. Dr. Freeman believed that at the present time there could be no absolute safety in raw milk. The opinion had become current that heated milk produced poorly nourished children, that it produced rickets and scurvy, that it killed the life of the milk and produced chemical changes in the milk which rendered it less nourishing. These opinions did not prevail abroad. European physicians had been using it for twenty years without having made a similar observation. Although scurvy had developed in children fed on heated milk, the milk was not at fault. Out of 356 cases of scurvy studied by the American Pediatric Society in 1897, 60 per cent. were fed on proprietary foods, 19 per cent. on sterilized cow's milk, 10 per cent. on condensed milk, 3 1/3 per cent. on breast milk, and only 4½ per cent. on pasteurized milk. These figures indicated very little responsibility on the part of sterilized milk for scurvy. Scurvy developed to a great extent when extreme dilutions were being fed. Comby of Paris, in a very large experience, had seen only five cases of scurvy and those babies were all fed on diluted milk. The assumed relationship between the heating of milk

and scurvy was unfounded. Rachitis had very little to do with feeding, but was due to lack of fresh air, for it was a disease only of cold climates and developed in the winter. It occurred with all sorts of foods. The ordinary commercial pasteurization of milk was to be condemned. The only safety for the consumer was to get his milk sweet and raw, and then to render it safe by the smallest amount of heat compatible with safety. A temperature of 140° F. continued for forty minutes would kill all bacteria that were known and feared in milk. This changed neither the taste nor, so far as was known, the chemical composition, nor the ferments of the milk. Such pasteurization should be still used by every physician who was conscientious in his endeavor to secure the safety of the infant he was feeding.

The Percentage Principle as Applied to Infant Feeding.—Dr. Henry Koplik reviewed the work of Biedert and Meiggs who were the first to attempt to apply percentage methods to infant feeding. The fact that the field of infant feeding to-day was still in many spots untilled soil showed that these methods, as others which had succeeded them, did not meet all cases, and their abandonment was the truest estimate of their ultimate value. However, the physician had learned to think in food elements and in percentages, and this was a step in advance. The intelligent use of the percentage method presupposed a knowledge, on the part of the physician, of the effect of the various percentages of fat and protein on the infant. An injudicious use of formulæ might upset an infant beyond all remedy. Though the percentage method was a great step in advance in the education of the physician as to the exact composition of the infant's food, it told him little beyond a few primary facts as to how he should feed an infant. The teaching of the percentage method was that the physician must begin with a low percentage of protein, fully one-half of 1 per cent., and, as the infant reached the end of the first month, the percentage was increased to 1 per cent. The newborn infant would digest 2 per cent. of fat, and a few weeks after birth 3 per cent. of fat. The sugars were given in 5 to 7 per cent. mixtures. Most infants would thrive on such a feeding. The exceptional infant, the one on whose account all the agitation and the investigation in the science of infant feeding had its origin, would not thrive if simple formulæ failed, on any variation of the percentage formulæ. The fault lay, not in the failure to strike the correct note in percentages, but in the infant's inability to digest cow's milk. If, in such instances, one persisted in changing one or the other percentage, the infant began to show more and more palpable signs of nutritional disturbance, in the form of flatulence, colic, sleeplessness, loss of weight, and deterioration of tissue. The insistence of the advocates of percentage feeding upon a low protein percentage for early infancy was met with equal positiveness by such as Czerny, Veriot, Budin, Keller, and Escherich who could not see that the old theory of the indigestibility of the curd of cow's milk had been proven. According to the authorities there was no one symptom, in all the gamut of symptoms of nonassimilation in artificially fed infants, that could be traced to the proteins. They pointed to the great tolerance of infants for high protein percentages as seen in buttermilk mixtures and malt soup mixtures. The percentage method had simply given the physician a means of obtaining a food accurately put together. It had shown him that he could give to young and old infants certain percentages of proteins and fats. If he exceeded certain limits certain disturbances would result. To feed an infant successfully the physician must be thoroughly at ease in regard to the tolerance of certain infants of the fats of cow's milk, and the disturbances which resulted from the ingestion of the fats of cow's milk, as compared with human milk. Nature, in the breast milk, presented a food average, but ever changing percentages of fats and proteins. A woman's milk not only varied from day to day, but from hour to hour, and still the infant throve. This should teach us that the kernel of infant feeding did not lie in the percentages, relative or otherwise, of the proteins and fats in the food, but in the nature of these proteins or fats. Success in infant feeding did not lay in any particular method of feeding; it was the individual infant that the physician was called upon to feed. Else how could one explain the fact that given two infants, fed on the same breast, one would thrive, and the other would not. The last word on the percentage method of feeding to-day was that it was a means to an end. This end must be attained through a thorough knowledge of physiological chemistry of infant feeding. It had the standing of a prescription which was dictated by an intimate knowledge of the capabilities and deficiencies of the assimilative powers of the infant to be fed.

The Feeding of Infants During Illness.—Dr. Linnæus E. La Fétra stated that no matter to what class of cases the patient belonged it was the individual that was to be fed, and that his peculiar reactions to foods, his susceptibilities, and, to a degree, his appetite was to be considered. In considering the physiological and pathological actions of foods, Dr. La Fétra said that in order to be assimilated food must be digested; to be digested it must be brought into solution or fine emulsion; it must therefore be either in minute subdivision or in liquid form. The sight, odor, and taste of food stimulated the action of the salivary glands and induced the formation of hormones which entered the blood and stimulated the flow of gastric juice. Any food taken with relish tended to promote the secretion of the exact sort of digestive juice most suited to that food. Water was the most important of all foods. All the foods used in infancy contained a large proportion of water, milk containing from 87 to 89 per cent. As salts were contained in all foods, it was unnecessary to consider them separately. The rôle of sodium chloride in edema was now well recognized, so that it should be withheld when one wished to get rid of that condition. But little peptone was absorbed in the stomach, though alcohol when dilute would increase the amount thus absorbed. When given in excess, or when not sufficiently subdivided, the peptones remained much longer in the stomach and when passed into the intestines they were prone to cause putrefaction. If the gastric juice was deficient, the same result was produced. The more rapid the process of peptone formation, the greater the amount absorbed high up in the tube. If the intestinal digestion was weak, the formation of peptones was slow and their absorption lessened. The proteins used in infancy, in the order of their digestibility, were breast milk, cow's milk, eggs, meat, and vegetable protein. The carbohydrates, if present in excess, might undergo fermentation, with the formation of lactic, acetic, succinic, and butyric acids, as well as gases. This acid formation checked the activity of the putrifying bacteria and so might be of use in the treatment of protein putrefaction, and the bacteria that throve in an alkaline medium. From carbohydrate fermentation there might result diarrhea with light and frothy stools. Of the carbohydrates in use in infant feeding the cane and malt sugars were especially prone to ferment. The chief advantages of the carbohydrates were that they were readily absorbed and were quickly available for energy in the liver and muscle cells as glycogen. Certain qualities of the fats made them difficult of utilization by sick infants. As the chief effect of fever was destruction of tissue and great loss of water it was evident that water was the food of first importance. In short attacks of fever it was the only necessary food. The addition of orange, lemon, or grape juice was an advantage in allaying thirst. The carbohydrates, being great protein sparers, should be given in as large quantities as could be well tolerated; fats should be given sparingly

as they were poorly digested in febrile conditions. Milk should be used in all cases that were not the result of milk indigestion or milk infection. Whole or skimmed milk should be preferred, not cream or top milk. In gastrointestinal disorders and diseases, if the child was breast fed, the intervals between the nursings should be lengthened and water given before the nursing. When an infant had no appetite, the intervals between feedings should be from three to four hours. If there was vomiting without fever, this was probably due to too large feedings and the child should be nursed for a shorter time and less frequently. Albumen water had, in his experience, resulted in intestinal putrefaction unless given in too small quantities to be of any nutritive value. In diarrheas, malted foods should be used with caution. Many infants were starved too long after summer diarrhea and colitis. The prolonged use of barley water was responsible for many of the cases of malnutrition seen at the end of summer. As soon as possible a gradual return should be made to milk and cereal gruels. Dr. La Fétra referred to feeding in typhoid fever, the exanthemata, pneumonia, diphtheria, pertussis, and tuberculosis. His paper was confined to a consideration of feeding in children under two years of age.

The Question of Clean Milk.—Dr. Walter Lester Carr said that the bacteria that occasioned changes in milk were of two kinds: (a) pathogenic or disease-producing, and (b) nonpathogenic or nondisease-producing. This latter class had a deleterious effect on the keeping quality of milk, but some varieties aided in its digestion, in fact, might be essential to it. With the pathogenic bacteria, there was no such question of value. Dr. Carr considered the three sources of infection, bacteria from the cow, bacteria from the milker and his utensils, and bacteria from the air. The great problem to be solved was to inhibit the growth of bacteria and yet not destroy the nutritive qualities of the milk. Milk with a rather high bacterial count, if kept below 50° F., could be shipped long distances and be wholesome food; while milk shipped at 70° F. would develop bacteria cultures that rendered it indigestible and dangerous. A milk kept at a temperature of 50° would show fewer bacteria after standing several hours; but the same milk, if kept at a temperature of 70° would show millions of bacteria after standing ten or twelve hours. A perusal of the requirements for the production of certified milk exacted by the Commission, acting under the authority of this Society, would convince one of the safety that users of this milk had. Thirty thousand bacteria per cubic centimeter were allowed; this number was infinitesimal compared to the number in many grades of family milk. The question of clean milk resolved itself into the oversight of dairies and milk so as to offer the safest substitute for mothers' milk, when this was not attainable. Certified milk was produced under the guarantee of this Society and was the safest milk that could be procured in New York City.

Dr. J. Milton Mabbott said he wished to add a word to the discussion as coming from one who was not a specialist in infant feeding. For three years he was resident physician of the Nursery and Child's Hospital and, therefore, he believed that he knew something about infant feeding. He still obtained good results in feeding children. One year ago last summer he was called to see a child brought back from the country. The mother was so sure there was no hope of recovery that she was praying that the child might be taken away as soon as possible out of its suffering. The baby was a premature child and the mother had been unable to nurse the infant. It weighed eight and a half pounds when seven months old. In such cases the speaker had previously used a peptogenic milk powder with occasional success. Milk modified by means of this powder was tried in this instance and the baby thrived. When one year old it weighed nineteen pounds, nearly the normal weight for a baby at that age. Dr. Chittenden of Yale University had also recommended this powder, stating that it enabled us to prepare a food closely resembling human milk.

Dr. Charles Gilmore Kerley said that America had been accused of being a great admirer of things that were made on the other side because they were supposed to have more value than similar things in this country. During the past summer he had had the opportunity to see a good deal of the medical work as it was done on the other side, and he wished to state briefly for the enlightenment of those present that in no country did he believe could such admirable papers be heard as they had just listened to on the subject of the nutrition of the young. Dr. Koplik's conclusions were at variance with the aim and object of the German pediatrists in relation to infant feeding; that was, following some set scheme, as suggested by Dr. Mabbott; this certainly was irrational in infant feeding. Dr. Koplik had referred to buttermilk; this was not used at the present time very much abroad nor did they use as high a percentage of fat as did Americans. They used skimmed milk. He observed that proteins were not used so much; they did not use fat so much, but to get what calories they desired they used an extra amount of sugar and carbohydrates. The point that Dr. Koplik brought out was one all should remember; there could be no one set scheme for infant feeding; whatever was done should be done as the result of careful study and according to individual characteristics.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, October 18, 1909.

The Vice-President, Dr. Ransford E. Van Gieson, in the Chair.

Report of the Delegates to the Recent International Medical Congress at Budapest.—By Drs. W. Freudenthal and Louis L. Seaman.

The Fundamental Functions of the Muscle Cells of the Cardiovascular System, with the Suggestion of a Classification of Arterial Disorders.—By Dr. Louis Faugeres Bishop. (See page 929.)

Dr. William H. Thomson said that when he was a student of medicine, the heart was apparently regarded as scarcely anything more than a living pump—an animated Davidson's syringe, and the most important feature regarding it was the condition of the valves. The presence of a murmur was the chief subject of attention, both as to diagnosis and to prognosis. After a time, however, experience showed that the state of the wall of the heart, the condition of the mural muscle, was of equal importance. This was a distinct advance, but it was not until the early sixties that the heart was first recognized as an essential part of the vascular system, and the influence that the vascular system, especially the arteries, had on the heart itself in the causation of heart disease. This led to an investigation of the causes of arterial lesions and changes in the arterial walls. Each of these advances in turn, however, great as they were, did not supersede those gained before in that now the importance attached to valvular disease is still taken into account as much as ever. Comparatively recently, the physiology and pathology of the rhythmical action of the heart had received much consideration, for it had been discovered that instead of the heart acting as a whole in its functions, as did the lungs, under certain morbid conditions, auricles and ventricles might contract and relax independent of one another. Study of the condition known as heart block, or Adams-Stokes disease, led in time to the discovery of that remarkable strand of muscular fibers called the bundle of His, and it was now known that

the contraction of the heart began in the auricle and spread, by means of this strand of fibers to the ventricle. If these fibers should be divided, then the ventricular beat no longer followed the auricular, and we had this condition of heart block, which was due to a defect in this bridge that conducted the auricular contraction over to the ventricle. Whether the rhythmical contraction of the heart was inherent to the heart muscles themselves or was due to the wonderfully rich nerve ganglia supplying that organ, or whether, as was most likely, it was due to a combination of both of these factors was a point that would have to be settled by further investigation. Discussing Dr. Bishop's paper from a therapeutic standpoint, Dr. Thomson said that in the treatment of cardiac conditions, one of the most frequent errors arose from the common conception that digitalis was a heart tonic. The action of digitalis on the heart was analogous to that of ergot on the uterus. Just as the effect of ergot was limited to a healthy uterus dilated by pregnancy, so that of digitalis was limited to a dilated heart without diseased walls. High tension pulse, Dr. Thomson said, should always be regarded as a dangerous symptom. It might be of acute onset, coming on without warning and to the great danger of the patient. As to the cause of arterial tension, it was inaccurate to say that kidney disease in itself caused it, because in some advanced cases of kidney disease, such as parenchymatous nephritis with dropsy, there might be no high tension. He ascribed high arterial tension to the presence of an excessive amount of suprarenal secretion in the blood, and he had found that even a very minute dose of adrenalin would raise the pulse to an uncomfortable degree in a healthy adult. One of the most valuable remedies we had in the treatment of cardiac disease was aconite, which had a slowing effect on the heart, regulating its action, and at the same time acting as an arterial dilator. It was especially indicated in the presence of high arterial tension, while opium was one of our best cardiac stimulants.

Dr. Richard Van Santvoord said the necessity of determining the condition of the peripheral circulation in cardiovascular diseases was generally recognized, and Dr. Bishop's reduction of the various factors which might be present to an exact classification was to be commended. Personally, he had usually considered the matter in a somewhat simpler way, namely, first, was there any abnormality in the tonus of the peripheral vessels, *i. e.* hypotonicity or hypertonicity of the vessels, and, second, what was the condition of the vessels with regard to elasticity? The causes of the loss of elasticity and the presence or not of muscular hypertrophy in the vessels had an obvious bearing on prognosis and treatment, and might be approximately determined as indicated by Dr. Bishop. The determining of the blood-pressure by one or other of the various forms of sphygmometers had become very general, but he had reason to believe that the necessity of interpreting its exact meaning was not so general. The instrument might be relied upon to give an approximately correct estimate of the systolic pressure. With the instrument that he was now using, that of Dr. Janeway, he had found it impossible to make any reliable estimate of the diastolic pressure. Even so high an authority as MacKenzie called in question the assertion that the point of maximum oscillation of the mercury in the manometer really indicated with any precision the diastolic pressure. Without such knowledge, the estimate of the systolic pressure, considered alone, was of little value. Dr. Van Santvoord said he had been accustomed for over twenty years to form an estimate of the state of the peripheral circulation from the sphygmographic tracing, and while he had been somewhat edified by the use of the sphygmometer, he found himself going back to the sphygmograph to learn what his readings of the other instrument meant. If Dr. Bishop's paper led to a wider appreciation of the necessity of a careful estimate of all the factors in abnormalities of the peripheral circulation in the diagnosis of cardiovascular diseases, it would serve a most useful purpose.

Dr. Edward E. Cornwall of Brooklyn agreed with Dr. Thomson that the value of digitalis as a heart remedy had been overestimated, and that we were now learning its proper use. Because it was valuable in reducing a dilated heart with relatively healthy muscles did not necessarily imply that it was indicated in all forms of heart disease. The speaker also referred to the value of strophanthus in small doses in certain forms of cardiac trouble, and of aconite to allay irritation and tension.

Dr. Leander H. Shearer said that, possibly excepting tuberculosis, no subject in internal medicine had received as much attention during the last few years as had cardiac disorders, and none had received as much benefit from physiological investigation as this particular branch. The speaker made a plea for the more general use of the instruments of precision that had been developed comparatively recently, not, however, to the exclusion of a proper consideration of the personal equation and the older well-known methods of diagnosis. Referring to the value of the venous pulse tracings, Dr. Shearer said that these had reached a point where they had become intensely practical and would aid very much in the prognosis of cardiac conditions. We knew that digitalis in certain forms of cardiac disease was harmful rather than beneficial, and with the venous pulse tracings it might be possible to differentiate certain cardiac conditions in which this drug should not be used. With further study of this phase of the subject, other tracings could probably be utilized in the same practical way. If necessary, cardiac patients could be referred for their tracings to men who were especially skilled in this particular line of work.

Dr. Thomas E. Satterthwaite said he believed that Dr. William H. Thomson was the first to imply that the two prevailing theories as to the agencies controlling cardiac contractions might now be regarded as established facts. While we knew that the embryonic heart beats before the development of the cardiac nerves has taken place, we also knew that mental activity quickened cardiac action. But there were other well known reasons in proof of both the myogenic and neurogenic theories. So it was that the muscular activities of the organ, so essential to life, were under the control of a dual set of agencies, and therefore the preservation of these all-important functions was doubly safe-guarded. Dr. Satterthwaite said he had of late years been greatly interested in the study of the clinical features of heart diseases as seen from the standpoint of physiology rather than from that of pathological anatomy. He was thoroughly in accord with the last speaker, in so far as he advocated a more extensive use of the polygraph. Of the five attributes of the heart as discovered by Gaskell, it accurately recorded three, namely, rhythmicity, contractility, and conductivity. The speaker referred to the excellent polygraphic machine completed by Dr. T. B. Barringer, Jr., which could show on the same polygram the respiratory curve, the arterial and venous pulses, and the movements of the cardiac apex, recorded in fractions of seconds by the time marker. Such an instrument not only insured positive diagnosis in many doubtful cases, but was useful in testing the comparative action of drugs. Certainly the profession should take more interest in this remarkable instrument. No large hospital should be without one, and a medical man skillful in manipulations and also in mechanics should be delegated to take the polygrams. Also, every well equipped hospital should have a physiology laboratory, in charge of a competent physiologist. In the matter of the classification of the cardiac diseases, the speaker said he was not disposed to advocate classifying them on an altogether physiological basis. The terms mitral stenosis, regurgitation, aortic and pulmonary valve

lesions, would remain in use for a long time, as they expressed conditions in a way that was not only satisfactory, but that at present could not be bettered. On the other hand, some morbid cardiac conditions were better stated in terms of physiology. Such were the arrhythmias. Certainly they could not be stated in terms of pathological anatomy. On the other hand, the present classification of vascular diseases was much more unsatisfactory, so that Dr. Bishop's effort for a better terminology in that direction was along the proper line.

College of Physicians of Philadelphia

At a stated meeting, held November 3, Dr. Jay F. Schamberg presented a communication entitled "An Epidemic of a Cutaneous Disease of Unusual Character Due to a Minute Mite in Straw Mattresses," and he accompanied his remarks with a lantern demonstration displaying the lesions of the affection and depicting the offending parasite, which was a parasite of an insect living on grain and straw, and it was as a rule not a direct parasite of man. Dr. John B. Deaver read a paper entitled "The Diagnosis and Surgical Treatment of Acute Pancreatitis, with the Report of Illustrative Cases." He dwelt upon the symptomatic features of the disease, considered its close relation to cholecystitis and cholelithiasis, and discussed the points of differential diagnosis. When the condition is well developed surgical treatment becomes necessary, although operation should be deferred until the more acute and violent symptoms have subsided. The diseased organ may be approached from in front through the peritoneal cavity or from the left loin, the latter approach the better, facilitating drainage and avoiding the risks of general peritonitis. Dr. James Tyson and Dr. Joseph Sailer presented a paper entitled "The Results of the Use of Beebe's Serum in the Treatment of Exophthalmic Goiter, with the Report of Three Cases." In none of the cases was any good accomplished, and it was suggested that various factors may be operative in different cases of the disease. Dr. S. Weir Mitchell spoke feelingly of the fact that this was to be the last meeting of the college in the old hall, where many professional friendships had been established and many important scientific communications had been made. While the college would enter its building with some debt on its shoulders, this would be provided for, and the college had every reason to be proud of the past and hopeful of the future. Dr. W. W. Keen moved a heartfelt vote of thanks to Dr. Mitchell for the large interest he had always exhibited in the welfare of the college and especially for the important part he had played in securing funds and promoting the plans for the erection of the new building, which was the finest of its kind in the country.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners, State of Oregon.

Salem, July 6, 7, and 8, 1909.

ANATOMY.

1. Give the course and distribution of the trifacial nerve.
2. Name and give the origin of the arteries supplying the stomach, small intestine, large intestine.
3. Give the course and branches of distribution of the femoral artery.
4. Name the structures passing beneath Poupart's ligament.
5. What structures would be severed in an amputation at junction of the middle and upper thirds of the forearm?
6. Give the coverings of an incomplete oblique inguinal hernia.
7. Name and locate the various valves of the heart, and give the function of each set.
8. Name the tunics and the humors of the eye.

PATHOLOGY.

1. Give pathology of a carbuncle; and how does it differ from a furuncle?
2. Define phagocytosis, metastasis, leucocytosis.
3. Give the pathological anatomy and histology of acute parenchymatous or degenerative nephritis.
4. Give the pathology of atrophic portal cirrhosis ("gin-drinker's liver").

PHYSIOLOGY.

1. What is the function of the red corpuscles? State their number and what variation with altitude.
2. Give function of white corpuscles and state under what normal conditions leucocytosis occurs.
3. Describe the lymphatic system and state what factors control lymphatic circulation.
4. Give functions of auricles and ventricles of heart, and state what is meant by systole and diastole.
5. Name kinds and location of digestive ferments and state their action on foods in the small intestine.
6. How prove the spinal cord a center for reflexes?
7. Give name and state what kind of nerves the sixth and eleventh cranial nerves are. What does each supply?
8. What maintains the pitch of the voice?

HISTOLOGY.

1. Describe protoplasm. Does it possess structure?
2. Describe white fibrous tissue; also yellow elastic tissue, and state where found.
3. Describe in detail a lobule of the liver.
4. Where are nerve cells found?

GYNECOLOGY.

1. Name three leading causes of sterility, with treatment in each case.
2. Etiology, diagnosis, and treatment of retrodisplacements of the uterus.
3. Give five causes of pruritus of the vulva, with treatment in each case.
4. Give diagnosis, symptomatology, and treatment of septic abortion.
5. Name two common causes of dysmenorrhea, giving diagnosis and treatment.
6. Describe a miscarriage at five months, giving treatment to successful conclusions.
7. Diagnose and describe operation of salpingo-oophorectomy for adherent tubes and ovaries.
8. Describe operation for vaginal hysterectomy.

GENERAL DIAGNOSIS.

1. What diseases produce conditions of the skin which are of general diagnostic value?
2. What are the grades of temperature that come under observation in the sick?
3. Give the method for the detection of the tubercle bacillus in the sputum.
4. What is the diagnostic significance of dropsy?
5. Describe the characteristics and significance of the several kinds of pulse.
6. Give the symptoms of acute meningitis.
7. What are the diagnostic points in secondary syphilis?
8. What casts are frequently found in albuminous urine, and what do they denote?

NERVOUS DISEASES.

1. Give symptoms of tuberculous meningitis.
2. Define and give etiology of acute ascending paralysis.
3. What symptoms would you expect to find following rupture of a branch of the middle meningeal artery?
4. Give definition, prognosis, and treatment of puerperal insanity.

PRACTICE OF MEDICINE.

1. Give the etiology, pathology, common complications, and symptoms of typhoid fever.
2. Give the differential diagnosis of variola, varicella, scarlet fever, measles, and erysipelas.
3. State the etiology, pathology, diagnosis, and symptoms of croupous pneumonia.
4. Give the differential diagnosis of mitral regurgitation, aortic regurgitation, and aortic stenosis.
5. Give the pathology, etiology, and diagnosis of chronic interstitial nephritis.
6. Give the differential diagnosis of acute alcoholism, acute morphinism, and apoplexy.
7. State the pathology, etiology, symptoms, and treatment of ileocolitis of childhood.

8. State the pathology, etiology, and differential diagnosis of chronic gastric ulcer.

PRACTICE OF SURGERY.

1. Give the mechanism, pathology, symptoms, and treatment, and name the ligaments injured in backward dislocation of the hip-joint.

2. Describe amputation at middle third of arm, and name all tissues cut.

3. Give complete preparation of patient for abdominal section.

4. Describe the operation of posterior gastroenterostomy, and name the complications that may follow.

5. Give the anatomical relations, covering of sac, and detail of operation for femoral hernia.

6. State the etiology, pathology, diagnosis, symptoms, and treatment of osteomyelitis of the tibia.

7. Name the triangles of the neck; describe the relations and ligation of the common carotid artery.

8. State the etiology, pathology, symptoms, and treatment of pyelitis.

EYE AND EAR.

1. Give the etiology, diagnosis, symptoms, indications, and describe operation for mastoid abscess.

2. Give the differential diagnosis of gonorrheal conjunctivitis and blepharitis ciliaris.

3. Give the etiology, diagnosis, symptoms, and treatment of acute myringitis.

4. Give the treatment and your instructions to patient with marginal corneal ulcer.

5. Give the anatomy and appearance of a normal ear drum.

CHEMISTRY.

1. Write a comprehensive definition of chemistry in not more than sixty words.

2. Define briefly the following chemical terms and name a substance that is characteristic of each: Deliquescent; efflorescent; effervescent; fluorescent.

3. What do you consider the most practical chemical test for sugar, albumin, pus, blood, urea, in the urine?

4. Differentiate between empirical formula and graphic formula, giving as an example the formation of acetic acid.

5. Define "equation," and express the formation of mercurous chloride by chemical equation.

6. What do you understand by the term equivalent amounts in chemistry?

7. Define molecular weight, giving an example.

8. Define specific heat and name its unit.

MEDICAL JURISPRUDENCE.

1. What are the requisites of a hypothetical question, and under what circumstances may the opinion be given in evidence of (*a*) an expert witness, and (*b*) a non-expert witness?

2. What are the constituent elements of blood? How do you distinguish between the blood of mammalian vertebrates and that of oviparous vertebrates, and between the blood of different mammals? Name the different tests for blood stains, and give the principles upon which each test depends.

3. Define and describe the different kinds of wounds; how to determine whether a wound is ante- or post-mortem, and why, if at all, the size and shape of a wound does not always correspond to the size and shape of the instrument with which it was made.

4. Describe generally the proper method of conducting a post-mortem examination, giving details as to head, chest, abdomen, and spinal cord; state how you would test the lungs of a dead child to determine whether it had been born alive, and how you would recognize flotation caused by (*a*) artificial insufflation, (*b*) putrefaction, and (*c*) freezing.

OBSTETRICS.

1. What is the conjugate and transverse diameter of the inlet and outlet of the pelvis? Give its anatomical points of measurements.

2. What is the cause of rupture of the uterus, and under what circumstances does it occur?

3. Give your treatment for inevitable abortion.

4. Give your treatment for post-partum hemorrhage.

5. Give cause and treatment for transverse presentations.

6. Give cause, diagnosis, and treatment of puerperal eclampsia.

7. When would you use forceps, and how?

8. Give the anatomy of the uterus, and state what changes take place during gestation.

DISEASES OF CHILDREN.

1. Give the symptoms in morbus coxarius during the early stage of the disease. What other diseases might you differentiate it from?

2. Give the etiology and describe the pathology of hip-joint disease.

3. Give a clinical description of the various stages of rubeola.

4. Describe symptoms, prognosis, and treatment in ileocolic intussusception.

5. Atelectasis pulmonum; what is it? Note its symptoms and treatment.

6. Describe a process of peptonizing cow's milk, suitable for infant use.

7. Describe the principal striking clinical changes that take place in the skeleton in rhachitis.

8. From what other diseases would rhachitis have to be differentiated?

MATERIA MEDICA AND THERAPEUTICS.

1. Write an appropriate prescription in case of catarrhal jaundice; also two prescriptions to relieve cough in acute bronchitis.

2. Carbolic acid: origin, dose, and physiological action. Give appropriate treatment in case of poisoning.

3. What would be a suitable dietary in hyperchlorhydria, and give reason for same.

4. Apomorphine hydrochlorate: dose, physiological action, and therapeutic uses and indications.

5. Spiritus ætheris nitrosi: origin, dose, therapeutic uses, and common name.

6. What is a diaphoretic? Name four agents, and appropriate doses of each.

7. What do you understand (*a*) a cardiac tonic to be, and how does it act? (*b*) A cardiac stimulant, and how does it act? Give examples of each.

8. What are cathartics, and how do they act? Name five diseases or conditions in which the administration of a cathartic would be contraindicated.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS, STATE OF OREGON.

Salem, July 6, 7, and 8, 1909.

ANATOMY.

1. *Superficial origin:* From the side of the pons Varolii. *Deep* (sensory root), from the medulla and upper part of cord; (motor root) from floor of fourth ventricle and side of the aqueduct of Sylvius. *Exit:* The ophthalmic division, through the sphenoidal fissure; the superior maxillary division, through the foramen rotundum; the inferior maxillary division, through the foramen ovale. *Ophthalmic branch* distributed to conjunctiva, skin of upper eyelid, cornea, skin of forehead, and nose, lacrymal gland. *Superior maxillary*, to skin and conjunctiva of lower eyelid, nose, cheek, upper lip, upper teeth, and palate. *Inferior maxillary*, to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, and skin of lower part of face. Also to muscles as indicated under *Function*. It supplies sensation to all the parts mentioned above; but, in addition, Inferior maxillary supplies motion to the muscles of mastication, the mylohyoid, and anterior belly of the digastric.

2. The *stomach* is supplied by the gastric (from celiac axis), pyloric (from the hepatic), right gastroepiploic (from the gastroduodenal), left gastroepiploic and vasa brevia (from the splenic). The *duodenum*, by the pyloric and pancreaticoduodenal from the hepatic), the inferior pancreaticoduodenal (from the superior mesenteric). The *rest of the small intestine*, by branches of the superior mesenteric (from abdominal aorta). The *large intestine*, by the ileocolic, right colic, and middle colic (from the superior mesenteric); left colic, sigmoid, and superior hemorrhoidal (from inferior mesenteric). The *rectum*, by superior hemorrhoidal (from inferior mesenteric); middle hemorrhoidal (from internal iliac), and inferior hemorrhoidal (from internal pudic).

3. The *femoral artery* begins at Poupart's ligament; it is the continuation of the external iliac, and passes down the fore part and inner side of the thigh, to terminate at the opening in the adductor magnus at the junction of the middle with the lower third of the thigh, where it becomes the popliteal artery. *Branches:* Superficial epigastric, superficial circumflex iliac, superficial external pudic, deep external pudic, muscular, anastomotica magna, and profunda femoris (with branches: external circumflex, internal circumflex, and three perforating).

4 These are (from without inward): External cutaneous nerve, iliacus, anterior crural nerve, psoas, femoral artery, femoral vein, femoral ring.

5. In amputation of forearm at junction of middle and

upper third, there will be severed: Skin, fascia, supinator longus, extensor carpi radialis, longior and brevior, extensor communis digitorum, extensor carpi ulnaris, supinator brevis, anconeus, pronator radii teres, flexor carpi radialis, palmaris longus, flexor sublimis digitorum, flexor carpi ulnaris, flexor profundus digitorum; arteries: anterior interosseous, radial, ulnar; veins: radial, interosseous, ulnar, median; nerves: posterior interosseous, radial, median, ulnar; bones: radius, ulna.

6. From without inward: Skin, superficial fascia, intercolumnar fascia, cremasteric fascia, infundibuliform fascia, subperitoneal areolar tissue, and peritoneum.

7. In the *right auricle* are the Eustachian and coronary valves; the former is situated between the anterior margin of the inferior vena cava and the auriculo-ventricular orifice; in the fetus it directs the blood from the inferior vena cava through the foramen ovale into the left auricle; the coronary valve prevents the regurgitation of blood into the coronary sinus during the auricular contraction. In the *right ventricle* are the tricuspid and semilunar valves; the former prevent the blood in the right ventricle from flowing back into the right auricle during ventricular systole; the latter guard the orifice of the pulmonary artery. In the *left ventricle* are the mitral and semilunar valves; the former acts similarly to the tricuspid; the latter guard the orifice of the aorta. Aortic valves, behind the third intercostal space, close to the left side of the sternum. Pulmonary valves, in front of the aortic, behind the junction of the third rib, on the left side, with the sternum. Tricuspid valves, behind the middle of the sternum, about the level of the fourth costal cartilage. Mitral valves, behind the third intercostal space, about one inch to the left of the sternum.

8. *Tunics:*. (1) Sclerotic and cornea; (2) choroid, ciliary body, and iris; (3) the retina. *Humors:* (1) Aqueous humor; (2) vitreous body; (3) crystalline lens.

PATHOLOGY.

1. A *carbuncle* is due to infection with a pus organism, which causes an acute inflammatory exudation. The dense fibrous tissue under the skin does not yield, and the compression strangles the vessels. Septic gangrene results from these causes. Later, the living tissues suppurate around the septic slough and form pus. The pus breaks through the overlying skin in one or two places and the slough is discharged, the cavity being filled up by granulation and cicatrization. A *furuncle* opens by a single opening, instead of several, and is frequently multiple.

2. *Phagocytosis* is the faculty of certain cells (notably the mononuclear and polynuclear leucocytes) to take up and destroy bacteria. *Metastasis* is the transfer of a morbid process from one part of the body to another not directly continuous with it. *Leucocytosis* is an increase in the number of white corpuscles in the peripheral blood.

3. The epithelium of the tubules, especially in the convoluted portions, is swollen, cloudy, and considerably desquamated. Leucocytes and some red corpuscles are found within the tubules and the Malpighian capsule. The kidney is enlarged, somewhat swollen, and rather pale in color. The changes are most marked in the cortex, which is thicker than normal. The capsule strips easily.

4. The liver is shrunken and indurated, rough, and of a pale or yellow color; a growth of new connective tissue is disposed in broad bands which run in various directions, and by their contraction divide the liver into numerous irregular lobes. Many acini may be affected at one time. The capsule may be thickened, or adherent to the diaphragm. Jaundice is slight, and comes on late; ascites is pronounced and may occur early.

PHYSIOLOGY.

1. The function of the red corpuscles is to supply the tissues with oxygen. There are about 4,500,000 to 5,000,000 to the cubic millimeter of blood. Altitude causes an increase in their number.

2. The white corpuscles serve as a protection against pathogenic microorganisms; they take some part in the process of the coagulation of the blood; they aid in the absorption of fats and peptones from the intestine, and they help to maintain the proper proteid content of the blood plasma. Leucocytosis occurs normally during digestion, after exercise, during pregnancy, and the puerperium, in the newborn, and just before death.

3. The lymphatic system consists of: lymphatic glands, lymph vessels, perivascular lymph spaces, the lymph canalicular system, the pericardial, pleural, peritoneal, and synovial cavities, and the lacteals. The forces concerned in the circulation of the lymph are: The pressure of the blood in the blood-vessels: thoracic aspiration; contractions of the voluntary muscles; contractions of the intestine; the action of the valves in the lacteals and lymphatics.

4. The function of the auricles is to receive the blood from the body and from the lungs. That of the ventricles is to send the blood to all parts of the body and to the lungs. Systole is that period when the ventricles (or auricles) are contracting. Diastole is that period when the ventricles (or auricles) are not contracting, but are at rest, and receiving blood.

5.

DIGESTIVE FERMENTS	ORIGIN	FUNCTIONS
Ptyalin.	Saliva.	Changes starches into dextrin and sugar.
Pepsin.	Gastric juice.	Changes proteids into proteoses and peptones in an acid medium.
A curdling ferment.	Gastric juice.	Curdles the casein of milk.
Trypsin.	Pancreatic juice.	Changes proteids into proteoses and peptones, and afterward decomposes them into leucin and tyrosin in an alkaline medium.
Amylopsin.	Pancreatic juice.	Converts starches into maltose.
Steapsin.	Pancreatic juice.	Emulsifies and saponifies fats.
A curdling ferment.	Pancreatic juice.	Curdles the casein of milk.
Invertin.	Succus entericus.	Converts maltose into glucose.

6. The fact that parturition can occur in a woman when under the influence of an anesthetic shows that the center of the movement of the uterus is in the spinal cord, and not in the brain.

7. The sixth cranial nerve is the abducens; it is the motor nerve to the external rectus muscle of the eye. The eleventh cranial nerve is the spinal accessory; it is a motor nerve.

8. The pitch of the voice depends upon the number of vibrations and the length of the vocal cords during a given time, and is maintained by the state of tension of the vocal cords.

HISTOLOGY.

1. Protoplasm is an unstable albuminoid substance, viscid, and generally colorless. It consists of a fibrous network and a more fluid portion, which fills the meshes of the former. Views differ as to the structure of protoplasm.

2. *White fibrous tissue* is made of glistening fibers covered with loose flocculent tissue. It has no elasticity, very little extensibility, but very great strength. In ligament and tendons the bundles are parallel with each other; in membranes, they intersect each other at various planes. The cells are situated on the surface of groups of bundles, are arranged in single file and joined by cement substance. It is found in ligaments, tendons, muscular fascia, periosteum, perichondrium, pericardium, dura mater, sclerotic coat of eye, tunica albuginea of testis, epineurium. *Yellow elastic tissue* is of yellowish color, is very elastic, and has but little of the fibrous variety. It consists of fibers with curling ends and of well-defined outline; these are larger than the white fibrous kind. It is found in Ligamenta subflava, vocal cords, trachea, bronchi, larynx, blood-vessels, thyrohyoid, cricothyroid, and stylohyoid ligaments.

3. A lobule of the liver is about 1-20 to 1-12 inch in diameter. It has a darkish red center and a lighter circumference. The center is occupied by an intralobular vein which collects the blood from the capillaries of the lobule, and flows into the sublobular vein, which latter opens into the hepatic vein. Around the lobules are the interlobular veins; these are branches of the portal system; capillaries passing from the circumference to the center of the lobule connect the interlobular and intralobular veins. Between the network of capillaries in the lobule the hepatic cells are packed.

4. In the gray matter of the brain and spinal cord sympathetic ganglia, ganglia on cerebrospinal nerves, and in the organs of special sense.

GYNECOLOGY.

1. (1) Absence of, or errors in development of, any part of the genital tract. *Treatment:* Little or nothing can be done: atresia of the crevix can be treated by dila-

tation. (2) Malpositions of the uterus. *Treatment:* Replacement. (3) Membranous dysmenorrhea. *Treatment:* Dilatation of cervix and curettage.

2. Retroflexion. *Etiology:* Tight lacing and tight clothing; congenital conditions; pressure by tumors; metritis and parametritis with adhesions; atonic conditions of the uterus following labor; and the conditions that cause retroversion. *Diagnosis:* The cervix is low in the pelvis; the fundus is in the cul de sac of Douglas; bimanual examination will show the flexion. *Treatment:* If there are no adhesions, the flexion should be corrected by digital manipulation and a pessary introduced; hysteropexy may be necessary.

Retroversion. *Etiology:* Relaxation of uterine ligaments; increased weight of fundus; subinvolution; ovarian or other tumor pressing on front of uterus; distended bladder; peritonitis or cystitis; prolonged dorsal decubitus and tight bandaging in the puerperium. *Diagnosis:* Conjoined manipulation will show the cervix displaced toward the pubes, and the body of the uterus in the hollow of the sacrum. *Treatment:* Remove the cause, if possible; replace the uterus and keep it in position by pessaries, tampons, and knee-chest position; pelvic massage and vaginal douches; proper hygiene, particular attention being paid to the bowels, clothing, and exercise. *Curative treatment:* The choice lies between ventral suspension of the uterus and shortening of the round ligament.

3. Parasites, diseases of the vulva, irritating discharges, diabetic urine; it may also be of nervous origin, or idiopathic. *Treatment* consists in removing the cause, if possible; cleanliness, fresh air, tonics, and general attention to hygiene; local applications of solution of bichloride of mercury, 1:2,000; or carbolic acid, 1:100; or lead and opium; dusting powders of bismuth subnitrate, calomel, or zinc oxide are also useful.

4. *Septic abortion* shows chill, followed by high temperature and rapid pulse; lochia is first diminished or suppressed, later returns and is dark, purulent, and has an offensive odor; uterine pains, suppression of urine, exhaustion, and typhoid state are present. The symptoms usually come on in from one day to a week after the operation. The diagnosis is made by the history of the case and the symptoms. *Treatment:* Uterine douche of corrosive sublimate (1:2,000), two or three times at intervals of eight hours, followed by hot normal salt solution. If there is no immediate improvement, curettage is indicated. If the symptoms are severe, curettage should be done at once, and the douching take place subsequently. The vagina is douched twice a day with corrosive sublimate and saline solutions, as above. If the symptoms do not subside, the intrauterine douche or curettage may be repeated.

5. *Dysmenorrhea* may be due to: (1) Anteflexion of uterus; for treatment, see above, No. 2. (2) Tumors, such as fibroids; treatment consists in removal of the tumor.

6. In a *miscarriage at five months* there will be profuse hemorrhage; severe cramp-like pains, like labor pains; rupture of membranes, and escape of liquor amnii, and the fetus will be expelled. There will be a history of pregnancy and the signs of the same. The patient should be put to bed and the case in general be managed the same as if it had been a labor at full term.

7. *Salpingo-oophoritis.* When adhesions bind together the tube, ovary, and adjacent peritoneum, these parts form a lump, the component parts of which cannot be distinguished without opening the abdomen. All the symptoms may be caused by other diseases; sometimes there are no symptoms, but this is exceptional. There is pain, referred principally to the lower abdomen, lessened slightly by lying down; it is aggravated by defecation, exertion, and sexual intercourse. Menstruation is generally profuse, irregular, and painful. Micturition is frequent and painful. The general health is poor, and anorexia, nausea, insomnia, and neurasthenia may be present. If both sides are affected, sterility results. The uterus alone can be felt bimanually, the other parts constituting a thickened mass on either side or behind the uterus.

Operation of salpingo-oophorectomy: "(1) Perform a median abdominal section—control hemorrhage—and retract lips of abdominal wound. (2) Pass the first and second fingers into the wound, with the back of the hand to the abdomen; follow down the under surface of the abdominal parietes to the symphysis, thence down on to the bladder and uterus, and thence out laterally over the superior cornu of the uterus, with the palm of the hand still downward, to and along the broad ligament, along the posterior superior aspect of which the Fallopian tube is found, and, just posterior to the tube, the ovary. These structures are drawn toward the median line into an accessible position in the abdominal wound. (3) The ovarian artery and veins are first tied, with silk, the ligature being carried, upon a laterally curved aneurysm needle, through the clear space of the broad ligament and tied over the top of the infundibulopelvic ligament, outside of the fimbriated end of the Fallopian tube, and close to the brim of the pelvis. (4) The uteroovarian ligament, lying behind the Fallopian tube, is ligated with chromic gut, rather nearer the uterus, carried upon a laterally curved aneurysm needle. (5) The inner end of the Fallopian tube and the upper free part of the broad ligament are ligated with silk near the horn of the uterus—which ligature also controls the branches from the uterine artery. (6) The structures are now removed by cutting through the broad ligament well within the outer ligature of the ovarian vessels—and cutting through the Fallopian tube and ovarian ligament well to the outer side of their ligatures—and carrying the incision through the broad ligament well below the hilum of the ovary. Any doubtful ligature is strengthened, and any bleeding point is surrounded by an additional gut ligature. (7) The edges of the anterior and posterior layers of the broad ligament, left by the removal of the above structures, are sutured together with gut. The patient is lowered to the horizontal position and the intestines and omentum are replaced. (8) The abdomen is closed, as after median abdominal section."—(Bickham's *Operative Surgery.*)

8. *Vaginal hysterectomy:* "The patient is catheterized and placed in the lithotomy position and the external genitals are thoroughly disinfected. The vagina is held open by broad retractors and the uterus is pulled down by volsella forceps grasping the cervix, while the adjoining mucous membrane is cut well clear of the disease by blunt-pointed scissors. Keeping close to the uterus, the dissection is continued on its anterior and posterior surface by the tip of the finger and short snips of the scissors, but at the sides, after division of the mucous membrane, the cellular tissue is simply pushed up as high as possible, or till the pulsations of the uterine artery are felt. The finger is finally thrust through the uterovesical fold of peritoneum, and after cleansing the vagina flat sponges are poked in around the uterus. Douglas's pouch is entered in the same manner, hemorrhage from the vaginal wound being controlled by a few catgut sutures through its cut edges, and then the finger is hooked over the fundus, pulling it down into the posterior opening and thus bringing within reach the upper border of the broad ligaments, which are seized by long-bladed clamps and divided on the uterine side. Other clamps are placed on the remaining tissues close to the uterus, which is then excised.—(Stimson's *Operative Surgery.*)

GENERAL DIAGNOSIS.

1. Syphilis, erysipelas, measles, scarlet fever, smallpox, chickenpox, typhoid fever, typhus fever, yellow fever, jaundice, purpura hæmorrhagica, Addison's disease, argyria, chlorosis, anemia, various drug eruptions, and skin diseases.

2. Subnormal temperature, below 97.50; normal, 97.5 to 99.5; subfebrile, 99.5 to 100.5; slight fever, 100.5 to 101.5; moderate fever, 101.5 to 103; high fever, 103 to 105, hyperpyrexia, above 106.

3. The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

4. *Dropsy may indicate* obstruction of the portal circulation, cardiac or pulmonary diseases, disease of the peritoneum, diseases of the kidneys, anemia, debility, exposure to cold or wet, cancer, syphilis.

5. (1) *Frequent pulse:* In fevers, exophthalmic goiter, early phthisis, heart disease, anemia, chlorosis, locomotor ataxia, abuse of alcohol, tea, coffee. (2) *Slow pulse:* In cardiac disease, cerebral tumor or hemorrhage, meningitis, myxedema, epilepsy, some poisons, digestive disorders. (3) *Intermittent pulse:* In cardiac disease, fevers, poisons, neurasthenia, cerebral troubles, digestive disturbances. (4) *High tension pulse:* In arteriosclerosis, gout, diabetes, contracted kidney. (5) *Low tension pulse:* In fevers, anemia.

6. Sudden onset: very severe pains in neck, back of

head and spine; head is strongly retracted, causing opisthotonos; Kernig's sign (inability to straighten the leg when the patient is lying down and the thigh flexed at right angle to the body); delirium may be present; and in the cerebrospinal fluid there may be found the *Diplococcus intracellularis* of Weichselbaum, or the *Streptococcus pyogenes*.

7. The skin eruptions, or syphilides (characterized by not itching, by being of a coppery or raw ham color; generally symmetrical; painless; by polymorphism); mucous patches; sore throat; condylomata; alopecia; iritis; periostitis.

8. *Hyaline* casts occur in all forms of nephritis, in congestion of the kidneys, in jaundice; *waxy* casts, in chronic parenchymatous nephritis; *epithelial* casts, in acute parenchymatous nephritis; *granular* casts, in chronic nephritis and in acute nephritis; *fatty* casts, in chronic parenchymatous nephritis; *blood* casts, in hemorrhagic nephritis; *pus* and *bacterial* casts, in suppurative nephritis.

NERVOUS DISEASES.

1. In addition to the symptom of ordinary meningitis (see above, DIAGNOSIS, No. 6), there is frequently tuberculosis in other parts of the body. The onset is sudden, and there is the hydrocephalic cry. The pulse is first rapid, then slow and irregular, the respirations irregular and sighing, and the pupils are generally contracted. In the second stage there are constipation, retraction of the abdomen, stupor, and irregular pupils. The temperature ranges from 101° to 103° F. Later there may be various paralyses, diarrhea may replace constipation, and the symptoms become typhoid in character.

2. *Acute ascending paralysis* is an acute disease characterized by a motor paralysis beginning in the feet and legs, rapidly extending to the trunk and arms, and finally involving the muscles of respiration and deglutition. The cause is unknown. It has been asserted to be a peripheral neuritis, of infectious origin, or a functional disorder whose anatomical basis is unknown.

3. A period of unconsciousness followed by hemiplegia and convulsions, pupils dilated on side of lesion, stupor or coma, slow and labored breathing, slow and full pulse, vomiting, aphasia, hemianesthesia, loss of control of sphincters, increased reflexes.

4. *Puerperal insanity* is insanity following childbirth. Patients recover, but the prognosis for life is better than that for recovery. Treatment should be directed to the patient's general condition; food, rest, sleep, and strengthening medicines are particularly indicated. Good nursing, constant watchfulness, and tact are essential. The bowels and bladder must be regularly evacuated, and care should be taken to prevent bedsores.

PRACTICE OF MEDICINE.

1. TYPHOID FEVER. The bacillus of Eberth is the pathogenic microorganism of the disease; it is conveyed by contaminated food or water. In the first stage Peyer's patches become swollen, hyperemic, and reddened; a few days later they appear as whitish or gray elevations, and the hyperemia has disappeared; the surface of the patch is smooth and its edge is sharply defined; after the first week necrosis may occur; the necrotic portion falls off, leaving an irregular ulcer with undermined edges. These ulcers are elongated, with the long axis parallel with that of the intestine; they may heal or go on to perforation. The spleen becomes congested and enlarged, is liable to infarction; the liver is enlarged; the heart becomes soft and flabby. *Common complications:* Hemorrhage or perforation of bowel, peritonitis, thrombosis, meningitis, pneumonia. *Symptoms:* Insidious onset, weakness, headache, epistaxis, vague pains. The temperature rises gradually, about 2° in the evening, and falling 1° in the morning. Diarrhea, tenderness in the right iliac fossa, enlarged spleen, and a characteristic rash which appears from seventh to twelfth day. During the second week the temperature remains at a uniform level; typhoid state and delirium may be present. The pulse becomes rapid, weak, and dicrotic; the heart sounds are feeble; the tongue is coated, fissured, and tremulous; sordes appear on the teeth; the abdomen is distended; the stools are yellowish and offensive (said to be like pea soup); the Widal reaction may be positive. In the fourth week the temperature becomes normal.

2. *Variola:* The eruption usually appears first on the forehead and wrists, and on the third or fourth day; it is first macular, then papular, then vesicular, and finally pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin. *Varicella:* The eruption usually appears first on the trunk, is evident on the first day, comes in successive crops, is not shotty, and disappears on stretching the skin; the spots are unilocular, and collapse on being punctured. *Scarlet fever:* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent. *Measles:* Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small, dark red papules with crescentic borders, beginning on face and rapidly spreading over the entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present. *Erysipelas* is characterized by: A rise of temperature; a tendency to spread; the skin is swollen and the affected part has a well-defined border and raised margins; the rash is local, not punctate, but bullous; there are pain, considerable constitutional disturbance, and a possibility of infection.

3. See French's Practice of Medicine (1907), pages 151 *et seq.*; or Osler's Practice of Medicine (1909), pages 164 *et seq.*

4. In *mitral regurgitation* there is a systolic murmur, heard loudest at the apex, transmitted toward the left axilla, and often heard at the angle of the left scapula. The heart is enlarged. In *aortic regurgitation* there is a diastolic murmur, heard loudest at the second interspace, transmitted down the sternum. The left ventricle is hypertrophied. There will also be present Corrigan's pulse, and pulsating arteries in the neck. In *aortic stenosis:* A systolic murmur heard over the aortic area, transmitted into the carotids, and usually accompanied by a loud first sound. Hypertrophy of the left ventricle, increased area of cardiac dullness, apex beat is displaced downward and to the left, the pulse is generally small and infrequent.

5. See French's Practice of Medicine (1907), pages 901 *et seq.*; or Osler's Practice of Medicine (1909), pages 694 *et seq.*

6. In *acute alcoholism* the coma is not usually absolute; there may be an odor of alcohol on the breath, the patient can generally be aroused by shouting in his ear; there is no paralysis; the pupils are normal or dilated; respiration is practically normal; the pulse is first rapid and later feeble, and the skin cool. In *acute morphinism* the pupils are contracted, there is no sign of paralysis; both respirations and pulse are slow and full. In *apoplexy* there is generally paralysis of the head and upper limbs, and in left-sided lesions there may be aphasia; the pulse is slow and full; the respirations are at first slow, regular, and stertorous, later on becoming of the Cheyne-Stokes type.

7. See French's Practice of Medicine (1907), pages 771 *et seq.*; or Osler's Practice of Medicine (1909), pages 508 *et seq.*

8. See French's Practice of Medicine (1907), pages 745 *et seq.*; or Osler's Practice of Medicine (1909), pages 470 *et seq.*

PRACTICE OF SURGERY.

1. *Backward dislocation of the hip* is of two kinds: (1) On to the dorsum ilii; (2) on to the sciatic notch. *Dorsal dislocation:* Head of femur lies on the dorsum ilii, and can be felt in the buttock. The obturator internus is ruptured in most cases. The short rotator muscles are lacerated. The trochanter lies well above Nelaton's line and approximated to the anterior superior iliac spine. The leg is shortened two to three inches. The iliotibial band is relaxed. The leg is flexed, adducted, and inverted. The femur crosses the lower third of the opposite thigh. The toe rests on the opposite instep. A hollow exists in Scarpa's triangle. *Sciatic dislocation:* Similar to the above, except in the following:—The obturator internus tendon is intact and lies over the neck of the femur, holding it down in the sciatic notch. Shortening amounts only to one inch or less. The axis of the femur crosses the opposite knee. The great toe rests on the dorsum of the opposite great toe. *Treatment:* In posterior luxation of the hip joint the patient should be placed on a mattress on the floor, and then be anesthetized. The leg is then to be flexed on the thigh, and the thigh flexed on the abdomen; adduction is to be increased so that the knee is beyond the middle line of the body; then abduct, freely circumduct outward, and finally extent the limb so that it is parallel

with the other. *Ligaments injured:* Ligamentum teres and capsular ligament.

2. For the technique see any textbook on Operative Surgery. In amputation through the middle of the arm the following parts are divided: Skin; fascia; biceps, triceps, and brachialis anticus muscles; brachial, superior profunda, and inferior profunda arteries; brachial, basilic, and cephalic veins; median, ulnar, internal cutaneous, musculospiral, and musculocutaneous nerves; and humerus.

3. See Rose and Carless' Surgery (1902), page 966; or DaCosta's Surgery (1903), page 48.

4. See Rose and Carless' Surgery (1902), page 918; or DaCosta's Surgery (1903), page 797.

5. Femoral hernia is always *acquired*, and has a sac. Its course is first vertical, then forward, then upward over Poupart's ligament. Its coverings, from without inward, are: Skin, superficial fascia, cribriform fascia, crural sheath, septum crurale, subserous tissue, and peritoneum. The neck of the hernia is situated at the femoral ring; to its outer side lies the femoral vein, and to its inner side is Gimbernat's ligament; in front of it is Poupart's ligament, and behind it are the pubis, the pectineus, and the pubic portion of the fascia lata. In the immediate neighborhood of the femoral ring are: Anteriorly, the communicating branch between the deep epigastric and the obturator arteries; externally, the femoral vein and deep epigastric vessels; superiorly, the spermatic cord or round ligament) and the deep epigastric vessels.

For details of operation see Rose and Carless' Surgery (1903), page 991; or DaCosta's Surgery (1903), page 841.

6. *Etiology:* It is *caused* by infection, the bacteria gaining entrance either through a wound or by extension from neighboring tissues, or they may be brought by the blood. *Pathological Changes:* "The area of the medulla affected becomes hyperemic; exudation occurs in the cancellous spaces, Haversian canals, and under the periosteum. Pus soon forms in these three situations. If the disease begins in the superficial part of the bone, the pus may only be subperiosteal, the deeper part of the bone escaping, though large areas of the superficial portion may die from the combined action of (1) stripping up of the periosteum by the pus, (2) strangulation of the vessels in the bone by the pressure of the exudation, and (3) the toxic action of the bacterial products. . . . When the disease begins in the deeper layers of the bone, the pus may reach the periosteum, or extend along the medullary cavity, so that the veins become filled with septic thrombus, which may be disintegrated and carried off as septic emboli (pyemia). There is profound toxemia, and necrosis of the whole diaphysis may occur. . . . If the infection is mild, a chronic abscess may be formed in the cancellous tissue. The usual course of an acute case, if a patient survives, is that there is some necrosis of the shaft of the bone. The abscess bursts externally, and there are numerous openings in the skin leading through openings (cloacæ) in the periosteum and involucrum down to the sequestrum. The sequestrum becomes loose in six weeks to six months. *Symptoms:* Sudden onset; pain, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; scepticemia or pyemia, may be present. It is to be *diagnosed* from (1) *Rheumatism*, in which more than one joint is affected and the tenderness is *in* the joint, and not *near* it. (2) *Tubular arthritis*, in which the onset is slow and the trouble starts in the epiphysis rather than in the diaphysis. (3) *Cellulitis*, in which the bone and periosteum are not affected, and in which there is always a wound. *Treatment:* Immediate incision through the periosteum; the surface of the bone must be opened, pus evacuated, and drainage instituted; irrigation with hot bichloride solution and packing with gauze. The medulla of the bone must be freely exposed, and any suppurating material removed. Constitutional treatment and rest are indicated.

7. The triangles of the neck are: (1) Anterior (containing the inferior carotid, superior carotid, and submaxillary triangles); (2) Posterior (containing the occipital and subclavian triangles). For the relations of the common carotid see Cunningham's Anatomy (1905), page 802; or Gray's Anatomy (1908), page 600; for the ligations, see Rose and Carless' Surgery (1902), page 283; or DaCosta's Surgery (1903), page 348.

8. *Pyelitis* is due to: (1) calculi; (2) tuberculous disease; (3) extension of sepsis from the bladder and urethra; (4) sometimes movable kidney; (5) the ingestion of cantharides or turpentine; (6) a pyemic embolus.

The lining membrane is red and swollen, and exudes muco-pus or pus. A certain amount of hydronephrosis occurs from the blockage produced by the swelling. When pyogenic organisms are present, the kidney substance may be invaded (pyelonephritis). Perinephric suppuration may follow from extension.

The *Symptoms* are pain and tenderness over the kidney, frequency of micturition, and pus in *acid* urine, unless there is cystitis as well, when the urine is alkaline. The pyuria is intermittent when the ureter is occasionally blocked.

Treatment: The cause is removed if possible. When pyelitis is due to extension from the bladder, the latter must be attended to.

EYE AND EAR

1. Mastoid abscess. *Etiology:* Infection from nasopharynx or ear, purulent otitis, exanthemata, grippe, inflammation of middle ear. *Symptoms:* Tenderness, pain, swelling and redness over the mastoid; bulging of the superior and posterior parts of the auditory canal; temperature variable, from normal up to about 104° F. *Treatment:* Hot water, or cold water, or ice; leeches; purgatives; light diet; acetanilid; incision, or mastoid operation. *Operation:* A semicircular incision of the soft parts is carried from a point about one-half inch above the attachment of the auricle, backward and downward, keeping parallel to the auricular attachment and terminating at the tip of the mastoid. The periosteum is now elevated or dissected from the bone and the osseous structure thoroughly exposed by means of retractors, which are held by an assistant, the auricle being pulled forward so as to lie upon the side of the head. The hemorrhage is controlled by the use of hot sponges and artery forceps. The surface of the mastoid is thoroughly examined for areas of necrosis or the existence of a fistulous opening, especially if a fluctuating swelling obtains previous to the operation. If these exist, the openings are enlarged by means of a gouge or a chisel and mallet, and followed inward to their origin. Should the surface present a healthy appearance, the primary opening of the mastoid is made into the antrum by means of the chisel, the point of entrance being effected just below the line of the superior wall of the meatus and about one-quarter of an inch backward from the posterior wall or anterior edge of the mastoid bone. When the antrum has been exposed, the cortex of the mastoid is chiselled away from this point downward toward the tip until a sufficient amount has been removed to expose all parts of the mastoid process. The cells are now all broken down, and every vestige of a necrotic or granulating area is completely eradicated. A free communication of the antrum with the tympanum should be established, which may be proved by syringing an antiseptic solution into the antrum, when it will escape from the external auditory meatus through a previous perforation of the drum head. The cavity of the mastoid is packed with sterile gauze, and the flaps of overlying tissue allowed to regain their former position, when a gap remains between their edges, through which the dressings may be changed (From Alling and Griffin's *Epitome on Eye and Ear*).

2. In *gonorrheal conjunctivitis:* The conjunctiva and the lids are red and swollen; the secretion contains pus, in which the gonococcus may be found; the eye is tender and painful; the cornea may ulcerate; there is generally a history of gonorrheal infection.

In *blepharitis:* The margins of the lids are swollen and reddened; the lashes fall out, and may or may not grow again; the lids are glued together by yellowish crusts; under these crusts are ulcers which bleed readily; itching, soreness, epiphora, and sensitiveness to light are noticed; there may be eczema of the eyelids.

3. Myringitis. *Etiology:* Trauma; extension of inflammation from middle ear or nasopharynx; exposure. *Symptoms and Diagnosis:* Pain, fulness; tinnitus; slight disturbance of hearing; if abscess forms the pain is great. *Treatment:* Irrigate auditory canal with a warm alkaline antiseptic solution, or with a solution of corrosive sublimate 1:5,000, and insert a pledget of cotton in the meatus; vesicles should be opened.

4. In *corneal ulcer* the patient's general condition must be kept up with proper food, hygiene, fresh air, tonics, and attention to bowels, etc. Atropine, antiseptic applications, bandages, hot compresses, paracentesis of the cornea, or Saemisch's operation (division of the ulcer) are indicated.

5. The *membrana tympani* separates the external auditory meatus from the tympanic cavity. It is a thin, semitransparent, oval membrane, broader above than below, concave outwards, and lying obliquely downwards and inwards. The most depressed part of the cavity is called the umbo. Its outer surface is continuous with that of

the meatus; its inner covering is reflected from the lining of the tympanum; between the two is a fibrous membrane. There can be seen a ridge formed by the handle of the malleus, and also a bright triangular reflection of light at the anterior and lower part, running from the umbo towards the periphery. This is called the "pyramid of light." It is lustrous, and of a pearly color.

CHEMISTRY.

1. *Chemistry* is that branch of science which treats of the composition of substances, their changes in composition, and the laws governing such changes.

2. A *deliquescent* substance is one that absorbs sufficient moisture from the air to form a solution; example, calcium chloride. An *efflorescent* substance loses its water of crystallization on exposure to the air; example, sodium carbonate. An *effervescent* substance, when placed in a liquid, causes sudden liberation of a gas; example, seidlitz powder. A *fluorescent* substance possesses the quality of lowering the refrangibility of light rays so as to convert the invisible ultraviolet rays into visible violet rays; example, quinine.

3. *Sugar:* Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test tubes. To one test tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color.

Albumin: The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered. The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

Pus in the urine: Acidify the urine with acetic acid, then filter it, and treat the filter with a few drops of freshly prepared tincture of guaiacum; a deep blue color denotes the presence of pus.

Blood: To the urine add a solution of potassium hydroxide to distinct alkaline reaction; heat nearly to boiling (do not boil). A red precipitate is produced.

Urea: "The specific gravity of the urine is carefully determined, as well as that of the liquor sodæ chlorinatæ. One volume of the urine is than mixed with exactly seven volumes of the liquor sodæ chlorinatæ, and, after the first violence of the reaction has subsided, the mixture is shaken from time to time during an hour, when the decomposition is complete; the specific gravity of the mixture is then determined. As the reaction begins instantaneously when the urine and reagent are mixed, the specific gravity of the mixture must be calculated by adding together once the specific gravity of the urine and seven times the specific gravity of the liquor sodæ chlorinatæ, and dividing the sum by eight. From the quotient so obtained the specific gravity of the mixture after decomposition is subtracted: every degree of loss in specific gravity indicates 0.7791 gram of urea in 100 c.c. of urine. The specific gravity determinations must all be made at the same temperature; and that of the mixture only when the evolution of gas has ceased entirely." (Witthaus' *Manual of Chemistry.*)

4. The *empirical formula* shows only the composition, that is, the number and kinds of atoms that are present in a molecule. The graphic formula shows both the composition and the constitution, that is, the relation that the atoms bear to each other within the molecule. The empirical formula for acetic acid is $C_2H_4O_2$; the *graphic* formula is $CH_3.COOH$.

5. An *equation* is an expression, by means of symbols, numbers and signs, of a chemical action. $HgSO_4 + Hg + 2NaCl = Na_2SO_4 + Hg_2Cl_2$.

6. The *equivalent weight* is the weight of an atom or radicle which can replace or combine with one part by weight of hydrogen or chlorine. It is the atomic weight of the element divided by its valence.

7. *Molecular weight* is the weight of a molecule of a substance as compared with the weight of an atom of hydrogen. It may also be said to be the sum of the weights of the atoms composing the molecule. Thus, the molecular weight of sulphuric acid, H_2SO_4, is $(2 + 32 + 64)$, that is 98; or 98 times the weight of an atom of hydrogen.

8. *Specific heat* is the amount of heat required to raise the temperature of a substance a given number of degrees. The unit of specific heat is the Calorie, which is the amount of heat required to raise the temperature of one gram of water from 4° to 5° C.

MEDICAL JURISPRUDENCE.

1. *The requisites of a hypothetical question,* are: (1) It should embrace *substantially* all the evidence in the case relating to the subject. (2) It need not embrace all the evidence on the subject. (3) Each side may submit a different hypothetical question, based on the hypothesis of the facts which it considers proved. (4) It should be sufficiently explicit to warrant the formation of an opinion. (5) It should contain no irrelevant matter.

An *expert* witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically,* this can only be done by one perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practise is accepted as an expert witness. A *non-expert* witness testifies only the *facts* which he has seen, or heard, or with which he has become acquainted by personal observation.

2. The constituent elements of blood, are: Red corpuscles, white corpuscles, platelets, and serum. In mammals as a rule, the red corpuscles are circular and nonnucleated; in oviparous vertebrates, as a rule, the red corpuscles are oval and nucleated. The blood of different mammals is differentiated by the measurement of the red corpuscle. *To identify blood stains:* (1) Some of the material from the suspected stain is thoroughly mixed with a few drops of a saturated solution of sodium chloride, and then allowed to evaporate to dryness on a slide covered with a cover-glass. Now add a drop of glacial acetic acid to the slide, and allow it to enter under the cover slip; then apply gentle warmth. If the suspected stain is *blood,* crystals of hemin will form later, and can be seen under the microscope; this will not be the case with *iron rust.* (2) The demonstration of the *corpuscles* by the aid of the *microscope;* (3) *spectroscopic* appearance of two dark absorption bands in the green rays, and at the junction of the green and yellow rays; (4) *chemical* tests, and as the action of guaiacum and ozonic ether, nitric acid, or caustic potash.

3. A *wound* (medicolegal) is an injury or lesion caused by mechanical or chemical means. *Incised wounds* are made by sharp-cutting instruments; the hemorrhage is free, the wound gaps, there is no bruising of the margins. *Punctured wounds* are deep wounds with a small orifice; they are made by narrow instruments. *Lacerated and contused wounds* are made by blunt instruments and by crushing; the soft parts are torn, the edges are bruised and ragged, the deep parts are infiltrated with blood; there is little free bleeding. *Gunshot wounds.*

A wound inflicted during life is generally characterized by hemorrhage, coagulation of the blood, eversion of the edges, and retraction of its sides. It may also be inferred that the wound was inflicted during life if any of the following are noticed: The presence of inflammation, swelling, pus, or gangrene on the edges of the wound, or if there is any sign of beginning cicatrization. The shape and size of the wound do not always correspond with that of the instrument making it, because: (1) The edges of the wound may retract; (2) variation may occur on account of the tension or relaxation of the skin at the time the wound was inflicted; (3) the weapon may be withdrawn at a different angle from that at which it was introduced; (4) other factors are the size, weight, sharpness, or force applied to the weapon.

4. For the details of post-mortem examinations, see any textbook on Medical Jurisprudence (or Pathology). Lungs in which respiration has taken place float; those in which it has not taken place sink. Further, the lungs before respiration are situated at the back of the thorax and do not fill the cavity; whereas, after respiration, they fill the whole thorax. (*a*) *Artificial insufflation* is a difficult operation, and is not likely to be attempted by the mother, or anyone else. If done, the lungs would be bloodless, and there would be air in stomach and intestines. Practically, it need not be considered. (*b*) In cases of *putrefaction,* the air can be expelled by pressure, and none is found in the air cells; further, putrefaction of the lungs occurs late, and if found, and the lungs sink, the child was born dead. (*c*) If the flotation has been caused by *freezing,* the lungs would sink after being thawed out.

OBSTETRICS.

1. The *conjugate diameter* of the *inlet* of the pelvis is a line drawn down the middle of the sacral promontory to

the top of the symphysis pubis. It is about four inches in length. The *transverse diameter* of the *inlet* of the pelvis is a line drawn right across the pelvis from one lateral margin of the brim to the other. It is about five inches in length. The *conjugate diameter* of the *outlet* of the pelvis is a line drawn from the tip of the coccyx to the lower surface of the symphysis pubis. It is about five inches in length. The *transverse diameter* of the *outlet* of the pelvis is a line extending across the pelvis from one tuberosity of the ischium to the other. It is about four inches in length.

2. The cause of *rupture of the uterus* is: Strong uterine contraction in combination with some obstacle to the birth of the fetus. It is apt to occur in cases of contracted or deformed pelves, transverse presentation, obstruction from tumors, unduly large fetal head.

3. *Expectant plan:* Place the patient in bed, and if the bleeding is profuse, insert a tampon of iodoform gauze (one yard) well up against the cervix. If this fails to control the hemorrhage, reinforce it by another yard or two of gauze and a perineal pad and binder. Small doses (3½) of the fluid extract of ergot should now be given every two or three hours. At the end of from eight to twelve hours remove the tampon, when the ovum may be found extruded from the cervix; if not, a vaginal douche of mercuric chloride (1:4000) must be given, and another tampon introduced. If, upon the removal of this second tampon at the end of ten or twelve hours, the ovum is not discharged, then more vigorous methods to secure its expulsion must be adopted. *Active plan:* The physician's hands and instruments are sterilized; the patient is etherized and placed on an appropriate table; the genitalia are thoroughly cleansed and a vaginal douche of mercuric chloride (1:4000) is given; the anterior lip of the cervix is brought down to the vulvar orifice; the cervix is dilated if necessary; the placental forceps is introduced into the uterus, and as much as possible of the ovum is removed; the uterus is thoroughly curetted, and an intrauterine douche of sterile water is given. A light tampon of iodoform gauze is placed in the vagina; the patient is then returned to bed. A strip of the gauze may be placed in the uterus in cases of sharp retroflexion, to secure free drainage, and occasionally an intrauterine tampon will be necessary when the uterus refuses to contract and hemorrhage persists after the use of the curette." (Gould & Pyle's *Pocket Cyclopedia.*)

4. Grasp the uterus at once, through the abdominal wall, and massage it firmly. Anything in the uterus should at once be cleaned out. Pass one hand into the uterus, and with the other on the outside make firm pressure. A hypodermic of ergotin, or ergot can be given by an assistant. An intrauterine douche of hot sterilized water (about 115° F) may be given. Sometimes a very thorough packing and plugging of gauze of uterus and vagina may be necessary. Whatever is done must be done promptly; and everything likely to be needed for this emergency should be prepared beforehand in every labor.

5. *Causes of Transverse Presentation:* Prematurity of the labor; placenta prævia; narrowness of pelvic brim; great lateral obliquity of the uterus; multiple pregnancies; undue mobility of the child from excess of liquor amnii; accidental pressure externally from blows, falls, dress, etc.; repeated occurrence of cross-births in the same woman is probably due to a narrow pelvic brim. *Treatment:* Early correction of the presentation, converting it into a head, breech, or foot, by version (external, internal, or bipolar). In cases of arrested spontaneous evolution, with impaction, version is out of the question. The child is usually dead from compression; the method of delivery is embryotomy, usually decapitation.—(From King's *Obstetrics*).

6. *Puerperal eclampsia* is an acute morbid condition, occurring during pregnancy, labor, or the puerperal state, and is characterized by tonic and clonic convulsions, which affect first the voluntary and then the involuntary muscles; there is total loss of consciousness, which tends either to coma or to sleep, and the condition may terminate in recovery or death. The *causes* may be: Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are renal disease and imperfect elimination by the skin, bowels, and kidneys. *Preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ. *Curative treatment* (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

7. *Indications for the use of forceps* are: (1) *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. (2) *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. (3) *Passenger at fault:* A. Dystocia due to (*a*) occipitoposterior, (*b*) mentoanterior face, (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). (4) *Accidental complications:* Hemorrhage; prolapse funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both. *Conditions necessary for the use of forceps* are: (1) The rectum and bladder must be empty; (2) the os uteri must be fully dilated; (3) the membranes must be ruptured; (4) the pelvis must be of sufficient size.

8. In the nulliparous adult the uterus is about three inches long, about two inches wide at the upper part, and about one inch thick. The uterus lies between the rectum behind and the bladder in front; it is below the abdominal cavity and above the vagina. Its position is one of slight anteflexion, with its long axis at right angles to the long axis of the vagina. The anterior surface of its body rests on the bladder, and the cervix points backward toward the coccyx. The uterus is not fixed, but moves freely within certain limits. It is held in place by ligaments—broad ligaments, round ligaments, vesicouterine, and rectouterine. *During pregnancy* the uterus increases in *size* (from 3 to 12 inches in length; from 1½ to 9 inches in breadth), in weight (from about one ounce to two pounds, not including its contents). The cavity is enlarged over 500 times. All the tissues (muscles, ligaments, arteries, veins, lymphatics, and nerves become tremendously hypertrophied. The uterus also changes its position; at first it drops, later it gradually rises, till just before labor (when it again drops).

DISEASES OF CHILDREN.

1. Night cries; lameness in the morning; a slight limp; tendency to become tired on slight exertion; wasting; spasm; pain; swelling; and deformity (either real or apparent); growing pains, sacroiliac disease, congenital dislocation of the hip, spinal caries and psoas abscess, infantile paralysis, lordosis, rickets, and rheumatism.

2. *Etiology:* Tuberculosis (traumatism and cold may be exciting causes). *Pathology:* It may begin in the synovial membrane, or acetabulum, or femur; if it begins in the bone it spreads to the synovial membrane and causes general infection of the joint. First of all the bacilli enter, multiply, and by their products cause irritation and new growth; as this advances embryonic connective tissue is formed, and the joint is filled with an effusion; later on caseation occurs, the joint is destroyed, and there may also be destruction of the surrounding tissues.

3. (1) *Stage of incubation:* Lasts about nine to twelve days, during which the child loses weight, but is not otherwise sick. (2) *Stage of invasion* lasts about four days, the child has catarrh, coryza, fever, sneezing, laryngitis; buccal spots appear about the first or second day, headache, anorexia, furred tongue, fever and diarrhea or vomiting may be present. The fever rises till the eruption appears; the pulse is rapid, 120 to 150. (3) *Stage of eruption:* Eruption generally appears on fourth day (for details see above, PRACTICE, No. 2); the fever and catarrh continue till the rash is fully developed. (4) *Stage of decline:* The eruption fades rapidly, is followed by desquamation, the other symptoms subside, but the bronchial catarrh is the last to disappear.

4. *Symptoms:* Sudden onset, severe localized pain, vomiting, tenesmus, and passage of bloody mucus. There is a sausage-like tumor in the abdomen; sometimes it can be felt in the rectum. Fecal impaction or appendicitis may simulate it, but in the former the swelling is less tender and is on the left side; in the latter there is fever, and the tumor is on the right side *Treatment:* Laparotomy and reduction of the bowel as soon as possible. Gentle manipulations, enemata, and opium have been suggested, but these should be adopted only when surgical relief is not available.

5. ATELECTASIS PULMONUM is collapse of the lung *Symptoms:* The child becomes livid or pale, also restless; he breathes quicker, and his temperature becomes subnormal; pinched features, cold sweats, and cessation of the cough are all noticed. There are bronchial breathing, absent or diminished vocal resonance, dullness on percussion at base and posterior border of lungs *Treatment:* The

child must be put at once in a hot mustard bath; then wrapped up in cotton wool, vomiting must be produced by an emetic; atropine sulphate (gr. 1/300-gr. 1/200) may be given hypodermically as a respiratory stimulant.

6. *To peptonize cow's milk:* Put into a bottle one pint of fresh cow's milk and 4 ounces of water; add a powder containing 5 grains of pancreatic extract and 15 grains of bicarbonate of sodium; shake the mixture. The mixture should be kept at a temperature of about 110° F., by placing the bottle in hot water; it should be occasionally shaken. For partial peptonization, this is continued for 6 to 20 minutes; for complete peptonization, two hours.

7. *The principal clinical changes that occur in the skeleton in rickets* are: Enlargement of the epiphyses of the long bones, curvatures are increased, flat bones have prominences or thickenings, green stick fractures are common, the head is large and square, the ribs are beaded, the fontanelles are open, dentition is delayed and irregular, the wrists and ankles are thickened.

8. Hydrocephalus, Syphilis, and Mollities ossium.

MATERIA MEDICA AND THERAPEUTICS.

(1) ℞ Tincturæ aconiti, ♏j.
Liquoris ammonii acetatis, ʒv.
Spiritus ætheris nitrosi, ʒj.
M. Signa: One tablespoonful every three hours in half a tumblerful of lemonade or effervescent water.

(2) ℞ Ammonii chloridi, gr. xxx.
Tincturæ opii camphoratæ.
Syrupi ipecacuanhæ, āā ♏iij.
Syrupi pruni virginianæ, ʒj.
Syrupi tolutani, q.s. ad ʒiv. Misce.
Signa: One teaspoonful every three hours.

℞ Morphinæ sulphatis, gr. j.
Ammonii chloridi, ʒj.
Spiritus chloroformi, ʒj.
Syrupi pruni virginianæ, ʒj.
Mist. glycyrrhizæ comp., ad ʒviij. Misce.
Signa: One tablespoonful every three hours.

2. CARBOLIC ACID. *Origin:* From coal tar oil, by fractional distillation; or it can be made synthetically. *Dose:* One grain. *Physiological action:* "Irritant; caustic; antiseptic; disinfectant; deodorant; parasiticidal; antizymotic; antipyretic; in solutions of moderate strength, locally anesthetic. The heart and respiration are at first stimulated and afterward depressed. Smokiness of the urine is a characteristic feature." *Treatment in case of poisoning:* Sodium sulphate or magnesium sulphate, warm mucilaginous drinks, cardiac and respiratory stimulants by hypodermic, warmth to the body, emetics, are all indicated.

3. The following is given by Einhorn: All substances that are liable to excite intensely the glands of the stomach must be excluded. Therefore all kinds of acids must be forbidden. The food should consist of material rich in albumin, while the quantity of starchy substances should be diminished. Thus all kinds of meat (even game), fish, oysters, eggs, milk should be taken in large quantities. Bread and butter are permitted. Potatoes, spinach, asparagus, green peas, farina, and rice should be taken only in small amounts. Whiskey and wines should, as a rule, be avoided. Cacao, weak tea, weak coffee, and beer can be given in moderate quantities.

4. APOMORPHINE HYDROCHLORIDE. *Dose:* As an emetic, gr. 1/10 subcutaneously; as an expectorant, gr. 1/30. *Physiological action:* It acts on the vomiting center in the medulla, hence is emetic; it increases pulse, blood pressure, and rate of respiration; it is also an expectorant. Its *indications* are chiefly those requiring a prompt emetic; also as an expectorant in bronchitis and lobular pneumonia.

5. SPIRITUS ÆTHERIS NITROSI is prepared from sodium nitrite, sulphuric acid, monosodic carbonate, potassium carbonate, alcohol, and water. *Dose:* 30 minims. *Therapeutic uses:* In feverishness, nausea, asthma, flatulence, as a mild diaphoretic, diuretic, carminative. *Common name:* Sweet spirit of nitre.

6. An agent which increases the action of the skin and promotes perspiration. (1) Alcohol, ʒss to ii; (2) Pulvis ipecacuaphæ et opii, gr. x to xx; (3) Spiritus ætheris nitrosi, ♏xxx; (4) Turkish bath.

7. *(a) Cardiac tonics* stimulate the cardiac muscle, and thus slow and strengthen its contractions. Examples: Digitalis and strophanthus. *(b) Cardiac stimulants* increase the force and frequency of the heart beat when the heart is depressed. Examples: Alcohol and ether.

8. *Cathartics* increase or hasten the intestinal evacuation. They act by: Increasing peristalsis, stimulating intestinal secretion, causing exosmosis of serum. Contraindicated in inflammation of stomach, intestines, or peritoneum, pregnancy, threatened intestinal hemorrhage.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of November 27, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	455	134
Diphtheria	392	29
Measles	263	7
Scarlet Fever	272	9
Smallpox	—	—
Varicella	138	—
Typhoid Fever	45	12
Whooping Cough	23	7
Cerebrospinal Meningitis	4	5
Malarial Fever	—	—
Totals	1,592	203

Diagnosis and Treatment of Puerperal Eclampsia.—Stern and Burnier sum up the characteristic symptoms of puerperal eclampsia and describe the differential diagnosis from neuroses and cerebral diseases. The cardinal symptoms are cephalalgia, high pulse tension, and albuminuria. They go on to describe the various forms of treatment. Blood letting is used by them as a routine procedure as soon as high tension occurs. Purgatives are of value. Veratrum viride has many advocates. The author does not look with favor on renal decortication, since the kidneys are not the only organs involved. Artificial serum injections are valuable as diuretics. The prognosis is bad in multiparæ, when there has been previous kidney disease, when the attack occurs some time before the normal time for labor, and when the attacks are repeated and prolonged.—*Gazette des Hôpitaux.*

Cardiac Complications in Articular Rheumatism in Children.—Marfan states that articular rheumatism may not be accompanied with much fever or much swelling of the joints in children, while at the same time there may occur an affection of the endocardium which is serious in nature. In babies there is prominence of the heart area and undulation of the chest, due to the softness of the chest wall. Compensation is more easily established in the child than in the adult, and cardiac hypertrophy rarely occurs. Mitral insufficiency is well tolerated. Pericardial adhesions are frequent and cause asystole, which results in hepatic stasis and increased liver dullness. Children who have had articular rheumatism are subject to attacks of fever without other cause, which indicate a chronic rheumatic condition.—*Journal de Médecine de Paris.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended November 26, 1909:

		Cases	Deaths
SMALLPOX—UNITED STATES.			
Alabama, Montgomery	Nov. 6–13	15	..
California, San Francisco	Oct. 30–Nov. 6	1	..
Illinois, Chicago	Nov. 6–13	1	..
Indiana, Muncie	Nov. 6–13	2	..
Kansas, Kansas City	Nov. 6–13	1	..
Louisiana, New Orleans	Nov. 6–13	2	Imported
New York, Buffalo	Nov. 6–13	1	..
West Virginia, Wheeling	Oct. 30–Nov. 6	1	..
SMALLPOX—FOREIGN.			
China, Shanghai	Sept. 25–Oct. 2	1	1
Ecuador, Guayaquil	Oct. 1–15	1	..
India, Bombay	Oct. 5–12	..	1
Italy, Naples	Oct. 23–30	3	1
Mexico, Monterey	Oct. 24–31	..	1
Veracruz	Oct. 23–30	..	2
Russia, Odessa	Oct. 10–17	..	4
Warsaw	Sept. 11–18	..	6
Spain, Barcelona	Oct. 18–25	..	1
Turkey, Constantinople	Oct. 17–24	..	1
YELLOW FEVER.			
Ecuador, Guayaquil	Oct. 1–15	13	4
Mexico, Merida	Oct. 30–Nov. 6	1	1
CHOLERA.			
Germany, Allenstein district	Oct. 23–30	1	..
Andreischken	Oct. 23–30	6	..
Heydekrug district	Oct. 23–30	6	..
Labiau	Oct. 23–30	3	..
Skirwietell	Oct. 23–30	5	..
Skopen	Oct. 23–30	3	..
India, Calcutta	Oct. 2–9	..	11
Siberia, Vladivostok	Oct. 4–16	20	1
PLAGUE.			
Ecuador, Guayaquil	Oct. 1–15	56	16
India, general	Oct. 2–9	5,209	4,123
Calcutta	Oct. 2–9	..	5
Venezuela, Caracas	Nov. 11	2	2
Zanzibar	Nov. 8	1	1

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Original Articles.

THE PRESENT STATUS OF THE TONSIL OPERATION. A COLLECTIVE INVESTIGATION.*

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THIS paper is based on the replies to a series of questions addressed to prominent laryngologists in this country and Europe and on such of the recent literature as covers certain points concerning which information was requested. Replies to more or less of the questions were received from one hundred and thirty, and thirty-six articles in recent literature are also referred to.

The questions to be considered are the physiological function of the tonsil, its relation to tuberculosis and the cervical glands, its relation to rheumatism, the use of chemical caustics in its treatment, indications for removal, the choice of operation, the necessity for reoperation, present technique, the question of hemorrhage connected with the operation, and the result as to the voice.

The tonsil is a normal gland, the size of which varies within wide limits. All knowledge so far obtained seems to show that its function is normally one of defense against infection, the tendency to enlargement being a persistence of the process by which its function was evolved. In its normal state it offers comparatively little obstruction to the passage of food and air, but such condition is so variable that it is impossible to indicate exactly the minute structural changes separating the normal from the abnormal. It is pathogenic only when its presence is injurious to a degree more than overbalancing its value in whatever physiological acts of assimilation or defense it may have to perform. "The pits of the tonsils are retorts in which the germs are either destroyed or modified so that they may live at peace with their host, or they are allowed to pass through in such numbers as can be dealt with by internal processes without the destruction of the host. From various clinical facts, it seems likely it is the small, sunken, ragged tonsil, and not the large tonsil, which gives entrance to the dangerous germ" (Wright).

The experiments of Jonathan Wright show that dust and oil globules and also pathogenic organisms pass through the epithelium of the tonsil crypts, but the latter not as readily. The reason why one passes readily and the other only under certain conditions, is explained by the difference between the potentials of surface tension of the epithelial cell on one hand, and to the bacterium and dust particles on the other, due to the fact that the living matter is in a colloid state. The tonsil differs from the other lymph glands in that it has no afferent lymph vessels. The crypts are lined with an epithelium which does not form a compact unbroken barrier of protection, so that so far as any mechanical barrier is concerned, it presents an open door for microbic infection, the pockets and recesses being capable of retaining large numbers of bacteria. Hence it would seem that unless the vital resistance is considerably greater than in the surrounding structures, the tonsillar tissues ought to be the vulnerable spot in the throat. Experiments were made to determine whether, this being the case, certain anti-bodies would be found which would make this structure especially resistant to germ invasion. So far no considerable amount of immune bodies have been found, so that we are still uncertain as to the degree of vital resistance of the tonsillar structure. As the lymph chain of the neck presents a rather formidable barrier against the invasion of microorganisms, a large majority of patients suffering from microbic infection of the tonsils pass through the disease without any true bacteremia.

It has been stated that the tonsil is not a physiological organ, and various observations to this effect have been made. Bosworth says, "Incalculable mischief has resulted from the early anatomists describing the tonsil as a normal organ of the body." That it is such an organ, however, is undoubted, as the anatomical work of Mosher, based on the examination of embyros of four, five, six, and seven months, and full term infants, effectually disproves the statement that the tonsil is absent at birth. The reason that it is overlooked in the new-born child may be its position, since at birth the tonsillar opening and the tonsil are practically horizontal, and at such times the tonsil is more a part of the palate than of the wall of the pharynx. As the face grows downward, the tonsil also grows downward, forward, and inward.

As to the direct or apparently direct relation between enlarged cervical glands and the tonsil, one hundred and seventeen personal reports were positive; that is, that there is a direct relation between the two, the tonsil being apparently the gland through which the infecting agent comes, as evidenced by the cessation of the adenitis after removal of the tonsils.

The anatomical investigations of Poirier and George B. Wood have shown that the lymphatic drainage of the faucial tonsil runs directly to the upper deep cervical glands, which glands by a rich system of anastomosis are connected by efferents and afferents with practically all the lymph glands of the neck and head. The tonsillar lymph gland is generally situated just below the posterior belly

*Abstract of paper presented before the American Laryngological, Rhinological, and Otological Society at its fifteenth annual meeting, Atlantic City, June 3, 1909

of the diagastric where it crosses the anterior border of the sternomastoid. This spot is located just behind and below the angle of the jaw, and in tuberculous adenitis of the neck it is this gland which is almost invariably the first one to become enlarged, the others being involved subsequently. It would therefore seem as though this question had been sufficiently determined to admit of this relation being stated as a positive fact. That following the removal of the tonsil there may be in some instances an enlargement of the immediate glands, followed later by their subsidence, is an undoubted fact, and has been observed by me on several occasions. This is easily explained as a result of the traumatism from the operation, this giving rise to direct absorption of more or less septic material from the throat, and consequent gland enlargement. The contention of Chambers that infected cervical glands are always accompanied by large tonsils is hardly warranted. On the contrary, the investigations of Jonathan Wright and Lee M. Hurd have shown that in some cases of cervical adenitis the tonsil itself may be quite small and belong to the submerged type. There is no direct relationship between the size of the tonsil and the involvement of the cervical glands, nor is it always true that in all cases of enlarged cervical glands the tonsils are enlarged. Enlarged cervical glands are without doubt frequently the result of infection from or through diseased tonsils, but not all persons who have diseased tonsils have enlarged cervical glands; since the gland not infrequently has sufficient resisting power to ward off the infective process.

Fifty-seven of my correspondents had not observed any connection between the tonsil and tuberculosis; thirty-nine had; the others did not answer the question. Goodale has seen several such cases, already reported. Hurd reports seven cases out of nine in which the clinical diagnosis of tuberculous tonsillitis was made mainly from the condition of the cervical glands. In these cases Jonathan Wright found evidence of tubercle bacilli in the tonsils. He thinks the tuberculous cervical glands at the angle of the jaw are almost always secondary to primary tuberculosis of the tonsil.

Dr. Hurd and Dr. Wright have recently made investigations which show that the larger and freer the tonsil, the more it resists the invasion of harmful organisms; also that it is exceptional to find associated with such a tonsil much enlargement of the lymphatic glands. The small submerged tonsil is more likely to be the soil for the invasion of the tonsil with tuberculosis. Dr. Wright examined the tonsils in sixty cases where the protruding portion only was removed and did not find tuberculosis in any of them.

The tuberculous tonsil is usually pale, the crypts contain cheesy débris, the edge of the anterior pillar shows passive hyperemia, and the associated lymph glands are much enlarged. The stump of the partially removed tonsil is quite as liable to tuberculous infection as if originally submerged. Lermoyez regards chronic lesions of the tonsils as an open door to tuberculosis. Thompson advised removal of diseased tonsils in an adult woman, which was refused. She returned two years later for the removal of the tonsils and with a large mass of tuberculous glands in the neck. Recovery took place. There was no tuberculosis anywhere else in the body. Moure of Bordeaux does not believe that the tonsils are very often the starting point of tuberculosis.

The relation of the tonsil to rheumatism is one of the as-yet unsolved problems to which considerable attention is being given and concerning which I sought information. At the outset of such an inquiry one is confronted with the question as to what rheumatism is, and to this question there is as yet no unanimity of opinion. The older theories as to dependence on cold or wet and the uric acid theory seem about to be superseded by the theory of direct infection. Sufficient proof is perhaps not yet at hand to make this a certainty, but the tendency is all in this direction. All investigations so far made seem to show the probability of the accurateness of the infection theory. Frissell isolated an organism which, while culturally not readily distinguished from other diplococci or streptococci, yet had a special affinity for joints. This was shown by the fact that ten out of eleven rabbits injected had a polyarthritis, the other dying of pericarditis and pleurisy. Rheumatism may be due not to a specific coccus, but to a coccus group intimately allied, though perhaps indistinguishable from each other by present cultural methods, the individual strains of which would vary in virulence. He says: "Such a group might well contain the ordinary harmless streptococcus, a common habitant of the tonsil, so many of which were injected in our experiments into the animal circulation without producing symptoms; might include a variety causing an arthritis which tends to a spontaneous cure unless the number of the invading host be too great, and range up to the malignant streptococci, causing septic joints, septic endocarditis and pyemia." Exposure to cold and wet, so long held to be a potent factor in the causation of rheumatism, may be considered as lowering to the body resistance, thus giving the bacteria a chance to attack the temporarily unprotected organism.

Rosenheim, Ingals, Phillips, Welty, Levy, Ross, Cohen, Elliott and Robertson all cite instances of the positive relationship between rheumatism and tonsillar disease, and, in the main, the answers to my question as to whether rheumatism disappeared with the removal of the tonsil, showed that it either disappeared or that the attacks were less severe. I have recently removed some tonsils with diseased crypts in a woman of forty-two, who had rheumatism of the neck and shoulders many years. This entirely ceased after thorough enucleation of the tonsils and has not returned.

Aneurysm, appendicitis, erysipelas, meningitis, iritis, pleuritis, pericarditis, endocarditis, pneumonia, paraplegia, strabismus, nephritis, osteomyelitis, phlegmon, oöphoritis, orchitis, and general septic infection are all found in the literature as of tonsillar origin or occurring with or as a result of tonsillar inflammation. Investigation of all of these would lead me beyond my present field. They all show the possibility and probability of the tonsil as a portal of infection, and prove that whatever of protective value the tonsil may theoretically have, it is practically of little value; on the contrary, it is not infrequently a decided menace.

Of one hundred and twenty-five replies as to the use of chemical caustics, sixty-five did not use them in any form in the treatment of tonsillar troubles. By chemical caustics I mean those commonly used to reduce inflammatory growths, to lessen the size of the tonsil, to destroy diseased crypts, and, in general, any chemical agent which, applied directly, is used to bring the tonsil into a healthy condition. The chemical caustics which seem to be principally

used are: silver nitrate in varying strengths, and the fused salt on the probe, trichloracetic acid, chromic acid, carbolic acid with glycerine and silver nitrate, London and Vienna paste, sublimate in alcohol, lactic acid, and zinc chloride. Forty-two out of one hundred and twenty-five, or about 33 per cent., still use these to a greater or less extent, while eighteen formerly used them, but have now abandoned them.

While the advocates of these measures are decidedly in the minority, I cannot believe that the opinion of Dr. Freer, who regards chemical caustics as the resort of the timid manipulator who shuns surgery because he is afraid to attempt it, is a correct one, as many of the users of chemical caustics are good surgeons who cannot be said to fear the more radical measures. Certainly this cannot be said of Leland, Professor Chiari, Beck, D. C. Greene, Jr., Thomas Hubbard, Anderson, Roy, Clarke, Gleason, and others.

There occur in the practice of every laryngologist a certain number of diseased or hypertrophied tonsils in which, for one reason or another, radical surgery seems contraindicated, or, if indicated, is not accepted by the patient. In these cases I am satisfied from a considerable personal experience that the fused nitrate of silver on the probe, chromic acid, trichloracetic acid, melted and applied on a small tightly wound, right-angled cotton applicator, as well as many of the other agents mentioned, will, when carried deeply into the crypts, reduce the size of the tonsil very materially, and add to the comfort of the patient, and will be accepted many times when more radical measures will be refused. That these measures take the place of the complete removal of the tonsil when that is indicated, is not claimed, but that they have a place far more important than would be indicated by some of the opinions expressed cannot be doubted.

The indications for the removal of the tonsil are: recurring tonsillar abscess, or quinsy, recurrent simple tonsillitis, benign tumors, and new growths of any kind when their removal is not prejudicial to life, diseased crypts coexisting with tonsillitis and rheumatism, mouth breathing due to hypertrophy of the tonsils, middle ear inflammation apparently due to enlarged tonsils, impaired nutrition, systemic dyspnea, and general toxemia when of tonsillar origin.

General toxemia of tonsillar origin, impaired nutrition, and systemic dyspnea occur perhaps more often with the tonsils as a cause than is generally recognized. A recent case of my own illustrates this: A policeman in the habit of going to sleep and snoring whenever he sat down, very large and continually putting on flesh, was referred to me for examination of the throat. The faucial tonsils were so large that they met in the middle line. On their thorough enucleation the symptoms of dyspnea and general carbonic acid intoxication, as evidenced by the tendency to sleep, entirely disappeared, and the individual's entire character changed.

Remote reflexes such as vomiting, cough, chorea, irritable and granular pharynx, enlarged glands, when the tonsils are the probable cause, should have for treatment the removal of the tonsil.

With reference to tuberculosis, there seems to be a difference of opinion. If tuberculosis is evident or suspected, it may do to remove the tonsil when the case is seen very early, but so competent an observer as Frendenthal advises against removing the tonsils in advanced cases of tuberculosis, since he has found it not only of no advantage to the individual, but in many cases distinctly harmful.

With reference to children, if one accepts the dictum of Bosworth that the tonsil is not a normal gland at all, the hypertrophied tonsils in children should always be removed, even though there are no symptoms. It is probably the custom of most operators at the present time when operating for adenoids to remove the tonsils at the same time, even though there be no definite symptoms referable to these glands, on the ground that we are uncertain as to their function and know that they often are a source of trouble. Since apparently no one ever misses them when removed, it is claimed that it is better to give the child the advantage of the doubt and when the adenoid operation is done to remove the tonsils at the same time. On the other hand, if the tonsil has a distinct function of value to the individual it would seem that it ought not to be removed unless really causing trouble, and it is probable that this point of view will finally prevail, and fewer tonsils be removed at the time of the adenoid operation. G. H. Wright has recently shown that the enlargement of the tonsil at the time of the eruption of the various sets of molar teeth is a protective phenomenon, the tonsil diminishing in size after their full development. He thinks the tonsils ought not to be removed at these periods unless signs of positive disease are present.

In general, some of the statements seem to me too sweeping and some too conservative. For instance, Gildea and some others would remove every tonsil that shows any tendency to disease, whereas I think that many diseased tonsils are curative by local measures without removal. On the other hand, Gleitsman would remove only those tonsils that protrude beyond the palatine pillars. As many of the most troublesome tonsils, so far as the general economy is concerned, are those which do not protrude at all, this is too conservative. Welty of San Francisco says that all tonsils after twenty years are diseased and that when the tonsil is once diseased it predisposes the individual to any kind of infection, more especially the whole group of infectious diseases.

Several writers in speaking of the indications for the removal of the tonsils use the phrase "adherent pillars," "bad adhesions to the pillars," and the like. These terms seem to be misnomers, and I am quite of the opinion of Dr. Robert C. Myles, who has claimed for years in various papers written by him on the tonsils, that there is no such thing as adhesions to the pillars in a pathological sense. Anatomically, all tonsils are adherent to the pillars the tonsil being a gland with a capsule on its external side, set in between the anterior and posterior pillars, and necessarily attached to them on the anterior, posterior, and superior aspects, and to the mucous membrane adjoining the side of the root of the tongue on its inferior aspect. That the anterior pillar sometimes forms folds known respectively as the plica supratonsillaris and the plica infratonsillaris is well known, and this may explain the so-called adhesions of some writers. As a matter of fact, these plicæ are merely reduplications or folds of the free surface of the anterior pillar.

In cases in which this condition does not exist the mucous membrane of the edge of the pillar divides into two parts, one becoming continuous with the mucous membrane covering the tonsil, and the other continuous with the capsule of the tonsil, the two together forming the fast attachment of the

pillar to the tonsil, which is invariably present. This line of attachment is the first thing to be severed in the complete removal by whatever manner it may be done. This gives access to the edge of the capsule, which is attached to the superior constrictor of the pharynx and the adjacent areolar tissue. I cannot see, anatomically, any reason for speaking of "adherent tonsils" or "bad adhesions to the pillars" except as one refers to the complete removal of the tonsils, in which, owing to the character of the areolar tissue, it may be more difficult in some cases to perform complete dissection than in others. Also, the two folds going from the anterior pillar are sometimes thicker than at others, but they are true anatomical structures and always present.

As to the choice between tonsillotomy or tonsillectomy; twenty-eight favored tonsillotomy; fifty-seven favored tonsillectomy; thirty-two, tonsillotomy in young children for simple hypertrophy, tonsillectomy in older children or in the presence of distinct pathological changes at any age; two, tonsillotomy in adults, tonsillectomy in children. The opinions given in answer to the question as to the reporter's preference for tonsillotomy or tonsillectomy show a gradual change towards the more thorough operation of tonsillectomy; since only twenty-eight out of the entire number still range themselves as absolutely on the side of tonsillotomy, although the answers in the way of technique would seem to show that some of the operators are content with rather less than the absolute removal of the tonsil gland. The tendency, however, is in that direction, and it is probably only a matter of a few years when the others—the thirty-two who use tonsillotomy for young children for simple hypertrophy and tonsillectomy in older children or when the tonsil is manifestly diseased, will use tonsillectomy in all their cases; since it is certainly not rational to remove a gland at all unless one removes it as thoroughly as possible and with a view to the prevention of any possible future complication.

To take some answers a little more in detail: Gleason of Philadelphia advocates tonsillotomy in simple hypertrophy, because it requires no general anesthesia and there is no risk. In recurrent tonsillitis or quinsy, with retention of cheesy matter, he advocates tonsillectomy, but with reluctance and with a feeling that the remedy may be worse than the disease, saying that it is theoretically comparable with the rough surgery of the Civil War. To this I would reply that a clean tonsillectomy is not at all rough surgery, but quite the proper operation for the purpose for which it is done. Dr. Farlow uses tonsillotomy generally, because it has less risk, and thinks that tonsillectomy has a risk out of proportion to its advantages. Dr. Frank Miller says that tonsillotomy correctly done never causes hemorrhage, but there is bleeding if all the tonsil comes out, leaving the capsule. Tonsillectomy is often dangerous, with a constant hemorrhage five to eight hours after, when not expected. Prof. Chiari practices tonsillotomy only, as the remaining portion of the gland atrophies and in tonsillectomy there is danger of injury to the tonsillar artery in the capsule. Personal observation in Prof. Chiari's clinic corroborates this statement as to practice. I have never seen any operation done there except tonsillotomy. Ross, Gerber, Pooley, and Sir Felix Semon have found tonsillotomy sufficient with very few exceptions. As showing that the leaven of completeness in tonsillar surgery has not leavened the whole lump, such experienced observers as E. L. Shurley and Dr. Gleitsman prefer tonsillotomy and see no reason why the whole organ must be removed. Ballenger performs tonsillectomy, removing the tonsil with the capsule intact. The crypts of the tonsil extend to the capsule, and it is the crypts that usually form the atrium of infection. If the capsule is not removed, the surgeon is not sure all the diseased tissue is removed. If tonsillotomy is practised, a careless and imperfect operation is too often passed as a sufficient operation. A partial operation is frequently followed by recurrent tonsillitis and by the regrowth of the tonsil tissue. He has never seen recurrence after removing the tonsil with the capsule intact. Contrary to the oft-expressed opinion as regards the difference in procedure between children and adults, Theisen of Albany always uses tonsillectomy in childhood, since incomplete removal is frequently followed by recurrences of lymphatic tissue. In adults he finds tonsillotomy often sufficient. If one is to differentiate at all between the two, the author regards this opinion as more nearly correct than that of tonsillotomy in children and tonsillectomy in adults.

In reply to the question as to the necessity of repeating operations for the removal of the tonsil, one hundred and six reported in the affirmative, that is, they had operated on the same individual more than once, in some cases after a previous operation by some other surgeon; ten replied in the negative, and five said that they had reoperated after others, but not after themselves. This statement is easily explainable, as it not infrequently happens that a second operation is done by another operator Nearly every operator who now does tonsillectomy reported that all of his secondary operations had been done after tonsillotomy and that no occasion had been found to reoperate after tonsillectomies. That the tonsillar tissue seems in a measure to reform when the basal portion is left is evidenced by the testimony of several good observers, such as Emil Mayer, Gleitsmann, Berens, Hajek, Gradle, Loganturner, and others. Not to quote individuals further, the practical unanimity of opinion as to the occasional need for reoperation would seem to show that tonsillotomy is an incomplete operation and that it does not fulfill, as so many of its advocates aver, all the desired results. Certainly the writer has had this experience, *i. e.* the necessity of secondary operations in certain cases in which he has performed tonsillotomy. On the other hand, he has seen many satisfactory results after tonsillotomy.

There is quite a difference in usage in regard to the question of anesthesia. In operations on children several operators use no anesthetic whatever, and it is well known that it is not the custom on the continent of Europe to anesthetize children for adenoid and tonsil operations. In America, most parents prefer that the child be spared the shock and pain of the operation, even though it be not so very great. Anesthesia has also the advantage that it allows time enough to do a better operation, especially in the dissection of the tonsil, and with a few exceptions all of the surgeons reporting to me are in the habit of using anesthesia in operations on children. For local anesthesia, cocaine in some form or other is mostly in vogue, either by injection or painted on in varying strengths. The reports on this question were as follows: Sixty-three use ether as the anesthetic for children; ten gas and ether; ten, chloroform; one uses chloro-

form up to twelve years of age, ether after this age; seven, ethyl-chloride; five, somnoform; two, nitrous oxide; three, ethyl-bromide; two, ethyl-chlorid and chloroform. Operation under general anesthesia should be done in the hospital or at home, and not in one's office.

As regards children operated on under general anesthesia, the dorsal position is preferred by twenty-five, the prone on one side or the other by forty, the semi-recumbent by two, the Rose or Trendelenburg by seven, and the upright by twenty-seven. It is somewhat remarkable that the upright position is used almost exclusively by operators in the New England States and by several scattered over the West and South who were former house pupils in Boston hospitals.

Phillips believes the upright position to be unnecessary from the standpoint of skill, and to be fraught with danger of syncope, suffocation, and flooding of the larynx, and of pneumonia. Packard thinks this position adds greatly to the danger of ether and chloroform and to the risk of detached tissue entering the larynx and causing dangerous obstruction.

On comparing the reports of accidents, hemorrhage, and the like, I do not find that they have been any more common in those who operated in the upright position than in those who operated in the dorsal or recumbent. The operating-room nurse in our own hospital has told me that all the unpleasant experiences coming under her observation in the past four years were in cases operated upon in the prone position. Without exception, everyone who operates on adults under local anesthesia does so in the upright position, and as all those who use no anesthetic whatever use the upright position, it would seem from anatomic reasons of position and comfort of vision that the upright position was preferable to the recumbent or dorsal, unless there are manifest reasons why one is much safer than the other. I almost invariably operate in the upright position, in adults as well as children. I usually give general anesthesia, and when completely anesthetized, the patient is put in a chair facing the light, or else I use a head mirror and artificial light. The patient is not so profoundly anesthetized as to abolish the reflexes, and I have not had, so far as I know, any accident due to position. It is true that in a demonstration at a meeting of this society I had an unfortunate experience in an operation done in the upright position, tracheotomy having been required, as is known to some of you. That, however, as I said to you at the time, was due entirely to a fault in the matter of technique in the introduction of the gauze sponge too heavily soaked in peroxide of hydrogen, with resultant inhalation of gas, and was not at all dependent on the position which was used. The same thing was just as likely to have occurred had the child been in a recumbent position. Recovery took place and no accident occurred in the three other cases done at the same time and in the same position, nor have I in the year that has elapsed had any trouble incident to the question of position. I therefore defend the upright position as perfectly proper and to be used by those operators who prefer it, without in the least condemning the prone or horizontal position, since so far as thoroughness is concerned it is possible to do the operation as thoroughly in one position as in the other. In the case of severe hemorrhage, where there was danger of swallowing considerable blood and where a large pad of pressure material had to be introduced, the Trendelenburg or Rose position would probably be more advantageous as interfering less with respiration. I occasionally operate on adults in some one of the recumbent positions. The advantage of the upright position is that the anatomic relationships are normal and one has a good view of the entire area. In my operations the amount of blood vomited afterwards is comparatively slight and I have found no discomfort in any way from it.

The technique of tonsillotomy seems to have undergone few changes in recent years, with the exception that the punch is used by many in the attempt to remove what may be left after tonsillotomy. The grasping forceps are also more used in order to get more of the tonsil into the ring, and pressure on the outside is used by many. The technique as given by the operator citing the largest number of tonsillotomies is extremely simple, his technique for children and adults being given as follows: "Patient seated in a chair—cocaine—Mathieu's tonsillotome—cut."

As to the results in tonsillotomy, it cannot be denied that a good tonsillotomy followed by the punch removes the greater portion of the offending gland. I have taken occasion to examine a good many of my earlier cases of tonsillotomy, some of them after the lapse of many years, and have found, in the main, that the results have been satisfactory. In several of them, however, there has been quite too much of the gland remaining to satisfy me that the operation had done all that it might have done for the individual had the tonsil been completely enucleated, and there have been a few peritonsillar abscesses.

The replies to the question as to the technique of tonsillectomy show that each operator starts out to remove the gland, but evidently with varying conceptions as to how this is best accomplished. There was a difference of opinion as to the capsule, some saying that they leave the capsule, or punch out everything but the capsule. Thorough enucleation of the gland, however, requires the removal of the tonsil with the capsule, and this is evidenced by the reports of the technique of all those who really do a thorough enucleation. To enucleate requires first the separation of the attachment of the outer and inner surface of the tonsil to the mucous membrane and edge of the anterior pillar, which edge at this point divides into two layers, one continuous with the capsule and the other continuous with the mucous membrane of the tonsil surface, the free mucous portion of this, with probably a few muscle fibers, sometimes folding over the front of the tonsil and sometimes above and below, forming the so-called plicæ. The tonsil is attached to the posterior pillar as well, and to the superior border where the two pillars meet. Once this separation is made, the tonsil is then detached with its capsule from its attachment by fibrous fascia to the inner border of the superior constrictor muscle, some of the fibers of which seem to run into the capsule at times, so that sometimes this detachment is impossible without the removal of an occasional muscular fiber. In other cases the capsule can be separated cleanly from the muscle without removing a single muscular fiber. To accomplish this requires some form of dissecting instrument, sharp or blunt. These are various, consisting of knives, scissors, and blunt spuds, which are used while traction is being made on the tonsil. Many operators, myself included, find that this separation is made very readily by the

finger, which brings into play the sense of touch, and with a sharp clean finger nail it is in most instances easy to make the first line of cleavage with the nail and then to follow it up until the tonsil is pretty thoroughly shelled out, when any detaching instrument can be thrown over the portion that remains, which is the portion at the base of the tongue. This line of cleavage may be thinnest and easiest found anteriorly or posteriorly. By carrying the finger along the line of attachment, both anteriorly and posteriorly, it will usually be found easily, and when found it is possible to get behind the capsule. At times it is difficult to separate the tonsil edge from the pillar, either front or back, but it can be done. When this is the case, some one of the several forms of right-angled or pointed separators is of advantage. I have used with satisfaction Freer's right-angled knife and Yankauer's tonsil separator, but with tip sharpened. As soon as the line of cleavage is found, the rest of the dissection is made with the finger. The upper third of the posterior pillar and the upper half of the anterior pillar are the points where separation is most easily attained. One is often surprised to find when using this method how high up into the palatal fold the tonsil or so-called velar lobe extends. When the operation is finished, one side of the palatine arch may appear much higher than the other. This condition soon adjusts itself and is not evident a few weeks later.

Other surgeons, grasping the tonsil, take knife or scissors, cut along the edge of the pillar until the white edge of the capsule is reached, and then follow the dissection with a knife, scissors, or blunt instrument. Quite a variety of instrumental methods can be used to accomplish exactly the same result; namely, the shelling out of the tonsil from its bed and the cutting off of its attachment at its lower border near the base of the tongue. One can do this with the finger entirely without the use of any instruments other than the traction forceps, as is proven by Dr. Charles W. Richardson and others. I was under the impression that I was one of the first to use the finger nail as a dissector out of the tonsil, and was certainly one of the first in American literature to describe a finger-nail dissection. However, I am by no means the earliest in the description of this, as it was very thoroughly described by Lambert Lack in the *Journal of Laryngology* in 1901.

One of the advantages in using the finger-nail is that in buried tonsils where it is sometimes hard to obtain a good traction with the forceps without tearing, and where there may be danger of cutting the pillar with sharp instruments, it is possible by the sense of touch alone to do nearly the entire dissection. It is my own habit not to apply any form of traction forceps until after the dissection is partially made and the tonsil pedunculated. The forceps are then less likely to tear through, whatever their type. In my first operations of this kind, I seized the tonsil with the grasping forceps, having the tonsillotome swinging on the blades. Afterwards, like several others, I devised one of the many types of ringless tonsil forceps, with the idea that after once getting hold it would be possible to throw the detaching instrument over the forceps and the tonsil.

As to the type of cutting instrument, these vary with individual usage. Personally, I prefer a ring tonsillotome of the old Mathieu type with the forks cut off. (I think it is known in the instrument catalogues as Casselberry's.) Before getting these, I had removed all the forks from my old instruments, and they work equally well. The snare answers very well, is efficient, and is preferred by some; it follows the surface of the capsule more closely and is less likely to remove any muscular fibers. I do not feel certain whether there is less hemorrhage after its use. Bosworth and many others think there is. A thorough operation can be done with the Robertson scissors, and Robertson, who demonstrated this method at the meeting of the American Medical Association at New Orleans, is entitled to very much of the credit for the operation of thorough enucleation, and was one of the first to describe the method called after him. His operation consisted of detachment from the pillars with a double-edge sickle knife, the grasping of the tonsil with a vulsellum, and then going in behind with specially constructed scissors. He made the statement, which has been borne out by my own experience in some instances at least, that if bleeding occurred afterward, some portion of the tonsil had been left. This, however, is not always the case, as the pillar may be injured. I have sometimes found that in the final cutting or in the necessary dissection a piece of tonsil may be left above or even below, and after detachment of the tonsil I invariably feel with the finger between the pillars and above where they meet, to see if any portion of the tonsil can possibly be left; if so, it is again grasped with the forceps. Care should be taken not to have too much traction when the final detachment is made, on account of the danger of making too deep a wound at the base of the tonsil and also on account of the danger of possible hemorrhage.

Yankauer, Goodale, Worthington, West, Freer, and others all do a thorough enucleation by various methods, not differing very essentially from one another in principle, all having for their object the removal of the tonsil with its capsule, with the minimum amount of traumatism and danger. It cannot be denied that the throat is sorer after tonsillectomy than after the old tonsillotomy, but the result justifies the discomfort. In the adult a week elapses before the soreness disappears.

It would seem from the reports given that adult tonsils are removed less thoroughly, many contenting themselves with punching out the adult tonsil or with less thorough dissection. If, however, the adult tonsil is to be removed for rheumatism, it would seem necessary to do it as thoroughly as possible, which would require complete dissection and either general anesthesia or very thorough local anesthesia. The whole trend of thought on the subject of technique seems to be in favor of complete enucleation with the capsule, and the accidents so far seem to be few.

In reply to the question, "How often and in what class of cases have you had hemorrhage?" I received a variety of interesting answers, showing great difference in individual experience. Adding them up and getting the totals, there were one hundred and seventy-nine cases of primary hemorrhage, and fifty-four of secondary hemorrhage. Individually they vary from none at all, reported by several, to as high as ten per cent. bleeding sharply at the time. It would seem as though there must be a great variation in what is understood as primary hemorrhage. As to the secondary, there can be but little difference of opinion. These have occurred all the way from one to seven days after the oper-

ation, several of them to the point of alarm and not all of them in bleeders by any means. Two of my own cases had secondary hemorrhages days afterwards, one somewhat alarming (six days after), and another one five days after. As to primary hemorrhage, we are wont to think if they are at all serious that we have to do with a bleeder, and of course this is sometimes the case. The fact remains, however, that a tonsil operation is sometimes followed by bleeding, and that possibility should always be considered. I have for this reason ceased to do the tonsil operation in my office and have the patient go home, nor do I consider it wise to operate on females during the menses. On one occasion I did an office operation for tonsillotomy on an adult under local anesthesia with cocaine and adrenalin. There was no bleeding at the time of operation, but four hours afterwards there was a most alarming hemorrhage which was controlled with difficulty. Since that time I have abandoned the use of any adrenalin preparation in the removal of tonsils by local anesthesia, preferring to have my bleeding at the time of operation rather than several hours later. I have several times seen troublesome bleeding after tonsil operations both with local and general anesthesia.

Comparing tonsillotomy with tonsillectomy, I have found, contrary to some observers, that there is less bleeding after tonsillectomy than after tonsillotomy. Nevertheless, I have seen one case in a child with most severe bleeding a few hours after tonsillectomy, and have twice tied bleeding vessels in adults. As my experience covers only a small number of cases compared with that of many operators—perhaps a thousand in all—and as some of my reports come from men of far larger experience, I am somewhat surprised at their freedom from unpleasant hemorrhage. For instance, Griffin reports that he has done over thirty thousand cases of tonsillotomy and has had only one hemorrhage, and that one in a bleeder. These were all done with the Mathieu tonsillotome. The points from which the bleeding comes seem to be the base of the tonsil and the region of the pillars, seldom being due to the injury of a really large artery. I regret that I cannot go over the details of these reports, as it would consume too much space, but some of them I may refer to: Holmes, Packard, Miller, Stout, Bryant, Barnhill, Kenefick, Beck, Cohen, Getchell, Chiari, Thrasher, Luc, Sir Felix Semon, Hajek, and many others, all reported cases of serious hemorrhage.

Ballenger says that he does not find that hemorrhage depends to any extent upon the class of cases, but upon whether the muscles forming the sinus tonsillaris are injured. In all classes of cases hemorrhage may follow the decapitation of the tonsil, perhaps more often in fibrous or sclerotic tonsils. Otherwise the hemorrhage largely depends upon the injury of the muscles of the anterior and posterior pillars and the superior constrictor of the pharynx. As the arteries are either buried in or are external to these muscles, they will not be injured if the muscles are not injured. The tonsillar artery, while external to the superior constrictor muscle of the pharynx, is one large stem. In passing through, it subdivides into three or four branches. If, therefore, this muscle is injured, the main stream may be divided and the hemorrhage be great, whereas if the tonsil is removed without injury to this muscle, only the branches are divided and the hemorrhage is correspondingly less.

Welty thinks all hemorrhage after tonsil operations is dependent upon the amount of tonsillar tissue remaining. Pynchon gives his clients a most elaborate paper with minute directions as to what to do in case of hemorrhage, so that he must consider this occurs sufficiently often to render this necessary. There are four pages of closely printed directions and two pictures in this circular. He gives chloride of calcium by the mouth or rectum in 10-grain doses in two ounces of water repeated hourly for three doses. After three days it is discontinued for a few hours before again being used. Forty to sixty grains in 24 hours is the maximum dose. He also mentions lactate of calcium in single doses of 30 grains.

I have also collated many cases of hemorrhage from the recent literature, but I refer now only to Heuking, who reports six cases of severe hemorrhage occurring in his practice, in all of which the operation was done with the tonsillotome, and the injury was at the junction of the anterior and posterior pillars or else at the beginning of the posterior pillar. In none was the hemorrhage from the stump of the injured tonsil. They were all stopped by digital compression with gauze sponge, and might have been stopped with compression forceps. They were all done without traction. The ages varied from fifteen to sixty years. Death nearly occurred in several of the cases. The free border of the posterior pillar was caught in the ring with the tonsillotome, thus leaving an open vessel without good opportunity for retraction, and not particularly visible. Owing to the action of the msucle, coagulation was hindered by coughing, vomiting, and gagging.

Without carrying these statistics further, we can see that with rare exceptions every operator doing any amount of work has had hemorrhage at one time or another. It seems to the writer that this is less likely to occur after the operation of tonsillectomy, but he does not deny that it may and does occur after this operation. It seems most likely to come from the vessels around the base of the tonsils or from injury to the pillars, since the vessels of the muscular tissue of the superior constrictor, when no portion of the tonsil is left, usually retract to such an extent as completely to close the mouths of the vessels. As to the best method of handling hemorrhage, simple pressure with the tonsil hemostat, the tying of the vessel with a ligature, soaking the cotton or gauze pledget which is used for pressure in weak solution of nitrate of silver, wringing out the excess, and the use of peroxide of hydrogen, all have their place. In using peroxide of hydrogen, one must be careful that there is no free fluid or no excess on the sponge, since if there is, too great formation of gas may occur and some of the gas be inhaled into the trachea, with resultant difficulty in breathing. Suturing the pillars over a pad of gauze and the use of lactate of calcium may be required. Dr. Chevalier Jackson, of Pittsburgh, has reported six cases of ligature of the external carotid for hemorrhage. This would seem to be required but seldom, since in most instances it is possible to handle cases even of severe hemorrhage without proceeding to so formidable an operation. From the reported cases there is no particular proof that dangerous bleeding occurs more often in adults than in children. There seems to be sufficient testimony in favor of the use of calcium chloride and calcium lactate as a preventive of hemorrhage to warrant their further use. Pierce gives

the chloride a week before operation; most operators for three days.

I have investigated somewhat the statement made that the tonsil operation injures the voice, and find that by far the great majority of operators have seen only improvement and not injury to the voice. Those physicians, however, having most to do with professional singers have given somewhat guarded replies and admit that for the time at least there is an alteration in the voice, followed later, as a rule, by improvement. Shurley, Gleason, and Lambert Lack have reported injury to the singing voice. Others have found impairment for a few weeks, but the ultimate effect was good. I believe that the range and power of the voice should be increased after complete tonsillectomy, provided the pillars are uninjured, as in many cases, the tonsil, by its firm attachment to the pillars, especially if it is enlarged, hinders the mobility of the muscles. I have always believed that the reported cases of injury to the voice were due to the fact that the tonsil stumps were still present, hindering the mobility of the muscular action, or else that the pillars themselves were injured by the operation.

Of accidents other than hemorrhage, injuries to the uvula, the pillars, and the palate, mild cellulitis, severe surgical shock, simple infection, deep cervical cellulitis, respiratory arrest requiring tracheotomy, torticollis, and alteration of speech from injury to the pillars are all reported.

Of deaths: a case of general staphylococcus infection, one from pneumonia, one from chloroform anesthesia, one from adrenalin poisoning, one from spasm of the glottis, one from sepsis or from malignant scarlet fever, and one case from throat abscess are given.

CONCLUSIONS.

Further study of the physiology of the tonsil seems desirable, as it is still somewhat of a question as to how much importance the tonsil may be at certain periods of life, and if of value in the economy, it ought not to be removed to as great an extent as at present.

Under diseased conditions, the tonsil is one of the avenues of entrance for the tubercle bacillus and for the specific organism of rheumatism, whatever that may be. There is a sufficient amount of undoubted clinical evidence to show that it is also the avenue from which the infection enters for many other constitutional diseases.

The small submerged tonsil is quite as apt to be deleterious to the economy as the large one.

Local measures in the treatment of tonsillar troubles have their place.

The indications for removal are any condition in which it is evident that the tonsil is exerting an injurious influence upon the entire organism which cannot be averted by local treatment.

Ether is the safest general anesthetic.

According to the testimony of most observers, some form of horizontal position is the safest for general anesthesia, though the writer believes that the upright position, properly safeguarded, is equally safe.

Tonsillectomy should always be done in preference to tonsillotomy. Any method that removes the tonsil *in toto*, with its capsule, with the least traumatism, is satisfactory.

The voice is improved rather than injured, provided the pillars of the fauces are uninjured in the operation.

SOME NOTES ON THE LAST EPIDEMIC OF YELLOW FEVER IN CUBA.

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In the first week of June, 1908, a case of yellow fever was found in Santiago de Cuba. The victim was a Spaniard who had been lately working at the iron mines near Daiquirí, a small village on the south coast of Cuba, about fifteen miles from Santiago de Cuba. As usual in the case of Spainards of this class a connected account of his daily whereabouts could not be obtained. Suspicion was directed towards these mines and an inspection of the different groups of which they consisted was made and a careful inquiry made at their hospital into the history of all the patients admitted for the previous few months. This disclosed the fact that at least twelve cases had been admitted under the diagnosis of malaria and nephritis from June 26 to July 15, and three had died. The physician of these mines did not know how to use a microscope and made his diagnosis in the good old way without bothering about such a troublesome instrument. His rule, however, was to examine the urine of all patients; but, as he said, the hard work and coarse salt food of these miners sooner or later caused albuminuria and therefore that was not to be taken too seriously.

The port of Daiquirí was quarantined, a sanitary force was immediately sent, and the work of eradicating the disease in this locality was inaugurated. For various reasons the progress of this work was not satisfactory and I was sent from Havana by Major J. R. Kean, M.C., U. S. A., adviser to the Sanitary Department of Cuba, to take charge of the situation. I left Havana on the night of July 14, and arrived at the mines and took charge of the work July 18. Two more cases had been admitted to the hospital, making fifteen in all that were known to have occurred to that date. On looking over the situation I found that about 36 square miles of territory were infected and the foci so difficult to approach and the distance so great that a large force was necessary to prevent further spread of the disease. Although none of these mines is more than 3½ miles from the seashore, some are 1200 ft. above sea-level. By examination of the accompanying picture, which illustrates the character of the locality as a whole, it will be seen that it was made up of very high and very steep mountain spurs with intervening cañon like valleys. There were two settlements, Daiquirí proper on the seashore, and the mining town of Vinent, 3 miles to the northeast, in the mountains. Besides these there were eight different groups of mines each with their large barracks, stores, etc. A railroad connected the various groups, the ore being sent down on long incline chutes to the railroad below which finally carried it to the port of Daiquirí, where it was loaded on vessels and from there taken to the company's smelter in the United States.

Besides these two villages and widely separated groups of barracks, there were a number of thatched huts, known as bohios, to be found near the barracks and also down in the deep valleys. These bohios were occupied by retired miners, who raised cattle and did a little farming. They were difficult to find and very hard to approach. They were found later to play a most important part in maintaining the epidemic, the miners resorting to them for care whenever they were sick rather than go to the hospital, as they did not like to be put on a milk

diet, and, moreover, their pay was stopped as long as the doctor saw fit to keep them there. Their custom, on getting sick, was to go down into the valley and live on mangoes. If they got well in two or three days, they returned to work and no one was the wiser. Only when they thought they were not going to get better would they go to the hospital. The mosquitos in these bohios became infected and so a man with some other trouble, coming to them, would contract yellow fever and finally arrive at the hospital, but could not be induced to tell where he had been. This class of Spaniards is very secretive, suspicious, and prone to lie even when the truth would serve them better. There were about 3000 people in this territory, and the most of them were non-immune Spainards.

The maritime and land quarantines were established. A large force of rural guards was placed at my disposal. Posts were established at every pass and outlet, and all roads and trails were patrolled night and day. Nonimmunes were not allowed to enter this territory, and none to go out except on important business, and then only on putting up $25, which was forfeited if they did not report to the Sanitary Officer of the town to which they were going immediately on arrival and thereafter daily for five days. A pass, giving name, personal description, date, and place of leaving and destination, countersigned by myself and stamped with the government seal, was the only authority that the guards were permitted to recognize. Persons breaking this quarantine were severely dealt with by the local magistrates. In a few days the locality was effectually quarantined, the company's hospital was made mosquito proof, and a special ward was set aside for suspects. The sanitary force was increased to about 300 and ponies enough were hired to mount all inspectors and census takers and as many carts as could be used were obtained. The necessary steps were taken to feed and shelter this force.

The territory was subdivided and an adequate number of men were put in each subdivision to enumerate the inhabitants quickly, take their temperatures daily, and map the locality, giving location of all dwellings, roads, and trails. All sick were immediately sent to the hospital under guard. The daily reports of these men were carefully watched and people missed out of their districts were looked for until found. Inspectors were sent everywhere to instruct the people in regard to the danger of water deposits, and what was expected of them in maintaining a sanitary condition of the premises. Large organized gangs with the necessary tools were put in each subdivision to clean it up, drain, fill up or cover with wire gauze all water deposits. All tin cans, bottles, and other rubbish were buried, and weeds were cut down and burned. No unnecessary water deposits were permitted and all those authorized were definitely recorded and noted on the maps. All barracks and dwellings were screened. Large petrolizing squads, under trained inspectors, were put in each subdivision with instructions to petrolize every ditch, drain, or uncovered water deposit daily, destroy all unauthorized ones and report all cases of infraction of sanitary rules. It was not many days before larvæ could not be found anywhere.

A large fumigation gang was organized and every dwelling place, hospital, stable, shop, store, office, and house of every description in each district was systematically and thoroughly fumigated with sulphur, using 5 lbs. per 1000 cu. ft. The doors and windows were first quietly closed, the entire house, including porch and basement, covered with large pieces of heavy canvas, using paper and paste to seal all holes and places where the canvas overlapped.

Fig. 1.—Showing the manner of covering houses with canvas.

A small opening was left through which the sulphur and frying pans, in which it was to be burned, were carried and distributed inside the house, and under it when practicable. Some of these pieces of canvas were very large, requiring, when folded up in long rolls, as many as fifteen men to carry one.

All these squads were carefully organized with a foreman to every ten men, so that they become very expert in covering a house. As many houses in a group as possible were covered simultaneously so that no house was left into which the mosquitos could fly and hide and so escape fumigation. (See accompanying picture of an entire settlement covered with canvas.) Whenever a suspected case of yellow fever was found in a dwelling it was refumigated and a man kept in it all night to report if any mosquitos were about. It was refumigated until none could be found. This was very hard work because of the mountainous country over which all materials had to be carried. The various divisions of the work were under trained men, and their work was carefully inspected and supervised.

largely due. Not another case of yellow fever has occurred to date in that locality. The work was expensive, but not more so than thoroughness demanded, and when the great loss to the country incident to a yellow fever epidemic is considered, the cost was very small. The origin of this epidemic could not be positively ascertained, but suspicion strongly pointed to Port Said at the mouth of the Orinoco River.

Incidentally to this anti-yellow fever work, the culex and anopheles mosquitos almost entirely disappeared along with the stegomyia. The only mosquitos to be found at the end of this work were the small spider mosquitos that bred in the land crab holes along the water courses and the seashore, and the small culex mosquito that was found to breed in the rainwater that collects in the cup-like cavity between the leaves of the Curujey. The Curujey is a parasitical plant (in appearance like the top of a pineapple), that is to be seen everywhere in Cuba and in some forests covering the limbs of almost every tree. The Cuban insurgents during their

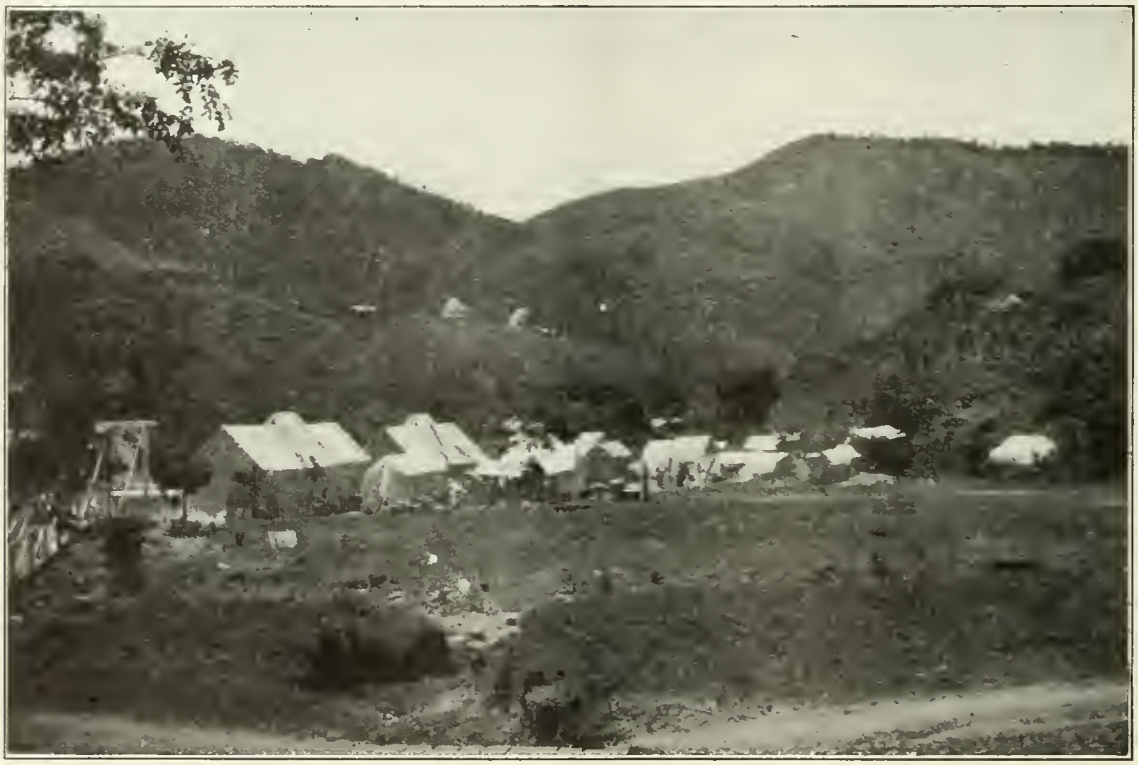

Fig. 2.—Showing twenty-two houses being covered simultaneou sly with canvas preparatory to fumigating them with sulphur.

A laboratory was established in the beginning and specimens of blood, urine, etc., were systematically examined. Eight more cases of yellow fever occurred, the last one on July 31, 1908, making in all twenty-three cases, six of which ended fatally.

The men who did this sanitary work were Cubans from Santiago de Cuba and, on the whole, I have nothing but praise for the way in which they stuck to their duty under the most trying conditions of heat and rain, and overcame the great obstacles encountered in this rough country. There were, however, several strikes which required considerable diplomacy to settle, and a considerable fight between the miners and the sanitary force in which rocks, clubs, knives, and firearms were used, requiring the force of rural guards to whip them into submission, but not without many injuries on both sides. The mining officials did everything in their power to aid me and to their assistance the successful issue is

bushwacking operations against the Spainards often depended on this source for their drinking water in this section of the island. Malarial infection has always been very common and peculiarly virulent in this part of the island. The sick report of the mining company's employees was largely made up of malarial cases, so the company was very anxious to eradicate the disease. A sanitary organization suitable to the needs of this locality was organized, put in operation, and turned over to the mining company, and it is probable that the good sanitary condition in which we left this section will be maintained and the disease gradually disappear.

Tuberculosis Among Orientals.—The death rate from tuberculosis among the Chinese residents of the United States is 658.5, and among the Japanese 239 per 100,000 living, while among the white population of the country the rate is 173.

ACUTE GONORRHEAL PROSTATITIS.*

By FERD. C. VALENTINE, M.D.,
AND
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A CORRECT understanding of the subject under consideration naturally premises a knowledge of the gross and histological anatomy of the prostate and its conditions in health.

By rectal palpation may be determined the size, consistency, width, and sensitiveness about the interlobular cleft. The size varies in different individuals, generally ranging from one and one-half to two inches in breadth, one to one and one-half inches from base to apex, and from three-fourths to one inch in depth or thickness. Its weight is from six to eight drachms. If the testicles are normal and no diseased condition obtained prior to the examination, the lobes are usually symmetrical. The consistency varies more or less with the sexual exercise of the gland. In those examinations immediately following ejaculation, the elasticity of its structure is less marked. In general, the density is less than that of the cervix uteri and somewhat greater than testicular tissue. The normal gland is always sensitive to a degree on palpation. This is more marked at its apex. The discomfort of palpation does not become pain except in hyperesthetic individuals. The most unpleasant feature of prostatic digitation is the sensation of a foreign body in the rectum, causing a desire to defecate which overshadows whatever other sensations may be produced. The interlobular cleft may vary considerably in width, the two lobes may flare widely apart or they may seem in apposition and still be normal. This cleft has no clinical significance except in prostatic hypertrophy.

Microscopically, the gland is usually of the compound acinous or racemose, but at times tubuloalveolar type. The follicles, or better acini are lined with a number of layers of cuboidal epithelium and the ducts with simple columnar epithelium. In occasional instances the epithelial lining of an acinus may appear stratified, being partly cuboidal and partly columnar; this, however, is exceptional. Corpora amylacea are not rarely present in the acini, some observers claiming them to be more prevalent in different periods of life. They are variously sized, concentrically striated round or oval corpuscles which do not give the reaction of amyloid material, but are undoubtedly colloid in character; they have no known significance. These acini and ducts are divided into compartments by fibrous trabeculæ extending from the capsule inward and are divided from each other by fibrous tissue liberally interspersed with smooth muscle fibers, blood-vessels, non-medullated nerves, and lymphatics.

Comprehension of the character of the normal prostatic secretion is also necessary before considering the inflammatory changes that may occur. The secretion massaged from the gland and examined microscopically contains cuboidal epithelial cells mechanically removed from the acini, occasional corpora amylacea, a scanty number of leucocytes, and a number of small, yellowish corpuscles varying in size, known as lecithin corpuscles. By the addition of a few drops of a one per cent. solution of ammonium phosphate and drying for one-half hour, Charcot-Leyden crystals may be found as yellowish needles or whetstone shaped crystals.

When a gonorrhea of the anterior urethra extends to the posterior division of the canal, acute gonorrheal prostatitis almost invariably follows. Frank reports 100 per cent. of infections of the gland after posterior urethritis, other authors report prostatic infections without even the most transitory symptoms of posterior urethritis, explaining the infection by the anastomosis between the lymphatics, blood-vessels, or a symptomless posterior urethritis. Other students deny this frequency and record from three to eighty per cent. of prostatic infections. Our percentages agree with Frank's and others in claiming invariable infections after posterior urethritis.

This diversity of opinion is doubtless due to different interpretations of what constitutes acute gonorrheal prostatitis. We accept the diagnosis when the microscope shows gonococci in the prostatic secretion, regardless of the clinical appearances or course. The more usual exiting causes of the extension of the infection are omitted or misdirected treatment of apparently uncomplicated clap, horseback or bicycle-riding, disobedience of instructions during treatment, *e.g.* indulgence in drink or coitus, exposure to cold, incorrect or ill-advised urethral instrumentation, reduction of vital resistance.

The pathological varieties of acute gonorrheal prostatitis may be divided into (1) simple catarrhal, incorrectly spoken of as follicular, and (2) diffuse or parenchymatous, which is not infrequently sooner or later complicated by areas of suppuration. In the simple variety the gland is not enlarged or hardened. The acini and ducts are widened and their lumina filled with desquamated epithelium, leucocytes, and small round cells. The submucous fibrous tissue is infiltrated with leucocytes and inflammatory corpuscles. The orifices of the gland ducts emit a straw-colored fluid containing epithelium, lecithin corpuscles, leucocytes, and a scant number of gonococci. This is the follicular prostatitis described by authors.

In a further stage of the inflammation the gland ducts become obstructed by the periglandular infiltration; stagnation of the secretion takes place, and a small follicular abscess may result. This has been termed by Jadassohn "pseudo-abscess" because of its being a collection of pus in a preformed space or lumen. These small abscesses may break through the duct into the ejaculatory duct or through the urethral mucosa directly.

In the second or diffuse or parenchymatous variety of the inflammation, the usual inflammatory changes occur in the whole structure; congestion, serous exudation into the tissues, epithelial desquamation and disintegration. If the inflammation cannot be arrested at this point, the continued bacterial irritation may cause small abscesses to form in the interstitial connective and muscular tissue and in the alveoli. These small pus formations tend to rupture into the ducts, or if in proximity, may coalesce. Many instances are observed after recovery, where a large depression in a lobe is felt, due to this destruction of tissue with its subsequent cicatrization.

Although the tendency of the abscesses is to rupture through the ejaculatory duct and discharge themselves into the urethra, yet they are as prone to follow the plane of least resistance as are abscesses into other parts of the body. Segond (quoted by Wossidlo) found in 140 observations of

*Read, by invitation, before the Georgia Medical Society, Savannah, October 27, 1908.

perforations, 64 were into the urethra, 43 into the rectum, 15 into the perineum, 8 into the ischiorectal fossa, 3 into the inguinal region, 2 into the obturator foramen, 1 into the peritoneal cavity, 1 under the navel, 1 into the ichiatic foramen, 1 beside the false ribs, and 1 into the space of Retzius. When the abscess ruptures through the rectum, perineum, ischiorectal fossa or inguinal region, persistent and obstinate fistulæ result. When they rupture into the other parts mentioned or into Retzius' space, pelvic cellulitis occurs. It is obviously unnecessary to recount the dangers when the pus is poured into the peritoneal cavity. In any event, if the sufferer has not a good resistance he is in danger from septicemia and pyemia. After the subsidence of the acute inflammation, hard nodules may be felt in the gland, due in part to cicatrization following resolution or to unremoved corpuscular infiltrates. In rare instances the inflammation becomes phlegmonous attacking the rectal wall, posterior urethra, and bladder walls before becoming circumscribed.

The symptoms of a beginning simple or catarrhal prostatitis are with difficulty differentiated from a posterior urethritis. The urine may contain the small comma filament described by Fürbringer or may be so purulent that they are invisible. As above indicated and hereinafter elaborated, every posterior urethritis confirms the diagnosis of at least a simple catarrhal prostatitis.

In the diffuse variety of cases the symptomatology is plainer. Dysuria is an early and annoying symptom. The frequency and urgency become marked and the difficulty in emptying the bladder is at times pronounced. The urinary stream may split and dribble, require several seconds to be established, and is preceded, accompanied, and followed by pain. This pain is described to be of a boring character, beginning in the prepubic region and usually extending toward the navel or anus. At other times it may radiate into the glans penis, testicles, or along the inner aspect of the thighs. Temporary and occasionally even absolute urinary retention ensues. Attention has been directed elsewhere* to this cause of retention and methods for its relief submitted. Obstipation, constipation, and ribbon stools are occasional symptoms, due to mechanical interference of the prostatic tumor.

The urethral discharge, if copious, becomes scanty; the urine, if previously purulent, becomes clearer. The latter symptom may be explained by interrupted drainage from the gland. The former symptom is probably due to a transference of the battleground of the bacteria and phagocytes.

The inflammation may be preceded by a chill and subsequent rise of temperature to 100° or 102° F., but this is not constant. We have, in common with many other observers, attended numerous patients who at no time showed elevation of temperature. Malaise, anorexia, and similar constitutional disturbances are constant. Rectal palpation will disclose a large, hard, tense, hot, and quite sensitive tumor filling the rectum. This tumor may be unilateral or bilateral in accordance with the acutely inflamed prostatic area. We have, in numerous instances, been unable to explore the upper segment of the gland because of its size, sensitiveness, and encroachment into the rectal space.

Simple catarrhal inflammation can be diagnosed only by the microscope. If, after free urination and urethral cleansing, the expressed prostatic secretion shows gonococci, a varying number of pus corpulses and prostatic epithelium, the diagnosis is determined. Another certain method of diagnosis is uranalysis. The presence of epithelium from the prostate gland and its ducts in moderate number will be proof positive of the extension of the infection into the gland. Regarding this method of urinary diagnosis, Dr. Louis Heitzmann cannot be given too much credit for his persistent development and practical application of epithelial diagnosis and differentiation. The diagnosis of the diffuse form is never difficult because of the clinical history and the physical findings. The presence of a large sensitive and perhaps fluctuating tumor in the prostatic region of recent origin can mean only acute prostatitis.

The differential diagnosis between tuberculous nodosities and circumscribed spots of prostatic gonorrheal infiltration is not so easy. The clinical history, the presence of tubercle bacilli, the course of the disease, and urinalysis will in most instances clear up the diagnosis. Malignant growths and syphilis must not be overlooked in obscure cases.

Before discussing the treatment of acute gonorrheal prostatitis we will consider the prophylaxis of the complication. Although anterior gonorrhea extends to the posterior urethra in ninety per cent of infections, and although 100 per cent of posterior urethral infections are complicated by prostatitis, yet we may confine the disease to the less severe form of simple catarrhal infection in many cases. Strict adherence to all the sanitary and hygienic directions usually given in acute gonorrhea, regulation of daily habits, perfect action of the emunctories, and regular local treatment should be insisted upon. Careful technique, which is imperative in urethral irrigations, will exclude this treatment from the causative factors of prostatitis.

In simple catarrhal inflammation, massage of the gland twice weekly followed by intravesical irrigations with a silver salt will prove effective. In prolonged cases, the irrigation may be omitted and an instillation of silver nitrate substituted. It is of utmost importance to direct treatment to the prostatic urethra as well as the gland, since the infection is reciprocative between the gland and the urethral mucosa.

In diffuse prostatitis the treatment is more extensive and of greater urgency. If a chill precedes and an elevation of temperature ensues, rest in bed and fluid diet are required. If no fever is present the patient may be allowed to sit about in his room, but active business pursuits are not permissible.

Hot applications promote phagocytosis and favor resolution as in other structures. The rectum should be flooded with copious normal saline solution from 115° to 125° F., according to tolerance every three hours. We may also further the progress of repair by sitz baths of the same temperature and frequency. Pursuant to Wossidlo's suggestion, we have for years used suppositories of codei phosphate, gr. ¼, iodoform gr. ii. in cocoa butter, following each of the rectal douches. If the patient can afford expert nursing service, the Kemp tube is more serviceable than the simple rectal douche. Goldberg has suggested ichthyol irrigations and suppositories, but our uniformly good results with iodoform and codeine in conjunction with the methods above outlined, have given us no reason as yet to try new features. When the prostatic congestion is severe and pro-

*"Vesical Retention of Urine," *Medical News*, June 18, 1904.

longed, leeches may be applied to the perineum. We confess skepticism regarding their value.

Internal treatment is of but slight avail. When constipation is present, one of the cascara preparations acts best. Salines, aloes, etc., seem to induce rectal tenesmus and increase the patient's discomfort. Painful urination may be relieved or ameliorated by the santal preparations. If the microscope shows an ascending infection, hexamethylamine and sodium benzoate āā 0.5 may be given every three hours for their urinary antiseptic effects.

This treatment we heartily commend, because in the past ten years no case of which we have had the complete management has gone to the operating table for evacuation of the pus formation. On the contrary, those cases presenting with marked fluctuation and symptoms of systemic infection requiring prompt drainage had been treated with psychrophores, ice bags, and other methods wholly at variance with the demands of the condition from a pathological viewpoint.

The operative route for evacuation of a prostatic abscess is through the perineum. Rectal incision, rectal puncture, and attempts to rupture the abscess through the urethra by means of pressure with a sound introduced into the bladder belong to a past era and are mentioned only to be condemned. The exposure of the gland is simply accomplished in the following manner: The patient is placed in the lithotomy position, a central perineal incision is made from a point externally corresponding to the bulb to within one-half inch of the sphincter ani. A prerectal crescentic incision is then made connecting the posterior edge of the central perineal incision. The skin and superficial layer of fascia are then dissected off, leaving exposed the bulb and the central perineal tendon. This tendon is then divided and blunt dissection with the finger exposes the rectourethralis, a small slip of muscle extending from the rectum to the bulb. This must be divided to allow the rectum to be detached and freed from the prostatic capsule. At this point the wisdom of the operator will decide whether to introduce a retractor into the posterior urethra and vesical neck to bring the gland nearer the surface. If the bladder is opened to admit the rectractor, subsequent drainage is necessary and will prolong convalescence in addition to the increased risk of vesical infection.

If the abscess cavity can be palpated without intravesical retraction, the surgeon makes an incision through the prostatic capsule into the cavity. This incision should be in a line almost parallel to the urethra, the upper part slightly inclined outward, thus minimizing the number of gland ducts severed. The finger is then inserted into the cavity and any trabeculæ encountered broken down. Frequently small neighboring cavities about to rupture into the larger one can be felt and the necrotic process accelerated by a removal of the retained pus.

Drainage with a wick of iodoform gauze and reapposition of the severed perineal structures complete the operation. The gauze wick may be removed by steps on the first three postoperative days. Hemorrhage will not be troublesome if the surgeon takes due care to make the initial incision in the median perineal raphé and expose to the structures by blunt dissection.

There are enthusiasts who present cured or improved cases of acute gonorrheal prostatitis by means of applications of high frequency currents to the gland. Unfortunately, we have not had the pleasure and profit of examining these cases before and after treatment. Until this method has been more universally and satisfactorily demonstrated, we must persist in what we believe to be correct surgical principles. The injection of vaccines has been of no value in our hands. The number and virulence of the gonococci in the prostatic secretions was unchanged at each microscopic observation.

The prognosis *quod vitam* is good. Regarding a short convalescence from the gonorrhael infection it is always bad. The tendency of the disease to chronicity is marked especially in the diffuse type. It is therefore extremely important that effective and persistent treatment be continued until a cure is obtained, because of possible future recrudescences and to avoid infection of previously normal prostatic lobules.

After repeated attacks of diffuse prostatitis the gland is more or less damaged and its physiological functions limited through loss of tissue in cicatrized areas; therefore, aberrations of its sexual and urinary functions are not uncommon sequelæ.

The frequency of acute gonorrheal prostatitis and the possible local and general results thereof, when this complication is overlooked, seems sufficient justification for its presentation before a body consisting essentially of general practitioners. It is upon them that the diagnosis and treatment of the majority of cases of gonorrhea devolves. Literature on the subject is voluminous and scattered and, as a rule, accessible only to the genitourinary specialist. If we have given a slight satisfactory conspectus thereof, that may aid our colleagues in general practice to successfully meet gonorrheal prostatitis, our object will be attained.

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THE TREATMENT OF DISEASES IN SENILITY.

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The microscope, the germ and the scalpel are driving out the stethoscope, the rale and the pill. Our patient is now a case, an object for original research who might have some undescribed form of bacteria hidden somewhere in his anatomy or who might be a fit subject for a new surgical procedure or a new hyphenated therapy experiment. The old family doctor and his old-fashioned empirical methods have become obsolete, since every organ and tissue of the body has been appropriated by the specialists, and medical treatment has been made subordinate to laboratory research and surgery. Since drug nihilism is the prevailing sentiment of the day, and drug treatment has been largely supplanted by the many new therapies, all still experimental, it requires some hardihood to attempt to resurrect the old methods and advise their use. Yet some of these old methods in the hands of the physicians of a generation ago were often successful where our modern experimental methods fail, and it is but reasonable to assume that their more scientific application based upon our present knowledge will increase their usefulness.

While this should apply to all cases and all classes of diseases, I will consider these old methods only in the strangely neglected senile diseases.

In a recent article on Geriatrics I advanced arguments for considering senility a physiological

entity, and its diseases not as diseases of maturity with senile complications, but as diseases of senility, apart and distinct from maturity. If we accept this view, then we must revise our views concerning the diseases of senility and their treatment, for the senile processes which are now looked upon as pathological processes of maturity must be considered physiological. Instead of attempting to "remove the cause and cure the disease," efforts must be made to retard the senile processes, just as we endeavor to hasten mental and physical development in youth. Every organ and tissue is involved in the senile process, the "Process of Involution," as Canstatt calls it, the altered conditions produce altered functions, the harmonious relations and interactions are maintained with difficulty, they are easily interrupted and not readily restored. In maturity we have the mysterious vital resistance to disease which maintains these harmonious relations, and if they are interrupted it tends to restore or readjust them.

The physician's province in maturity is to remove the cause of such interruption, if it persists, and hasten restoration. He aids nature in bringing about a cure.

In senility the pathological processes act upon organs and tissues that are undergoing an organic change which weakens the power of the vital resistance. It is not within the scope of this paper to discuss the nature of this inherent property of the fundamental cell which we call "vital resistance," and "vital influence." This property manifests itself most strongly during maturity, but it becomes rapidly weaker as the senile changes progress. A senile disease left to itself will not cure itself, but it will hasten decay. The closely allied organs which in maturity will aid a diseased organ and accommodate themselves to changed functional relations, can neither aid nor accommodate themselves to changed conditions in senility. In pneumonia in maturity, for example, increased heart action increases pulmonary circulation in the unaffected part, thereby maintaining proper oxygenation of the blood. If the heart is in a healthy condition it can keep up this rapid pace for days without impairment. In senility the increased heart action hastens its own degeneration. In maturity nature cures; in senility nature kills. In maturity the physician tries to aid nature; in senility he tries to thwart nature and retard the natural senile process which ends in death. In maturity his purpose is to eliminate the cause and restore diseased tissue. In senility his primary aim should be to prevent the immediate cause of death. There are cases where an offending cause persists and can be readily reached and removed as in toxemia from decomposing food waste which has not been voided owing to peristaltic inactivity. Even in such case our measures for removing the cause, cleansing the bowel, should be combined with measures to overcome the subsequent weakness.

Incidental complications, *i.e.* those due to the primary disease, and accidental complications, *i.e.* those not due to the primary disease, are comparitively infrequent in maturity and the incidental complications are generally avoidable and often curable.

Incidental complications appear frequently in senility; are rarely avoidable as they depend upon a hastening of the senile changes, and they generally end in death. Most deaths in senility are due to these secondary diseases, and it is to prevent these that the physician's first efforts should be directed.

In a male fraternal order maintaining rigid entrance examinations, 326 deaths of members over 50 years of age were reported in three months. Of these 86 were reported due to heart disease, angina pectoris, and arterio sclerosis, 60 to diseases of the brain and cord, 43 to diseases of the lungs, 47 to kidney and bladder diseases, 22 to gastrointestinal diseases and diseases of the liver, 21 to cancer, 19 to suicide and accident, 7 to diabetes, 6 to asthenia, and 15 to other causes (acute infections, etc.). It is probable that in the final analysis most cases due to pulmonary, renal and hepatic diseases ended in cardiac exhaustion or paralysis, and most of the cancers and gastro-intestinal diseases ended in general exhaustion. Most of the deaths due to brain troubles probably followed rupture of atheromatous cerebral vessels, as 47 cases were stated to be due to apoplexy, cerebral hemorrhage or paralysis.

It is impossible to say how many of these accidents were produced by vasoconstrictor cardiac stimulants, given to sustain a weak heart without regard to the condition of the cerebral vessels.

The two main causes of death in senile diseases are exhaustion or paralysis of the heart, and asthenia, and these may occur in almost every disease that prevails in senility. There are many other direct causes of death depending upon the nature of the disease, but these two should engage the attention of the physician before any treatment of the disease itself is inaugurated, emergencies naturally excepted.

We must remember that the manifestations of senility may completely mask the symptoms of disease, that the discomfitures incident to the senile manifestations are often much greater than the pains and discomfitures from some grave disease which may be present, that the severity of the symptoms bear no relation to the severity of the disease.

There are few pathological conditions in senility which do not affect the heart and the circulation. As the heart is already weakened, any sudden strain may paralyze it, or a long-continued strain may exhaust it.

It has become a universal practice to give digitalis, both as a heart tonic and a heart stimulant, to prevent weakness and to overcome it. In fatty degeneration, the usual condition of the heart in advanced senility, digitalis may produce cardiac apoplexy or complete rupture, or else rapid exhaustion ending in paralysis. Being a powerful vasoconstrictor, it is dangerous in states accompanied by high arterial tension, hence it should never be given in arteriosclerosis. In aortic insufficiency it may produce spasm of the heart.

Strophanthus has the typical digitalis action upon the heart and raises the blood pressure through the increased force of the contractions, but it has only a mild vasoconstrictor effect. Spartein has no direct influence upon the blood vessels, increases the force and rapidity of the cardiac contractions followed by rapid exhaustion if its use is long continued. Strychnine is an excellent cardiac stimulant for a short time, increasing the functional activity of the heart muscle until its maximum capacity is reached. Further stimulation may cause paralysis or ex-

haustion. Strychnine should be used only as a temporary stimulant, given until the heart responds, then stopped. Caffeine acts like strychnine, but it is neither as powerful nor as rapid, and it can be given for a much longer period. Carbonate of ammonia is the best cardiac stimulant in an emergency. Alcohol is an excellent cardiac stimulant, but as it hastens degenerative processes it should be used only while there is an absolute necessity for cardiac stimulation. For continued use as a heart tonic in senility I have used iodide of arsenic.

In our efforts to sustain the heart in senile disease the choice of drugs depends upon the disease and the condition of the heart and blood-vessels. The contraindications must be considered fully as important as their indications. It should be borne in mind that absorption and assimilation are changed in senility; that salts and alkaloids are rapidly absorbed and vegetable tinctures are absorbed slowly; that digitalis, while the most reliable heart tonic, is slow in action and cumulative.

If the heart and blood-vessels are in good condition at the beginning of an acute disease in senility, digitalis should be given from the onset. If there is atheroma, strophanthus should be given instead. (Its glucoside, strophanthin, is a powerful vasoconstrictor.)

The second main cause of death in diseases of senility is general exhaustion. General asthenia, progressing to the point of complete cessation of nervous activity, is the cause of death in old age uncomplicated by disease. Every form of activity has a moderate limit when the organ or tissue employed is fatigued, and an extreme limit in exhaustion. While fatigue affects only the part employed, exhaustion affects the whole system and demands complete rest, during which recuperation takes place. The power of recuperation is a manifestation of the vital resistance and is weakened during senility, and in disease at this period it may be entirely abolished. A pathological process is a form of preverted activity in an organ or tissue, the part diseased becomes soon fatigued, then exhausted. Unless the recuperative power is great this exhaustion spreads to allied organs whose functions are altered to accommodate themselves to the altered functions of the diseased part, and finally the exhaustion extends to the entire organism. When the vital resistance of the individual is already low, as in senility, exhaustion rapidly follows any intense or extensive pathological process, and with weakened or abolished recuperative powers the exhaustion proceeds to complete cessation of nervous activity in death.

After the physician has taken precautions to prevent exhaustion and paralysis of the heart, his next duty must be to prevent general exhaustion. We have here a similar problem as with the heart. We must try to retard the hastened degenerative processes, maintain vigor and tone, and guard against emergencies.

For the first of these indications our measures are almost entirely hygienic and dietetic. The iodides have been used in arteriosclerosis and fatty degeneration, and while useful here they also favor atrophic changes.

Any physical activity increases waste and weakens the system, therefore active exercise must be avoided. While it is impossible to prevent the senile changes, it is possible to reduce the waste and increase repair by proper dietetic measures. This is especially important in senile disease when waste proceeds more rapidly than normal at that period of life. Remembering the changed digestion, assimilation, metabolism, and elimination of waste tissue, our food should contain a minimum amount of nondigestible, nonnutritious elements, and lime salts. The predigested foods on the market contain so much alcohol that a sufficient amount of them to nourish an individual would also keep him in a state of constant intoxication. Meat juice, peptonized milk, malted milk, malt extracts, eggs, the farinaceous foods, like farina, sago, tapioca, barley, rice, etc., must form the staple articles of diet and the gastric and pancreatic ferments should be added.

It is not possible to secure a diet entirely free from lime salts without introducing greater disadvantages. The foregoing list embraces foods in a concentrated form or leaving little waste, which are readily digested and assimilated, are nourishing and maintain bodily vigor.

It is not necessary to abide by this restricted, concentrated diet with digestive ferments in health, but in disease in senility it is necessary to give as little work as possible to the digestive organs. Aside from nutrition this diet also imparts vigor, thus preventing exhaustion. As a general tonic in senility, not only in disease but in the usual senile debility I would suggest phosphorus in the form of Thompson's solution. I have used this with or without nux vomica for years and have yet to see the first case where ill effects resulted. It has no cumulative action and no depressing reaction, no habit is formed, and its action is permanent. In diseases where there is rapid exhaustion phosphorus and nux vomica or strychnine form a rapid and certain stimulant which will overcome the exhaustion. Caffeine is a good nerve stimulant which will prevent fatigue and exhaustion for a short time. It can be alternated with strychnine, but the two should not be given together except in an emergency. Alcohol, if used continually, will be useless in an emergency and in some forms of exhaustion as from hemorrhage and diarrhea, it is harmful. In pneumonia it is useful from the beginning of the disease, but in an emergency, as in heart failure or danger from exhaustion in that disease, if it has been given before, it is useless then and we must fall back upon the rapidly acting energetic drugs.

If there is no contraindication against digitalis phosphorus, or strychnine, these drugs combined in a liquid mixture should be given in every disease in senility. My favorite prescription is tincture nux vomica 2 drams, tincture digitalis 2 drams, solution of phosphorus (Thompson's) ½ ounce, tincture cardamon comp. 1 ounce, distilled water to make 3 ounces; dose, teaspoonful.

Besides the two main fatal complications, heart failure and exhaustion, almost every disease of senility has some incidental complications which may cause death. In pneumonia, for example, there may be asphyxiation from mucus in the bronchi, which the patient is unable to expel. Hypophosphite of ammonium is a powerful stimulating expectorant useful in this condition, but it should not be employed unless this condition is present. Pulmonary edema is a dangerous complication in senile pneumonia and usually ends in

death from impaired oxygenation of blood and cerebral paralysis. The edema may be prevented by changing the position of the patient frequently. The most frequent causes of this complication being enfeebled heart action and passive pulmonary hyperemia, these conditions should be attended to.

Paralysis of the lung generally occurs without premonition and may supervene upon a mild inflammation with a sound heart. Atropine is the best respiratory stimulant, and being also a cardiac stimulant, it can be used from the beginning in senile pneumonia.

In Bright's disease death usually occurs from cardiac complication, occasionally from uremia or pulmonary edema. Drinking large quantities of water will generally produce a copious diuresis, but in chronic nephritis a more powerful stimulant is needed. If digitalis is not contraindicated by the condition of the heart, it should be used in infusion, preferably in combination with the acetate of potassium. If digitalis cannot be used buchu and juniper will be found serviceable. Aside from drinking large quantities of water to maintain the activity of the kidneys, no renal stimulants should be used until there are indications of renal inaction or perversion.

It is impossible here to consider all the diseases and causes of death in senility. My object in this paper is to call attention to the primary indications in diseases in senility, which should be, not to cure the disease but to prevent death. In maturity incidental complications and the question of diet are secondary to the treatment of the pathological condition. In senility they are of primary importance.

At the Battle of Aspern Napoleon's army opposed the Austrian front and succeeded in driving it back until the powerful Austrian flanks came into action and forced Napoleon to retreat. After the battle of Wagram, Archduke Charles reported that Napoleon began the battle by menacing the Austrian flanks and kept them out of action throughout the battle. Without the assistance of the flanks the Austrian front was defeated. In senility the flanks, the incidental complications, are more dangerous than the front, the primary disease; keep them in check and there will be less difficulty in dealing with the main disease. In treating diseases of senility we may be deceived by apparently urgent symptoms which are merely indicative of the senile processes and which mask mild symptoms of a serious illness. Thus the dyspnea of a chronic emphysema may mask the shallow breathing which would point to other lung involvement, and while we are treating the patient for an incurable emphysema he develops pulmonary edema following a pneumonia which presented no marked symptoms. Such mistakes cannot happen if the physician will discriminate between the clinical value of the manifestions of senility and of the symptoms of disease at that period.

It may be charged that this paper is based mainly upon empirical experience and hence lacks scientific worth. Even with all our laboratory knowledge, with our microscope and scalpel, we have not yet reached the point where empiricism can be cast aside. Until we know the why and how of drug action and can explain the basis of Virchow's dictum that certain substances have an affinity for certain parts of the body, we must be guided by experience in our treatment of disease. So little has been done in the field of geriatrics that until it receives the attention its importance deserves and we know more about the metabolic changes in the period of decline, we must fall back upon empiricism in the treatment of diseases in senility.

73 East Eighty-second Street.

EVIDENCE CONTROVERTING ROSENBERGER'S TUBERCULOUS BACTERIEMIA HYPOTHESIS.*

By BOND STOW, A.M., M.D.,

pathologist to metropolitan hospital, new york city.

Last February I met and learned from Dr. Randle C. Rosenberger the technique employed by him in his studies demonstrating his hypothesis that "Tuberculosis in all its forms is a bacteriemia." That method has been fully described and published by him in Vol. cxxxvi No. 2, pages 267-269 of *The American Journal of the Medical Sciences*. I immediately began independent studies upon this question but with the following simplified technique, believing that a more simplified and direct method would produce results more accurate and less liable to adverse criticism.

Procedure in Bedside Cases.—A ligature was placed above the elbow and the arm thoroughly disinfected. Ten c.c. of blood were withdrawn from any prominent vein under strict asepsis. This blood was immediately smeared over the entire surface of two slides that had previously been prepared, as follows: Slides first cleaned in water and soap suds. Then placed in the following solution: Potassium bichromate, 50 grams; water, 200 grams; sulphuric acid, 300 grams, for twenty-four or more hours; then rinsed in distilled tap water and immediately before the smear was made passed several times through the flame.

The smear was then allowed to dry in the air and then fixed by passing several times through the flame. They were then stained with freshly prepared carbol-fuchsin solution and destained with 25 per cent. hydrochloric acid in 95 per cent. alcohol and counterstained with a watery solution of methylene blue. The specimens were now examined direct without use of cover glass. In all cases where acid-alcohol-fast bacilli were present I found them deeply stained and presenting the usual morphology of similar bacilli found in tuberculous sputum (*i.e.* the beaded appearance, uniformly stained, and branching forms). In no case were doubtful or suspicious appearances accepted. Each slide was systematically examined with use of the mechanical stage passing in review hundreds of fields and occupying not less than three hours before it was declared negative.

Results.—Ten incipient cases where positive acid-fast bacilli were found in the sputum, presenting a clinical history of tuberculosis, showed absence of any acid-alcohol-fast bacilli in the blood. Eighteen advanced cases all with positive acid fast bacilli in the sputum showed presence of acid alcohol fast bacilli in the blood in six cases and absence of same in the balance.

Procedure in Autopsy Cases.—All were cases of undoubted advanced peribronchial type of tuberculosis with caseation and cavity formation. The heart

*Read in discussion at stated meeting, May 24, 1909, of the New York County Medical Society.

was tied off from its main blood-vessels and removed with its contained blood. The surface of the right and left ventricle was thoroughly singed with red-hot, flat-bladed knife as well as placed directly in the flame. Each ventricle was opened separately with aseptic knife and the blood thus aseptically procured immediately smeared over surface of slides made aseptic as above. The lungs were removed entire and after drying same as well as possible each lobe was bisected by one cut through its longest diameter with a knife previously passed through the flame.

One of the largest pulmonary veins was then selected, and after allowing the first blood to pass off the blood within the vein was taken with an aseptic platinum spatula and immediately smeared on aseptic slides. Every possible precaution was taken not to touch any of the adjoining tissues, thus avoiding contaminations. The general absence of extraneous bacteria on examination of the slides proved the thoroughness of the work in avoiding contaminations while securing the blood from the pulmonary veins.

RESULTS: ACID, ALCOHOL, FAST BACILLI IN THE BLOOD FROM

Case No.	Left Lung	Right Lung	Left Ventricle	Right Ventricle
1	+	–	–	–
2	+ Sparce; 4 acid fast bacilli in all	–	–	–
3	+	+	–	–
4	+	+	–	+ Plentiful
5	–	–	–	–
6	–	+ One acid fast bacillus?	–	–
7	+	–	–	–
8	+	+	–	–
9	+	+	–	–
10	+	+	–	–
11	+	+	–	+
12	+ Large numbers of acid fast bacilli; extensive phagocytosis.	+ Ditto	+ Sparce	+ Sparce

Remarks.—The results of all the above examinations are at variance with those of Rosenberger and Forsyth* of London, both of whom found acid-fast bacilli in the blood of every case of tuberculosis. Rosenberger and Forsyth, by their methods, laked the blood before staining. I refrained from this procedure, staining the blood directly as smeared and fixed upon the slides. What bearing has this upon our conflicting results? The work of Walter V. Brem upon this subject as published in Vol. LIII, No. 12, of *The Journal of the American Medical Association*, would appear to give the answer. Brem finds that the contamination of distilled water with acid fast bacilli in all laboratories where animals are kept frequently occurs, and that this is a very prolific source of error, particularly when blood smears are laked in such distilled waters before staining for tubercle bacilli. He obtained constantly positive results before eliminating this source of contamination and considers the laking the blood with distilled water (absolutely known to be free from acid-fast bacilli) as the crux of the whole matter. As he states the one result of Rosenberger's animal experiments, "30 guinea pigs showing acid-fast bacilli in blood suspensions while having no tuberculous lesions is strong evidence in favor of contamination rather than of the presence of tubercle bacilli in the circulating blood."

In the technique of my work upon this subject no distilled or tap water was used at all before the staining, and this may account for the differences in Rosenberger and Forsyth's results and mine.

The problem involved is a very difficult and momentous one and much more work will be required upon it before the medical world will be justified in accepting Rosenberger's hypothesis that "Tuberculosis in all its forms is a bacteriemia."

214 West Seventieth Street.

British Medical Journal, April 24, 1909.

A NEW METHOD OF APPLYING LACTIC ACID BACILLI IN THE TREATMENT OF SUPPURATING WOUNDS.

By W. B. McLAUGHLIN, M.D.,

NEW YORK CITY.

It has been ordained in nature that every animal or plant has its natural enemies, which prey upon it and limit the numerical growth of that species. Darwin has shown that where conditions are particularly favorable for the growth of any animal or plant, sooner or later its natural enemies will come upon the field, and, finding food conditions favorable to them, will grow at the expense of the original inhabitants, the newcomers to be in turn preyed upon by their natural enemies; and so on *ad infinitum* go the kaleidoscopic changes of nature.

From time immemorial, it has been known that the inhabitants of certain parts of Bulgaria and Switzerland are particularly robust and long-lived. We owe to Metchnikoff[1] the brilliant conception that the condition of these people is due to the activity of the lactic acid bacilli, which they habitually ingest with the milk and cheese that forms such a large part of their diet.

Herter[2], Gregoroff[3], Combe[4], and Cohendy[5] worked out this conception and made it of practical value in the treatment of autointoxication. They proved beyond a doubt that abnormal putrefactive processes in the intestine were due to anaërobic bacteria, and that by the judicious feeding of lactic acid bacilli *in milk*, the lactic acid organisms could be acclimated in the intestines and would supplant the anaërobic organisms. It is generally conceded that the destruction of the latter organisms is due *to the production of lactic acid*, but how is not clearly understood. As far back as 1902 Tissier[6] established the fact that the lactic acid bacillus in a saccharine medium would inhibit the growth of putrefactive organisms.

North[7] first suggested the use of lactic acid bacilli as a method of treating infected wounds. He used as a culture medium to grow the organism, a mixture described as follows: "To make one liter, take fresh extract from one pound of lean beef or veal chopped fine, extracted with one liter of water. Dried Witte's peptone, 20 grams; sodium chloride, 5 grams; dextrose, from 10 grams to 40 grams. Make up into broth in the usual way. The reaction is adjusted to the neutral point, using phenolphthalein as an indicator. As stated above, calcium carbonate in lumps is sterilized with the medium."

In this medium he grew Metchnikoff's Bulgarian bacilli to the fullest capacity of the medium, and this growth was used as a local application in the treatment of over 300 inflamed surfaces, including atrophic rhinitis, ethmoiditis, frontal sinusitis, acute rhinitis, hay fever, otitis media, chronic rhinitis, tuberculous sinuses, antrum, gonorrhea, suppurating wounds, peritonitis, cystitis, leucorrhea, Riggs' disease, gonorrheal ophthalmia, diarrhea, conjunctiv-

itis. The applications were made by different physicians in different parts of the country, fifty-six cooperating in the work. Of the result reported in all cases, 225 were improved and in 86 no results were obtained. This exhaustive paper leaves no doubt that the lactic acid bacillus is destined to play an important part in the treatment of infected wounds.

It occurred to me that the one weak point in North's experiment was that the medium which he used had been exhausted by the growth of the bacilli before it was applied to the wound and that better results could be obtained if the bacilli were applied in a medium suitable to their development in the wound.

It is a generally accepted fact that the principal part played by the lactic acid bacilli in the inhibition of the growth of the putrefactive and pathogenic organisms, is due to the production of nascent lactic acid in the wound; if this be true, then the bacilli must exercise a more favorable action when applied in a medium in which they can grow and develop than when applied in a medium in which they have already grown and developed to the full capacity of the medium.

Acting on this idea I prepared a powder consisting of the sterilized and dried solids of skim milk which I incorporated with a dried culture of Metchnikoff's Bulgarian bacilli, care having been exercised in the drying of the culture not to carry the temperature above 101° Fahrenheit. This powder was then used as an ordinary dusting powder on cases of carcinoma, chancroid, purulent ulcers, and ordinary septic wounds. The results have been such as to justify me in the belief stated above, that in order to get the fullest action of lactic acid bacilli, they must be applied in a medium suitable to their growth and development in the wound and that this medium must be capable of undergoing lactic fermentation.

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1047 STEBBINS AVENUE.

A CASE OF TOTAL OPHTHALMOPLEGIA.

BY FRANCISCO M. FERNANDEZ, M.D.,
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OUTSIDE of very few cases of clearly hysterical source, most of the cases of ophthalmoplegia are of organic cause. It is an uncommon affection, and I find it even more so in Cuba. I offer no reason for this.

The case here reported was surely of nuclear origin, that is, it had no superficial cause. The non-superficial ophthalmoplegias, taking as a base of study the nuclei of the various motor nerves of the eye, can be subdivided in three groups, namely, supranuclear, nuclear, and infranuclear, respectively. As just said, the case to be here described did not appear to be of superficial origin.

N. L., negro woman, born in the U. S., about 30 years of age, came for consultation to the clinic of Dr. J. Santos Fernández, on June 1, 1909. She stated that ten days before, on getting up from bed in the morning, she noticed that the right upper eyelid was drooping and that it was impossible to elevate it without the use of the hands. It was not possible to move the right eye in any direction and there was almost complete loss of sight of that eye. From what we could get from her we suspected the possibility of a specific infection, although not clearly. She said that at the time of her present illness, or some days before, she had nausea and vomited some. A year ago she had a numbness of the right side of the face, which later disappeared. At the time of the onset of her present trouble she also noticed some numbness in the same region.

The examination revealed a complete ophthalmoplegia. There was a very pronounced ptosis in the right eye with absolute immobilization of the eye. The pupil of the affected eye was wider than the left, although not dilated to its maximum. There was complete absence of any pupillary reflex. Vision was limited to the perception of light. There was a slight degree of exophthalmus. On the right side of the face there was a zone where the sensation although not entirely abolished was greatly diminished. This zone extended from the right side of the forehead and nose and also invaded the conjunctiva and cornea of the same side. There was a very marked lacrymation.

The ophthalmoscopic examination, made by Dr. J. Santos Fernández and myself, revealed absence of any characteristic sign; the disc of the right eye was entirely the same as the left; both were of small size, but of normal redness. The left eye had perfect vision.

The patient was submitted to an adequate antispecific treatment and was given besides tincture of nox vomica. This treatment was carried on for a week only as after that time the patient did not come back.

This case of total ophthalmoplegia was evidently of nuclear origin, specially as there was complete absence of all traumatic or other peripheral cause. On account of the absence of diabetic or traumatic cause, and of all signs that would lead to suspect a periostitis or the pressure of a tumor, that might by compression give origin to the disease, I did not think it erroneous to ascribe it to syphilis. Unfortunately antisyphilitic treatment was carried out for only a week. This was unfortunate for the patient, for if the case was, as we thought, of syphilitic origin, the prognosis would have been, as in most cases of this origin, favorable.

Schools in the Open Air.—Samuel Bernheim and Louis Dieupart say that it has been demonstrated that all city schools contain a number of pupils who are in the incipient stage of tuberculosis or the pretuberculous stage, being from twelve to seventeen per cent. of all the scholars. Vacation houses at the sea and mountains are only palliative measures, and the few weeks spent there are not enough to bring about a cure. The remedy is to open schools in which the studies and exercises shall all take place out of doors, near the woods, if possible, the pupils only going indoors in stormy weather. These open-air schools have been experimented on in Germany and Lyon, and have given excellent results. The teaching should be especially such as to physically develop the children and should consist of graduated exercises, baths, douches, respiratory gymnastics, and exercises to make them more supple, and should be accompanied by substantial nourishment. This will in a few months transform the feeble child into a strong and rosy child, firm and resistant.

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THE INFECTIOUS NATURE OF POLIOMYELITIS.

THE recent epidemic of this disease that has swept through the Brownsville section of the Borough of Brooklyn has furnished opportunities for study that cannot fail to be fruitful in dealing with future visits of this grim enemy of childhood. Dr. Le Grand Kerr has investigated sixty-five cases that he has observed, of which the first fifty-three had occurred in the above-mentioned district, in an area approximately one mile by one mile and a half. In none of the cases had there been any history of direct contact of the children with others that had been infected, and it was probable that a third party had been responsible for carrying the infectious agent. In seven instances the disease had developed in houses in which other cases had already appeared, but in different apartments. In every case the families had visited one another freely. In twenty-three instances cases had occurred among children living in the same block, exclusive of the cases occurring in the same house, and in only nine instances did the families visit one another. In studying the infectious nature of the disease, Kerr places great stress upon the two factors of individual and tissue susceptibility. The former was indicated by the fact that the disease appeared in most instances before the end of the third year of life—in 59 out of 65 cases. The influence of previous disease appeared to be negative. Although there were histories of recent injuries in but four cases, it was possible that either a local injury or a shock to the entire body might favor infection, while the injury of overexertion in the very young could not be estimated. In most of the infants under one year of age, there were slight signs of rickets, while the bony changes occurring as the result of this disease were quite evident in thirty-one of the cases over one year of age. It appeared as if malnutrition, which, affecting the nervous system as well as the rest of the organism, and which is the chief etiological factor in the production of rachitis, had a rôle to play in favoring the individual susceptibility to poliomyelitis. The incidence of this disease during and shortly after prolonged spells of hot and dry weather seemed to be connected in some intimate manner with the depressing and exhausting effects of this weather upon the infantile organism. It was probable that the microbic agent was one of low virulence. This was borne out by the facts that usually only one member of a family was affected, and that the microbe was unfavorably influenced by low temperature or required the aid of heat to give it its power.

As the result of his investigations, Dr. Kerr concludes that acute poliomyelitis is a hematogenous infection with a microbic agent of low virulence, that this infection is engrafted upon a tissue susceptibility acquired through the agencies of local malnutrition, exhaustion, and never impairment, and that the most favoring factor of all is an individual susceptibility over which we have no control.

In connection with these clinical observations, the laboratory investigations recently reported by Drs. Simon Flexner and Paul A. Lewis (*Journal American Medical Association*, November 13, 1909) acquire an added significance. Although Landsteiner and Popper had already succeeded in inoculating monkeys with poliomyelitis, by means of injections of spinal cord from fatal cases of poliomyelitis, Flexner and Lewis have been the first to carry the virus of poliomyelitis successfully through a series of monkeys. In one group of experiments it has been possible so far to transmit the disease through a series of six monkeys, and apparently there is no limit to the number through which it might yet be carried. It is quite obvious that these results will afford opportunities for the study of this disease that cannot fail to produce practical results. The discovery of a curative serum is certainly not a remote possibility.

THE ERADICATION OF PLAGUE FROM SAN FRANCISCO.

To state that plague is entirely eradicated from San Francisco is to state what cannot absolutely be proved; but so far as can be judged from the opinions of those competent to speak with authority the disease does not exist in San Francisco at the present time, and taking into consideration the sanitary condition of the city now, it is not likely to regain a foothold. The manner in which the threatened epidemic has been fought and conquered in the metropolis of the Pacific Coast reads like a chapter from some book of olden time and not like a happening in this material and somewhat prosaic age. The report of the San Francisco Citizens' Health Committee with the account of its work provides, however, fascinating and engrossing reading, and only shows how much sheer energy can accomplish when directed by intelligence.

In May, 1907, plague reappeared in San Francisco, and slowly but surely continued to spread. The distressing feature of the recrudescence, for it is believed to have been a recrudescence and not a reinfection, was that it was no longer a typically Oriental disease, not yet wholly a filth disease. Very few Orientals were affected, almost all the 160 patients, of whom 77 died, being white persons, many of them of a good condition of life, subsisting on generous diet, and dwelling in houses that would commonly be called sanitary. In September, 1907, fifty-five cases of plague existed in San Francisco, and the

city authorities, realizing that the matter had become a national concern, appealed to the Federal Government for help. Surgeon-General Wyman thereupon placed the conduct of the campaign in the hands of Passed Assistant Surgeon Rupert Blue, who, together with Dr. Glennan, had been instrumental in stamping out the epidemic of 1900 in San Francisco.

Blue's brigade commenced operations in the middle of September. They found four infected rats during the remainder of the month, but while the human plague began to decline, probably because the number of fleas was diminishing with cooler weather, rat infection increased. Experience has taught that a rat infection of 2 per cent. means usually a fearful outbreak of plague among human beings. When, therefore, the rat infection in San Francisco approached one and one-half per cent., Blue became convinced that the public must be aroused, and that the whole population must take up arms against rats. A large mass meeting of citizens was held in January, 1908, and at this meeting Blue explained the true nature of the situation, and stated that owing to the wide distribution of rat infection, the difficulties had become greater than the Health Department could cope with. It was consequently necessary that householders should cooperate with the health authorities, should clean their premises, shut off the rats' food supply by keeping all garbage in tightly covered metal cans, and render rats homeless by destroying their nesting places.

The Citizens' Health Committee was then appointed by the Mayor. The committee caused hundreds of meetings to be held, of school children, women's clubs, and representatives of all important lines of trade and industry in the city. It collected $177,512 and disbursed $139,943. It kept four hundred paid inspectors and laborers in the field for several months, trapping and poisoning rats, in addition to the force maintained by the Board of Health and the Federal Government. It purchased nearly $15,000 worth of rat traps, buying cheese for bait in lots of three thousand pounds at a time. It paid out $12,375 in rat bounties. It printed and distributed 700,000 circulars and other forms of literature. It disseminated a widespread knowledge of the mode of plague transmission, and created an interest in sanitation and a general community sentiment in favor of cleanliness that has caused the mortality from contagious illnesses of all descriptions in San Francisco to fall below that of any other large city in the United States, and according to the compiler of the report has left heart disease at the head of the fatal ailments in San Francisco for the year in which the committee was at work.

In conjunction with the Federal, State, and City Health authorities, and through the hearty cooperation of the people themselves, the committee helped to avert a general quarantine which might have set back San Francisco ten years in commerical development, and might have cost it the richest commerce of the Pacific for a generation to come. Under the direction of Dr. Blue and his medical coadjutors the campaign against rats and fleas was carried out in the most thorough manner. In an article of this description there is not scope to explain matters in detail, but the report will provide a valuable textbook for other cities into which plague may enter. The main object was to destroy rats and fleas, which, by the way, in the case of the former, requires the exercise of a considerable amount of ingenuity. The rat is an extremely wary animal and it is not everyone who can destroy rats. A person must be trained in the technique of rat catching and destroying. As for flea eradication, much may be effected in this direction when rats' nests are found, by burning the nests when possible and flooding the holes with a strong solution of carbolic acid. When rats have been destroyed, the next and necessary step is to render every place of human occupation permanently rat proof if the disease is to be really eradicated from an infected city. "This," says Blue, "is not the work of one season alone but should be made a continuous improvement enforced by strong building laws. In other words, the disease must be built out of existence." The work done so capably and effectively in San Francisco has really been done almost as much in the interests of the whole country as in the interests of San Francisco itself. If its citizens had not aroused themselves and fought the plague successfully no one can say how far it might not have spread. San Francisco stood as a bulwark against the rush of the pestilence into the country.

PNEUMOCOCCUS INFECTION SIMULATING INFLUENZA.

With the passage of time and the increase of knowledge of the manifold activities of which the pneumococcus is capable, it is becoming widely accepted that, just as arthritis, chorea, and endocarditis are but manifestations of the rheumatic infection, so pneumonitis, peritonitis, arthritis, otitis, meningitis, and many other apparently local inflammations are but local signs of one general pneumococcus disease. There remains, in fact, scarcely a portion of the human anatomy which has not, at one time or another, been known to be affected by an invasion of this diplococcus. Recently several writers have reported certain general infections and epidemics with the most variegated symptomatology, due to this organism, which at one time was supposed to confine its activities to the pulmonary tissue.

Possibly the most extensive and interesting epidemic of this kind has been reported in the *Münchener medizinische Wochenschrift* for November 2, 1909, by Carl Rose, as occurring in the division for chronic diseases in the Bürgerspital of Strassburg. Within the course of a few days thirty-seven of the eighty-four inmates of the six wards and sixteen of the twenty-six physicians and nurses were taken suddenly ill with what at first appeared to be typical influenza, beginning with a chill and fever, headache, pain on swallowing, pain in the legs and joints, stupor, and malaise. The most characteristic lesion was an exudative pharyngitis, which occurred in all but one of the cases. In those who were young and healthy, as a rule, nothing further happened. In the aged and infirm, however, and those debilitated by chronic disease, the infection ran different and various courses. Ton-

sillitis appeared eighteen times, a dry bronchitis eight times, and a bronchopneumonia four times. Lobar pneumonia was seen in seventeen of the cases, among which occurred the seven fatalities of the epidemic. Three times there was an intense conjunctivitis, twice a marked rhinitis, and once a purulent otitis media and an arthritis. In three instances there was a hemorrhagic nephritis, and in three others a violent diarrhea. The spleen was palpable but twice. In the absence of complications the fever was remittent in quality, lasted ten to twelve days, and subsided by lysis. In the pneumonia cases the fever did not abate until the end of the third or fourth week, and relapses occurred in several instances. In every case, from the sputum, the pharyngeal exudate, the conjunctival secretion, the otitic pus, and the arthritic effusion, the pneumococcus of Fränkel-Weichselbaum was obtained in pure culture, whereas in no case was the Pfeiffer influenza bacillus isolated. Contagiousness was marked. In the first ward attacked nine of the ten patients were infected, and the disease was carried from ward to ward by physicians and supervising nurses, who had recently become infected. The period of incubation varied between twelve and thirty-six hours. Blood cultures were made in every case during the height of the disease, but in two instances only, in cases afterwards fatal, were the organisms grown from the circulating blood.

An epidemic such as here described is difficult to classify according to our present nomenclature. The tendency to confine the word influenza to the infections with Pfeiffer's bacillus is ever growing, and still these cases symptomatically belong to the influenza group. Rose's suggestion that the influenzas be grouped and subdivided into Pfeiffer's influenza, streptococcus influenza, *Micrococcus catarrhalis* influenza, and diplococcus influenza is an unfortunately bulky and inconvenient system. In the absence of a better, however, it may be found necessary for a proper understanding of such infections.

A Family Type of Splenic Anemia.

It is unfortunate that with the present ignorance as to the etiology of the various diseases which may cause anemia with splenic enlargement, and the apparently hopeless variety of names which have been given by different men to the several symptom complexes which are grouped under the name of splenic anemia, more confusion should be added to the present chaos by inflicting upon the medical profession still another type of this disease. Nevertheless, in the *Deutsche medizinische Wochenschrift* for October 7, 1909, Plehn of Berlin calls attention to a class of cases which is sufficiently striking in its peculiarities to warrant especial mention. This condition, first described by Schlagenhaufer, in 1906, is peculiar in that it attacks several members of a family. Of the six reported instances of the disease it occurred singly but twice; two in a family three times, and four in a family once. It is further characterized by a large liver and an immense spleen without ascites, by anemia, occasionally icterus, and a good prognosis. In the cases reported by Plehn three members of one family were affected. The first case to come under his notice was that of a girl of sixteen years who appeared from her size and development to be not over twelve. She was intensely jaundiced; her liver was large, and her spleen was an irregular mass pretty well filling the left half of the abdomen. The hemoglobin varied from twenty to forty per cent. The blood showed many mast cells and nucleated red corpuscles. During the two years that this girl was under observation she improved slowly in strength and color, but her spleen remained unchanged. The second case was in the father of the first, a man sixty-one years of age, who said that as a child he had had a large liver and had been jaundiced. Later, however, he had served through the War of 1870, and had led an active, healthy life, though always somewhat pale. At the time of his examination his spleen reached one and a half hand breadths below the costal border. The third patient, a brother of the first and son of the second, was twenty-six years of age. He had never been ill, though always pale. His hemoglobin was forty-eight per cent., and his spleen extended four finger breadths below the free margin of the ribs. In all of these cases malaria, syphilis, and the usual causes of splenic hypertophy could be excluded, and the fair conclusion seemed to be that these three patients suffered from a family form of splenomegaly remaining through life, and not leading to the fatal termination usual in the better-known forms of splenic anemia.

Spasmodic Stricture of the Esophagus.

Whereas each year anatomical, physiological, or chemical studies lead to the proposal of one or more new theories of the cause of certain of the cases of vomiting of infancy, most of these observations, especially under the recent stimulus of a knowledge of pylorospasm, have been directed to the activities and the chemistry of the stomach, and the esophagus as the cause of vomiting, except with a clear history of the swallowing of a caustic or in the rare cases with a suspicion of diverticulum, has received but scant attention. Last year, however, S. S. Adams presented before the American Pediatric Society the report of a child in which at autopsy a spasmodic stricture of the esophagus was found, and in the *Archives of Pediatrics* for October, 1909, La Fétra describes a similar case diagnosed by him during life. His patient was a baby of sixteen months, who had vomited regularly during or immediately after each feeding since birth. When it was fifteen months of age a stomach tube was passed and an obstruction was met six and one-half inches below the lips. When first seen by La Fétra the child, after taking two ounces of food, which she brought up again mixed with mucus, took the remaining six ounces with apparent ease and comfort. Percussion of the chest before feeding was normal; after feeding there appeared a dullness to the right of the sternum extending from the first to the fourth interspace. A feeding containing bismuth was given and *x*-ray pictures were made. The radiogram taken before feeding was quite normal, that taken afterward showed the shadow of a dilated esophagus ending in a conical pouch opposite the seventh dorsal vertebra. The shadow of the food in the stomach was seen in its normal position, while the space between the pouch and the stomach was quite clear. The history and the radiograms of the case show it to have been one of spastic stricture and consequent dilatation of the esophagus.

Its location, two inches above the stomach, places it in the class of esophagospasm and not cardiospasm. The condition is certainly extremely rare, and its diagnosis during life, as made in this case by La Fétra, is probably unique.

News of the Week.

Red Cross Stamps in Europe.—The United States Post Office Department has issued a statement that the post office authorities of England have notified it that the placing of Red Cross stamps upon letters addressed to Great Britain or South Africa will not be allowed and that no letters arriving at British post offices bearing these stamps will be delivered. The German government has further stated that letters containing these stamps must not have them appear on the face of the letters. Those with stamps on the back, on the contrary, will be delivered. The reason for these rules is the confusion created by the presence of the various stamps.

Endowment of the American Red Cross.—President Taft, as President of the American Red Cross Society, has issued a letter advocating a permanent endowment fund of $2,000,000 for the society, and appointing a committee to raise this fund. The purpose of the endowment is to allow relief in the smaller casualties which do not so much appeal to popular charity and also to enable the society in the case of a great catastrophe to institute relief measures immediately for aid without having to wait for private donations. The present endowment of the society is $119,628, while that of the leading European powers is many times greater: Austria, $2,474,577; Hungary, $968,392; France, $4,471,476; Italy, $1,547,548; Prussia, $4,889,948; other German States, $2,548,265; Japan, $8,080,005.

Tuberculosis in Chicago.—A study of the distribution of tuberculosis in Chicago, made by the Chicago Board of Health, shows that the new cases developed in each 100,000 of the population during the first nine months of the current year were distributed as follows: Business and factory wards, containing many cheap lodging houses and including the "red light" districts, 482; poor residence wards, containing 39 per cent. of the total foreign population of the city, densly populated, 188; fair residence wards, containing 36 per cent. of the total negro population and 24 per cent. of the total foreign population of the city, 158; good residence wards, containing only 14 per cent. of the foreign-born population of the city, 104; semi-suburban wards, outlying wards, sparsely populated, dwellings mostly detached, 87.

Suggestions for Housing Consumptives.—The National Association for the Study and Prevention of Tuberculosis has issued a brief publication embodying the results of recent experience in sanatorium construction. The pamphlet of 87 pages is prepared by Dr. Thomas Spees Carrington. The report covers the construction of most of the modern American sanatoria and is profusely illustrated.

Registration of Births.—The Department of Health of New York has served notices upon the physicians of the city to the effect that as there have been so many instances of failure to report births, as required by law, that the Board of Health has decided to permit physicians to forward to the Department of Health, any time within thirty days from receipt of the notice, such records as they may have overlooked or neglected to file. Thirty days after the receipt of the notice all violations of the law relating to the registration of births will be referred to the Corporation Counsel or District Attorney for action. The letter is dated December 1, 1909.

Early Rearrested.—John R. Early, the man who was detained for many months in Washington last winter as a leper suspect but was declared to be quite healthy at the New York Skin and Cancer Hospital, returned to Washington on December 2 and was promptly rearrested by the Board of Health. The Pension office has cut off his pension on the ground that he is not a leper; the Health officer of Washington has caused his arrest on the ground that he is a leper.

Christian Science Suit.—A suit is being brought against the City of Paterson, N. J., by the husband of a woman who died there recently of tuberculosis. On learning that the woman was under Christian Science treatment the city authorities removed her to a hospital where she died. The husband is now suing the city as having caused his wife's death.

Pellagra in Alabama.—According to State statistics fifty-five persons died of pellagra in Alabama during the first nine months of the present year; of these twenty-two were white and thirty-four negroes.

Smallpox in New York State.—The State Department of Health has been notified of an epidemic of smallpox prevailing in Tonawanda, N. Y.; thirteen cases of the disease having been reported from this town.

Baby Killed by Soothing Syrup.—A case of fatal poisoning of an eight weeks old baby by the excessive use of a soothing syrup was reported in Newark lately. The medicine, which contained morphine and heroin, was given by the mother to quiet a cough.

Poison in a German Hospital.—Five hundred and forty-seven patients in the asylum at Friedrichsberg, near Hamburg, are ill from the effects of poisoned rice which is supposed to have been given to them by one of the employees. Two patients have died from eating the poisoned food and sixty-eight cases are considered hopeless.

Female Nurses in an Insane Asylum.—An experiment is being made in the State Hospital for the Insane at Trenton N. J., of replacing the great majority of the male nurses and attendants by women. It is considered that even violent men patients are more tractable in the hands of a woman than in those of a man and that in consequence of the change there will be a smaller number of accidents and injuries to the patients.

Endowment of a Graduate School of Nursing.—A sum of money, said to be very large, has been presented to the Teachers' College of Columbia University by Mrs. Helen Hartley Jenkins for the endowment of a department for the postgraduate instruction of trained nurses to qualify them for the carrying out of the sociological side of their profession. The chief purpose is to provide especially trained nurses to do house-to-house and settlement nursing among the poor, and give instruction in the theory and practice of hygienic living. The department is to be in the charge of Miss Adelaide Nutting, Professor of Hospital Economics in the Teachers' College.

A Gift for Cancer Research.—Mr. George Crocker, whose death from cancer occurred recently, following that of his wife from the same disease, is reported to have left a large sum to the College of Physicians and Surgeons to be expended in cancer research. The exact amount is not yet known, but it is believed that it will be about $1,500,000.

Consolidation of Medical Institutions.—A petition is to be filed for the consolidation of the Garrettson and Samaritan Hospitals with the medical department of the Temple University of Philadelphia, all being under the charge of the same board of directors.

The Andrew J. McCosh Memorial Committee announced recently that it had received $116,000. The committee has not decided definitely on the memorial, but says that "it seems to be generally accepted that the fund will be expended in erecting the Dr. Andrew J. McCosh Operating Pavilion" on the site of the new Presbyterian Hospital at Sixty-seventh and Sixty-eighth streets and the East River, the site chosen by Dr. McCosh for the hospital.

The New York Post-Graduate Medical School has bought from various owners the properties at 354 Second avenue and 307 to 313 East Twentieth street, a group of five three-story dwellings adjoining its existing quarters on the north and east. The hospital trustees now own the entire block front on the east side of Second avenue between Twentieth and Twenty-first streets with the exception of the southeast corner of Twenty-first street, which is occupied by the Hebrew Charity Building.

The Eastern Maine General Hospital at Bangor is carrying out an extensive series of alterations. The principal changes consist in the addition of a children's ward of sixty beds and a domestic building. The cost of the completed alterations will be $135,000.

A New Convalescent Home will probably be built shortly in New York as the result of the death recently of Mr. John Masterson Burke. His death makes available the sum of $4,000,000, which was put in trust by him in 1902 to be used after his death as a memorial to his mother.

The Harvey Society—The third lecture of the Harvey Society will be delivered by Prof. T. G. Brodie, of the University of Toronto, on Saturday, December 11, 1909, at 8:30 P.M., at the Academy of Medicine. Subject: Renal Activity.

Manhattan Medical Society.—At the next meeting of this society, to be held at Reisenweber's, 58th street and Eighth avenue, on December 11, at 8:30 P.M., Dr. John B. Deaver of Philadelphia will read a paper on "The Use and Abuse of Gastrojejunostomy." An invitation is extended to the medical men of the city to attend this meeting as guests of the society.

The Tri-State Medical Association, comprising the States of Arkansas, Tennessee, and Mississippi, at a meeting held at Memphis, November 18, 1909, elected the following officers: *President*, Dr. J. S. Rawlings of Dancyville, Tenn.; *Vice-presidents*, Drs. W. L. Howard of Greenville, Miss., John L. Jones of Searcy, Ark., and Nicholas Walker of Dyersburg, Tenn.; *Secretary*, Dr. Eugene Rosamond; *Treasurer*, Dr. J. S. Vaughn.

Dr. Daisy M. Arleman-Robinson has been elected a member of the Société Française de Dermatologie et de Syphiligraphie. Dr. Robinson is the first woman upon whom this distinction has been conferred.

Dr. Hyman J. Goldstein of Camden, N. J., has been elected assistant in the nose, throat, and ear, and also in the medical department of the Lebanon Hospital of Philadelphia.

Duke Karl Theodor of Bavaria died on November 30, 1909, at Kreuth, Bavaria. Duke Karl, who was a brother of the late empress of Austria, after starting life as an army officer, took up the study of medicine and was graduated from the University of Munich. Confining himself to ophthalmology the royal physician attained marked prominence in Europe for his scientific attainments and as the author of several works upon his specialty.

Obituary Notes.—Dr. Harlow James Boyd of Alexandria, Miss., was found dead in bed November 21, 1909, aged 56 years. He was a graduate of the Columbus Medical College in 1879 and was a member of the Douglas County Medical Society, the Minnesota State Medical Association, and the American Medical Association.

Dr. J. M. Lanham of Woodruff, S. C., died at his home of apoplexy November 25, 1909. Dr. Lanham was a member of the Spartenburg County Medical Society and the South Carolina Medical Association.

Dr. Theodore Koch of Baraboo, Wis., died November 19, 1909, aged 81 years. He was born in Germany and graduated from the University of Berlin in 1852. He was a member of the Sauk County Medical Society and the State Medical Society of Wisconsin.

Dr. Erasmus D. Leavitt of Butte, Montana, died November 30, aged 67 years. He was a graduate of the Harvard Medical School in 1870. He was a member of the Silver Bow County Medical Society, the Montana State Medical Association, and the American Medical Association.

Dr. Donald G. MacPherson of Brooklyn, N. Y., died at his home November 30, 1909, aged 44 years. He was a graduate of the Long Island College Hospital in 1895.

Dr. Sophia Presley died at Camden, N. J., on November 28, at the age of 65 years. She was graduated from the Woman's Medical College of Pennsylvania in the class of 1879. She was a member of the Camden County Medical Society, the New Jersey State Medical Society, and the American Medical Association.

Dr. Franklin Hinkle died at Columbia, Pa., on December 2, at the age of 85 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1847. He was a member of the Lancaster County Medical Society, the Medical Society of the State of Pennsylvania, and the American Medical Association.

Dr. George J. Bretz of Brooklyn, N. Y., died November 4, 1909, aged 84 years. The cause of death was accidental gas asphyxiation. Dr. Bretz was a graduate of the Long Island College Hospital in 1864 and a veteran of the Civil War. He had been retired from practice for many years.

Dr. Quincy O. Sutherland of Janesville, Wis., died at his home November 16, 1909, aged 61 years. He was a graduate of the University of Wisconsin in 1871, and the Hahnemann Medical College of Chicago in 1873. He was a member of the Wisconsin State Board of Health.

THE ANTITUBERCULOSIS WAR AND THE RED CROSS CHRISTMAS STAMP.

By S. ADOLPHUS KNOPF, M.D.,
PROFESSOR OF PHTHISIOTHERAPY AT THE NEW YORK POST-GRADUATE SCHOOL AND HOSPITAL.

Last fall it was my privilege to address the two Red Cross branches—one in Brooklyn and one in New York—pleading with them to help in the antituberculosis war through the aid of a Red Cross Christmas stamp. I published the two addresses in the form of an article in the *New York Medical Journal* of November 28, 1908. I know that hundreds of others, nay, even thousands, have also pleaded, and perhaps more eloquently and more successfully than I, but this shall not prevent me from pleading again for this holy cause, particularly since I have been honored by the officers of the American National Red Cross with an invitation to do so.

The history of the Red Cross is known to most people. It owes its origin to the feeling of sympathy awakened throughout Europe by the suffering occasioned by the Crimean War. The object of the Red Cross Society is in the main to mitigate the evils inseparable from war. All the civilized nations of the world have branches of this truly international association. Founded in Geneva in 1863, it is now not quite fifty years old, but what a glorious work it has done! Throughout the many bloody wars of the last half century the Red Cross servants were truly the ministering angels who lessened suffering and saved countless lives. And not only in wars, but also in other disasters such as floods, earthquakes, mining and railroad accidents, fires, and pestilences, a great army of Red Cross soldiers is forever present to ameliorate conditions, dress the wounded, nurse the sick, feed the hungry, and improve sanitation so as to limit the fatalities as much as may be possible. The heroism of the Red Cross workers, both men and women, has never been surpassed by the gallantry of the bravest soldiers.

Now, this great association has undertaken to fight the most formidable enemy of mankind; one which unfortunately cannot be met openly in battle; one which, by its insidiousness and because it is unseen and unrecognized by the naked eye, is all the more dangerous and difficult to combat. There are probably at this moment 500,000 people in the United States suffering from tuberculosis in one form or another, and 1,000,000 school children who are probably destined to die of tuberculosis before they reach the age of eighteen, and yet modern medical science has demonstrated beyond a shadow of a doubt that tuberculosis is a preventable and curable disease. Its prevention depends upon bettering the hygiene of the masses and improving their living conditions, on the early recognition of the disease, and on the suppression of all centers of infection arising from advanced cases. This is to be accomplished not by cruel isolation and treating the unfortunate consumptive as an outcast, but by removing the consumptive poor to special hospitals where they will be kindly treated and the utmost care exercised to improve their condition and at the same time minimize the danger of infecting others. The home of the conscientious, well-to-do consumptive, in the advanced stages, can often be arranged so that there is really no danger of contagion.

The cure of the tuberculous depends upon the early recognition of the disease and the timely treatment in well arranged sanitary homes or in special institutions, sanatoria, hospitals, or camps, and there is urgent need for such institutions in nearly every State of the Union. Of course, for the tuberculous children we must have many open-air schools and children's sanatoria; and for the tuberculous adult, cured or sufficiently improved to do some work, we must have agricultural or horticultural colonies or other means to give him outdoor occupation.

Unfortunately, tuberculosis is a disease which is most prevalent among the poor, and after what has been said I need not explain any further that in order to prevent and cure tuberculosis in our own beloved country, we need a great deal of money. All the skill of the physician and devotion of the nurses are of no avail when the tuberculous patient lacks the means to buy good food, cannot afford to live in a sanitary home, have proper clothing, or rest when rest is his only salvation. The patient's anxiety for those depending upon him must also be removed. The wife or children, the aged father or mother deprived of their supporter, must be cared for. Tranquillity of mind is as essential to the cure of tuberculosis as all other factors. To do all this, I say again, we need money, much money.

Fortunately, this country is rich and it does not lack in philanthropy and brotherly love, and I know that this appeal which is now going out from the Red Cross will not be in vain. It will give opportunity to the humblest of the humble, to the richest among the rich, to help in this great, good, and holy cause of saving lives, making tuberculous children into strong and healthy citizens, the curable consumptives into breadwinners for their families, and rendering the hopelessly ill consumptive comfortable and happy as far as it is in human power to do.

The whole nation will reap the benefit of a successful war against tuberculosis, and this benefit will not only be sanitary and moral, but even financial, for every restored breadwinner and healthy citizen is an addition to the wealth of the nation.

But let us put aside for a moment the financial aspect. Christmastide is not a season when we calculate on returns for what we give. We find pleasure and delight in giving, in making others happy, and surely here is a splendid opportunity to do this. Let each one buy as many stamps as he can; tell the little children that every penny they can spare for stamps will help to save a little child's life, and although they may not see the little sufferer and receive direct thanks, they as well as the adults can rest assured that their gifts will be appreciated and the unknown donor remembered in the grateful prayers of some tuberculous invalid.

The 1909 Red Cross Christmas stamp is not good for postage. It will not carry any kind of mail, but any kind of mail will carry it. The use of the beautiful Red Cross stamp, carrying Christmas and New Year's greetings, gives an excellent opportunity to everyone to help the antituberculosis cause according to his means. The layman will thus be the coworker of the physician, a true brother and helper. He who makes his Christmas offering by the purchase of as many of these stamps as he can afford to buy will surely feel the season's joy all the more, knowing that through his participation in this work somewhere some consumptive sufferer has been helped, some dark home made brighter, some little child saved.

Correspondence.

OSLER'S CLIMATIC ERRORS.

To the Editor of the Medical Record.

Sir:—In the latest (seventh) edition of Osler's "Practice of Medicine," just issued, there are some statements relative to the effects of sunshine in tuberculosis, which show how difficult if not impossible it is to establish newly discovered facts which reverse old methods of treatment. The history of medicine is a long, grewsome account of the rejection of new ideas until the men who conceive them become authorities themselves. Jenner was opposed by every physician over forty when he announced the facts as to vaccination. Semmelweis was forbidden to teach the infectiousness of puerperal fever, and Oliver Wendell Holmes was vilified for hinting that obstetricians carried the contagion. Bodington was driven out of practice in 1840 for establishing the first modern sanatorium for the outdoor treatment of tuberculosis. Koch, Lister, and Pasteur were treated with much indignity, and the same old disgraceful business will keep up so long as physicians are human, but when they become so superhuman as to retain youthful mental traits until they die of senility we may expect new facts to be instantly recognized at full value. It is therefore perfectly natural that, though it is now fifteen years since von Schmedel proved that skin pigments were evolved to exclude the destructive short rays of light, he is still ignored, as was Darwin for twenty years by the very universities which now scramble to honor him.

Osler mentions the damage done by administering too much mercury to syphilitics, and he would be horrified if he were quoted as advising that no mercury be given in that infection; yet that is the very mistake he has made as to the effects of excessive light in tuberculosis. On page 355 of his work he says: "Major Woodruff believes that sunshine may be hurtful, and he has collected statistics to show that tuberculosis is more prevalent and more fatal among the dark races, who live where the sun shines the brightest."

The statistics show the opposite to be the case, and the published facts prove that light in moderation is beneficial, but in excess is as harmful as too much mercury in syphilis. Instead of the dark races being more susceptible in light countries, the light races are. The last 44 cases of tuberculosis investigation in the Philippines among European types by Dr. Percy D. Jones are as follows: Marked blonds, 12; blonds, 14; medium types, 9; brunets, 9; marked brunets, 0. Osler continues: "The point is one of interest, but I do not think the case against the sun is made out." Of course, it isn't—nor is the case against mercury in syphilis, but the case against excess is abundantly proved in each. Numerous careful observers have shown that excess of sunlight is highly injurious to consumptives, particularly the blonds, and Osler is sadly in error. Even Knopf, the eminent New York expert, says that too much sunshine is or may be harmful.

As to the requirements of a suitable climate, Osler says they are "a pure atmosphere, an equable temperature, not subject to rapid variations, and a maximum amount of sunshine." Not knowing what is meant by a "pure atmosphere" and being under the impression that the atmosphere was "pure" in all climates, that item cannot be discussed, but it is curious and amazing that on the very same page he says: "The Adirondack cure has become of late years quite famous." The Adirondacks are notorious for inequable temperature, rapid changes, and the minimum of sunshine. The amazing part of all this business is that he mentions approvingly warm, moist climates, like Florida, which have been abandoned as tuberculosis resorts because so fatal. The cures in England are made in spite of, or by reason of, a cloudiness many times that of Florida. Indeed, there is an increasing volume of favorable reports from places like Scotland and Norway and our northwest coast, which are the cloudiest on earth. Here in the Philippines we have Osler's ideal climate, "pure atmosphere, an equable temperature, not subject to rapid variations, and a maximum amount of sunshine," yet tuberculosis in European types is so appallingly rapid that the patients die unless shipped home at once; and, moreover, if detected soon enough they have good chances for cure in places having inequable temperature, with rapid variations and a minimum of sunshine. Instead of the case against excessive sunlight being not proved, it seems to be accepted more and more, not only in tuberculosis but also in other diseases. Jacobi of New York, in discussing the management of pneumonia at the 1909 meeting of the American Climatological Association, mentions the fact that there must be "no excess of light" (*Boston Medical and Surgical Journal*, September 9, 1909). Even the *British Medical Journal*, which is so provincial in its discussions of American medical progress and has said contemptuous things against the new facts as to excessive light, now (August 21, 1909) gives space to an article by Wilfred Watkins-Pitchford indicating that even the poor light of the British Islands may be a contributory preliminary cause of cancer and advocating opaque clothing as a preventive. Hyde of Chicago proved years ago that excessive light was a decided factor in skin cancers in migrated types insufficiently pigmented for their new climate. If he had had the supreme advantages of British citizenship perhaps the *British Medical Journal* would have enlightened its readers years ago. Even the London *Journal of Tropical Medicine* published an adverse article and then ignored this matter so vital in the tropics until Sambon of the London School of Tropical Medicine invented an opaque cloth to use in lieu of the native's skin pigments. It does seem that, although protection from excessive light is now one of the primary practical matters of every-day hygiene all over the Oriental tropics, it will require the proverbial twenty years to convince the rank and file of the medical profession further north. In India the matter is accepted as settled, and the northern third of that land has the same latitude and climate as the southern third of the United States. Protection from excessive light is therefore essential to the welfare of Americans, particularly those in the South and sunny West, and we must be wary of the customs which grew up under the protection of the mists and clouds of the British Islands.

Charles E. Woodruff, M.D.

Manila, P. I.

ARE DOCTORS DERELICT?

To the Editor of the Medical Record:

Sir:—Food for thought by members of the medical profession was furnished in an incident which occurred in the recent annual meeting of the Medical Society of the County of New York. About four hundred members were present. The committee on public health reported that so few subjects of consequence had been brought before it for consideration that but one meeting had been held during the year. One member of the society, and only one, arose to remark that if the health of the metropolis had reached such a state of perfection that there was nothing left worthy of the attention of the public health committee there was cause for congratulation. But since this happy state of things could scarcely be said to exist, perhaps the committee had better be dissolved. The medical profession in this day and land is accustomed to congratulate itself and to receive praise because in its zeal for the public welfare it constantly strives to prevent those human ills which furnish its members with their means of livelihood. And in great measure this is true. But while striving with concerted zeal in certain directions is it not strangely apathetic in many matters of pressing importance?

Let a family of tubercle bacilli set up housekeeping in a hospitable lung and sooner or later their progeny will be targets for the artillery of a great medical and humanitarian army recruited expressly for the purpose of giving them battle. But let the intruding germs select a joint or gland in which to sojourn *en route* to the same lung and they will attract but individual interest.

Laboratory pioneers are working with microscope and test tube against the typhoid bacillus, seeking to perfect immunizing or curative sera, while it is left to the lay government at Washington and to such lay organizations as the New York Merchants' Association to spread the propaganda of the extermination of the typhoid-carrying house fly. Meanwhile the physician too often fails to interpose barriers to the flight of this insect from unmentionable haunts to the patient's dinner table.

The rank and file of the medical profession stand with a scalpel in one hand and a morphine pill in the other, pitifully impotent weapons in the fight

against cancer, while leaders in research institutions are exhausting every effort to solve the puzzle of this pest's existence. Meanwhile is it not the duty of every mother's son amongst that rank and file to work with all his available resources for the ability to make an early diagnosis of cancer, since in our present state of knowledge early excision gives the best hope for cure?

Medical organizations whose aim is the prevention of venereal diseases languish for lack of interest and support among the profession at large, but surgeons on every side are cutting out infected organs while the lay world wonders at the progress of modern surgery.

The primal problem of diet—what and how to eat—is of but languid interest to the majority of physicians, who overlook the fact that many of their patients use their mouths as funnels, while it is left to a layman with the necessary public spirit, money, and brains to teach the world how to eat properly. The medical man seeks for a pound of cure for intestinal fermentation, overlooking the ounce of prevention to be found in the proper mouth treatment of food.

These instances of apathy or inconsistency amongst the medical profession might be added to, but perhaps they may suffice to give us pause and lead us to consider whether we are not derelict to our sacred obligations. We should seek to perfect ourselves in order to instruct the public in those things which they ought to know. The moment we shirk our responsibility as teachers in matters of public and private health, a host of charlatans and patent-medicine vendors stand ready to take up the task. To be heard and heeded we should stand united and be ready to teach through our organized representative bodies as well as privately at the bedside. And when we unite to do our full duty to our brethren great will be the results for good.

William S. Thomas, M.D.
New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

ANNUAL MEETING R.C.S.—FITZPATRICK LECTURES ON GREEK MEDICINE—SCLERODERMA—OXALURIA—METROPOLITAN HOSPITAL—AMPUTATION FOR X-RAYS INJURY—SLEEPING SICKNESS—OBITUARY.

London, November 19, 1909

Yesterday was held the twenty-fifth annual meeting of the Royal College of Surgeons—to be precise, the meeting of Fellows and Members—as the college existed long previously, but it was only twenty-five years ago that the council agreed to hold this meeting. The president, Mr. Butlin, took the chair, presented the report of the council, and made a few remarks on its contents, referring to the work of the year and to the valuable addition to the museum of the odontological collection of the Royal Society of Medicine. Afterwards the usual protest on behalf of members took place in the form of a resolution affirming the desirability of admitting them to representation on the council. This was carried, as it has often been, and, as one remarked to me, constituted the "annual farcical performance." The council regards itself as the college and cares nothing for members after it gets their entrance money. A further resolution urged the council to impress on the Government the necessity of amending the Midwives Act in order to provide remuneration for professional services rendered under the Act.

In his Fitzpatrick lecture on Greek medicine at the College of Physicians, Sir Clifford Allbutt put forward a defense of the character and teaching of Asclepiades which has often been traduced by incompetent scribblers. The pathway to knowledge had often been, said the lecturer, the pathway to persecution. It was so with Roger Bacon, who was represented only last year as a buffoon in the historical school of his own university. This was an instance of the difficulty of knowing the real character of a man, and this difficulty must be vastly greater in the case of a man who flourished thousands of years ago. Asclepiades occupied a cardinal place in the history of medicine, notwithstanding the broken lights in which he stood. He suffered from the irresponsible invectives of Pliny and later critics. His popularity in Rome was attributed to the gentler means he employed in the richer classes, but these means (baths, diet, etc.) were not concessions to the luxurious, but the results of the newer knowledge he had acquired in Alexandria. He came to Rome for no time-serving purpose, but inspired by a doctrine which seemed to be revolutionary and therefore he had to fight against a powerful array of conservative forces. Sir Clifford extolled the value of the work of Asclepiades as an experimenter who insisted on the impossibility of making two or more experiments under absolutely identical conditions.

There was a good show of cases at the Royal (Clinical Section) on Friday. One of scleroderma was brought by Drs. Rolleston and Carpenter in a woman of 30 who had felt pain and numbness in the hands and slightly in her feet in 1895. First seen in 1899, she then had scleroderma of face, hands, and feet, which had since advanced in some parts and disappeared in others. Attacks of local syncope and asphyxia were also stated to have occurred. She now presents a face affected all over; around the mouth the skin is puckered so as to diminish the oral opening; hands claw-like, phalanges atrophied, with small curved nails.

Dr. T. D. Savill showed a case affecting the extremities in a woman of 56 who had had attacks of angioneurotic edema at intervals through most of her life, but which ceased two and a half years ago when her hands and feet began to get hard and stiff. The scleroderma progressed and the joints became affected. No treatment had been of use. Dr. Galloway remarked that he had found massage of value if persevered in. Dr. Herringham mentioned a case in which death had occurred most unexpectedly and suddenly. He was inclined to think the deeper structures might be affected in a way comparable to myositis ossificans. Dr. Rolleston said the disease could hardly be called a progressive one, as spontaneous recovery might occur. Dr. Savill believed it was a toxoangioneurosis and the position of the lesion at the extremities allied it to Reynaud's disease. Nothing was known of such a toxin, but we do not know much about internal secretions, in which direction we might perhaps in future find some explanation.

In the Medical Section Dr. Robert Maguire had an interesting paper, on oxaluria, in which he related a case carefully observed with a view of tracing the connection between the urinary deposit and the dyspepsia associated with it. The acid phosphate of sodium in the urine has to be allowed for in estimating the oxalic acid, as it retains a certain amount of calcium oxalate. This seems to have suggested to Dr. Maguire that a calculus might be partly dissolved or at least to some degree disintegrated by adding acid phosphate to the urine. He consequently proceeded to find out whether this salt given by the mouth was excreted unchanged in the urine. He found by analysis that it was, and therefore gave it to the extent of two ounces a day dissolved in 100 ounces of distilled water. In six weeks the symptoms had disappeared, though it was practically certain that no calculus had been passed *per urethram*. He considered that it had been dissolved, but to assure himself of the possibility of such a result, experimented *in vitro*. He made an apparatus by which to pass 45 to 50 ounces of fluid at blood heat over a calculus in twenty-four hours. With this he caused a fluid representing the urine, plus the acid phosphate, to drip over an oxalate stone taken from the bladder by a surgical colleague. It weighed 0.48 gram. After six weeks the weight had fallen to 0.08, and consisted mostly of a uric acid. This nucleus was treated by hydrochloric acid and somewhat decreased.

On the strength of these experiments it was proposed to treat calcium oxalate deposits by acid phosphate of sodium in order to prevent the formation of stone, and it was claimed that even after a renal calculus had been formed it might perhaps be so far dissolved as to pass easily through the ureter and out by the urethra. Dr. Bruce remarked that the paper was of no little clinical importance. Dr. Robert Hutchinson distinguished the theoretical and practical points put forward. Personally, he was sceptical of the oxaluria symptom complex, and there were obscure factors which would require consideration. The effect of a long course of sodium acid phosphate would be to increase the acidity of the urine, and there was a tendency in stone cases for oxalic acid and uric acid to alternate. The author had referred to this, and seemed to think it might be possible to clear away the calcium oxalate and then treat the uric acid; but the difficulty of knowing when to make the change in treatment seemed insuperable. Dr. B. Overy believed that citrates of sodium and calcium acted as solvents of oxalates Dr. J. Anderson related a case of irregularly shaped stones in the kidney detected by *x*-rays and

removed by operation. Dr. Tirard thought the case related by Dr Maguire might have been disintegration rather than solution of the stone, so that further observations would be required on the question whether one could by treatment dissolve calculi in the urinary passages. He had used acid phosphate of soda with a view to its aperient action and to change the composition of the urine. If the acid phosphate could be used to diminish the size of, or entirely dissolve an oxalic calculus, Dr. Maguire's observations would be found a great advance. In one of the cases he must admit that the evidence was almost conclusive.

The Metropolitan Hospital, which has been closed for repairs and alterations since last June, was reopened on Monday. A sum of £10,500 has been expended. It seems a large sum, and some of the items might give pause to economists, but it is said that all were needed. There are new research laboratories, electric, *x*-ray, high-frequency installations, and the operating theater has been entirely remodelled and brought up to date. The drainage system has been relaid. The committee are still asking for money, as only £6,500 has been received for the work, and they also want, as soon as possible, to provide a nurses' home.

A further operation was performed on Sunday on Mr. H. W. Cox, who as a pioneer in *x*-ray experimentation lost a finger of his left hand in the early days. Last February three more of the fingers of his left hand were removed, but the disease was not arrested, and now the arm has been amputated above the elbow by Mr. Gould.

The "Sleeping Sickness Bureau" of the Royal Society will shortly publish a work on trypanosomiasis, containing the papers on the subject issued up to April last and references to work on tsetse flies. Major Thimm has the matter in hand, and hopes to make the bibliography complete as regards trypanosomiasis in both man and animals. The book is to be issued at the net price of 4s., which is calculated to cover only the cost of printing.

Dublin mourns the loss of Sir William Thomson, who died in the evening of Saturday (13th), aged 66. He was of Scottish extraction, but his life was passed almost entirely in Ireland. He was a student of Richmond Hospital and the old Queen's University, which afterward became the Royal University of Ireland. He graduated B.A., B.Ch., and M.D., 1872, and took the F.B.C.S.I. in 1874. While a student he became connected with the press, and was for a time on the staff of a daily paper. When he began practice he soon became a leading consulting surgeon, and in due course filled most important posts in that sphere, including surgeon to his old hospital and the various offices of the College of Surgeons up to the presidency. He was surgeon to Queen Victoria and honorary surgeon to King Edward, surgeon to the Lord Lieutenant, examiner to his university, his college, and the army medical department, secretary of the Royal Academy of Medicine, and a representative on the General Medical Council. He was knighted in 1897, and in 1900 made a Companion of the Bath as a small acknowledgment of his services as surgeon to the Irish hospital in the South African war. In 1870 he took the prize of the Royal University of Ireland for his thesis. Later he wrote on the surgery of the arteries of the urinary organs, on which he was a leading authority, and he contributed freely to journals and societies, as well as to the Transactions of the Academy, of which he was editor.

Lieutenant-Colonel F. J. Crawford, M.D., I.M.S., has died from pneumonia on his way to India, and was buried at sea. He was for a long time a Fellow of Madras University, and had had the principal share in drawing up the new Madras code. Colonel Crawford had only recently been gazetted principal of the Madras Medical College.

The death is announced of Dr. William James Russell, V.P.R.S., in his 80th year, formerly lecturer on chemistry at St. Bartholomew's Hospital. Dr. Russell was president of the Institute of Chemistry from 1803 to 1806, and became vice-president of the Royal Society in 1890.

Another death to note is that of Dr. Michael Castenada, consulting physician to the Italian Hospital in London, also to the Italian and Spanish embassies and consulates. He was a University College student, and took theM.B., London, 1857. Two years later he joined the College of Physicians. He was a Knight of the Order of the Crown of Italy, and of Charles III of Spain.

OUR LETTER FROM THE PHILIPPINES

(From Our Regular Correspondent.)

A PLAGUE OF FLIES AND ITS SUPPRESSION—THE VALUE OF SANITARY SUPERVISION IN CHOLERA VISITATIONS—HYPERTONIC SALT SOLUTION IN CHOLERA—MANILA MEDICAL MEETING—PREVALENCE OF THE HOOKWORM—PERSONALS.

Manila, P. I., October 25, 1909.

Recently flies became very troublesome in the public markets of Manila, more especially in the meat stalls thereof. A regular campaign was started against these pests, which has apparently ended in complete success, although it may be well to reserve judgment upon this last point, because it is no uncommon experience for flies to appear in great swarms in Manila and then to disappear as suddenly as they came. In this instance solutions of formaldehyde in 1-500 strength were put into shallow dishes like plates, and these were placed about the markets where the flies were most numerous. It was found that the flies were exceedingly fond of the mixture and as a result of partaking thereof they soon died in enormous numbers. The streets near the markets and other places in the vicinity where they might breed were sprinkled with kerosene. The street sweepings, which are much used in filling in lowlands, were treated with crude petroleum, then covered with lime, and upon this there was placed clean earth to a depth of at least eight inches, instead of four, as heretofore. There was soon a marked diminution in the number of flies and apparently their breeding has been successfully prevented.

The reduction in the number of flies was also a most important matter, in view of the presence of cholera in the city, and no doubt has been a considerable factor in preventing its spread. The cholera situation in the Philippines has remained about the same as for the month of September. In Manila there have been about eighteen cases per week. The disease has been kept under good control in practically everywhere in the provinces. One thing, however, has been very noticeable, and that is that at such places at which active measures were not taken to combat an outbreak, the number of cases increased in an alarming manner. During the week an instance of this kind occurred at Balanga in the province of Bataan, the daily number of cases reaching 16. An investigation showed that the sanitary inspectors placed in charge were incompetent. These were replaced and in three days the daily number of cases was reduced to four. These results are ascribed to disinfecting a number of suspicious wells; compelling the washing of hands in carbolic solution before entering a public market and strict isolation of the sick.

In view of the very favorable results reported by Leonard Rogers of the treatment of cholera cases in India with hypertonic salt solution, it was determined to give this treatment a trial at the San Lazaro Cholera Hospital in Manila. Accordingly, of the last 20 cases of cholera admitted each alternate case was treated with hypertonic salt solution and the remainder with physiological salt solution. Intravenous transfusion was used in all cases. It is of interest to observe that the mortality of the ten cases of each series was 50 per cent., thus there was no difference in the death rate between the two methods of treatment. The low mortality of approximately 20 per cent., which was reported by Rogers, could evidently not be repeated here. Careful chemical examinations of the blood of these cases, made by Prof. Hans Aaron of the Philippine Medical School, also failed to confirm the findings of Rogers.

The regular monthly meeting of the Manila Medical Society was held at the Philippine Medical School on the evening of October 4 at 8:30 p. m. Papers were read on obstetrical subjects by Drs. Calderon and Quirino and one, entitled "Some Observations on Cholera," by Allan J. McLaughlin, M.D. The author held that, in spite of the difficulty of tracing the source of the infection, particularly in Manila during the beginning of the outbreak, pertinent investigation seldom failed to connect the case with some previous case by direct contact, or mechanically and indirectly by the means of foodstuff, which had been infected by an active cholera carrier. He also invited particular attention to the fact that many of the cases in children that were reported as meningitis proved upon autopsy to be cholera, and that it was no doubt due to such cases occurring in the past that the disease had been spread.

On September 30 the examination of practically all

of the residents of Las Pinas, in the province of Rizal, and from nearby villages, numbering in all over 6,000 people, was completed. Of this number 24.2 per cent. males and 8.06 per cent. females were found to be infected with hookworm, or an average of 16.13 per cent. of the population were found to be hosts of this health-destroying parasite. As these persons were all practically living upon a sandy soil, it is interesting to observe that the number of infections was 6.13 per cent. higher than among the residents of Tay-Tay, who live upon a clay soil.

Major Charles E. Woodruff of the Medical Corps of the U. S. A. has been detailed as the Medical Officer in charge on the Island of Corregidor, at the mouth of Manila Bay, where extensive fortification construction is being done.

Major Roderic P. O'Connor of the Medical Corps, U. S. A., who has been stationed at Manila and Fort McKinley during the past two years, and who has been the army specialist in eye work, sailed for the United States on October 15, having completed his tour of duty in the islands.

Progress of Medical Science.

Boston Medical and Surgical Journal, November 25, 1909.

Variations in the Posterior Horn of the Lateral Ventricle, with Notes on Their Development and Suggestions as to Their Clinical Significance.—E. J. Curran emphasizes the following points: (1) In a large percentage of brains the tip of the posterior horn is cut off from communication with the rest of the ventricle by a constriction and adhesion about the calcar avis. (2) In a large percentage of cases the adhesion of the walls is complete throughout the occipital lobe, making the short horn, so-called. The ependyma, however, remains on the two adherent walls. (3) In a large percentage of cases the tip has a very narrow communication with the rest of the ventricle, but on account of the thinness of surrounding structures any pressure is likely to close this aqueduct and produce a temporary disturbance in the circulation of the cerebrospinal fluid. (4) Any of the above conditions would cause similar circulatory disturbances. (5) When the posterior horn is particularly or entirely closed by adhesion of the walls any increase of internal pressure would tend to break through the adhesions and re-establish the normal posterior horn. Such a result might cause pain. (6) That the calcarine fissure and the cerebellum, which also modify the shape of the posterior horn, are developing rapidly about the time of appearance of convulsions in children is an interesting coincidence. (7) The large proportion of anomalies in the posterior horns of brains from institutions is significant. (8) In all cases the ventricle should extend far into the occipital lobe, and traces of its having been there at one time during development are always found there. (9) The relationship of the optic radiation and other structures to the posterior horn are important in connection with the causes of temporary scotoma, migrains, and possibly other conditions. (10) The condition of the posterior horn should always be examined in cases of obscure cerebral disease or mental disorders.

Chemical Examination of the Feces of Infants and Children After Gastroenterostomy.—The object of F. B. Talbot's study was to determine whether or not gastroenterostomy performed on babies with benign pyloric stenosis modified the digestion of starches, fats, and proteins. He states his findings in tabulated form. The weights of the stools of these patients, after operation, all come within normal limits. All the children are perfectly well and have gained weight satisfactorily. The chemical and microscopical examination of these stools show that in the majority of cases the digestion is normal. It is evident that if there be any indigestion it is more probably of the fat and that chemically and microscopically there are no signs of marked protein or fat indigestion.

New York Medical Journal, November 27, 1909.

Postepileptic Albuminuria.—J. F. Munson, resident pathologist at the Craig Colony at Sonyea, presents the following as his conclusion from the observation of a large number of cases: (1) Postepileptic albuminuria is found in about 20 per cent. of all patients examined in a fairly large series of cases. Men are much more frequently affected than women, and severe seizures are more likely to cause the condition than are mild attacks. (2) The condition is not constant in the same individual. (3) Control urines show the absence of albumin at times when the effect of seizures may be eliminated. (4) The presence of albumin is almost invariably associated with the finding of casts, sometimes in great numbers and variety. They persist longer than the albumin, but may also be found in the interparoxysmal period in the absence of albumin. (5) The first appearance of albumin may be at any time within the first two hours after the attack and it may not disappear till the fourth day. (6) Physical examinations are not fruitful of diagnostic results, except that a few slight heart findings are noted. The blood pressures are in some of the cases elevated. (7) In a series of cases of death in or shortly after seizures congestion of the kidneys is almost constantly found, with albumin in the lumen of the tubules. There is also a good deal of chronic change. It seems probable from the evidence submitted that there is renal congestion following many severe and some mild seizures. This alone is sufficient to account for the albuminuria, and perhaps for some of the casts. There are not a few cases in which signs of chronic nephritis are present on histological examination. It seems to the present writer that we have to deal with a condition which has its origin in the congestion following or associated, at any rate, with the seizure and it does not seem an unfair presumption to assume that some of the chronic changes are due to the congestion so often repeated.

Biology as the Basis of Infant Feeding.—H. D. Chapin says that there is a lack of uniformity in pediatric literature in regard to the standards advocated in infant feeding. Some authorities lay stress on the calorimetric method; others prefer that of percentage composition of food, while still others advocate various chemical manipulation of the milk or lay stress upon adjusting the proportions of casein and albumen in the food. Finally some place their dependence on peptonization. No one can always achieve success by adherence to any one of these plans. The proper plan is that suggested by biology in which the main points to be considered are a sufficient supply of proteins to permit the production of new tissue, enough energy foods to supply the necessary amounts of energy to carry on the vital processes, and the adaptation of the form of the food to suit the peculiarities of the individual infant. This reduces all plans to a scientific basis to which all may conform. Neither biochemistry nor any other single plan can solve the question of the best producing power of food, nor can the quantitative manipulation of the ingredients of various milks form alone a broad enough basis for scientific infant feeding. They may all be employed, but must be subordinated to their proper place by biology. This science, however, will always put the emphasis on growth as the largest factor in early life. It likewise for the first time in the history of this question considers the developmental as well as the nutritive functions of milk in connection with the evolution of the particular digestive tract it is intended to serve. Along this same line it will incidentally show how far various milks are interchangeable and suggest methods of making them so.

The Relation of Tuberculosis to Infant Mortality.—C. F. von Pirquet comments on the various forms in which this disease manifests itself in the early months of life and comments on various statistics which seem to show that when these are carefully taken different cities and localities present practically the same results. Tuberculosis is very seldom inherited, but we find in nearly every case of tuberculosis in infants that there has been another person in the environment who has had open tuberculosis. Whether the infection is directly through droplets containing bacilli, which are coughed out by the infected person and then breathed in by the child, or taken in from the dust of the room in which sputa have been dried out, is still a doubtful question. In comparison with the danger from these open cases that from infected milk is rather small. Still all infected cows ought to be removed from farms that supply milk for babies. Prevention is better than cure. The following method has been successfully tried: All cattle in one farm are tested with tuberculin, those which do not react are sent to a new farm. All calves which are born of tuberculous mothers are immediately separated from the mother and receive milk only after it has been boiled. Afterward they are sent to the healthy farm. After a number of years there are

no more cattle in the infected farm and no tuberculous cases in the new farm. We cannot apply that system to humanity, except in orphan asylums, because it would interfere with our family relations, but still we can make people understand that a nursling is no toy for its relatives, and especially sick relatives, and that parents who have an open tuberculosis do better to apply as much caution as possible in kissing the child or coughing in its presence.

The Significance of Posture in Obstetrics.—This subject is considered in detail by A. F. King, who lays stress on the following points: As we have created the necessity of ligating the umbilical cord by cutting it with a sharp instrument, so have we created the necessity of manual version (with all its dangers of infection and uterine rupture) by depriving the woman of the natural method of rectification by thigh pressure in the squatting or kneeling posture. So again we find it necessary to apply forceps in hundreds of cases when the head is on the perineum, a necessity artificially created by ourselves, by our having deprived the woman of the power of thigh pressure, by which she could be readily delivered, had we not kept her in the recumbent posture. Again, if pressure of the heel over the great sacrosciatic foramen is nature's method of securing rotation, then the necessities of vaginal manipulation and difficult application of forceps have been artificially created by ourselves, in that, by keeping the woman recumbent, we have deprived her of the mechanical influence of heel pressure in promoting the desired rotation. We find it necessary or desirable to press upon or manipulate the uterus after delivery, in a particular way, to promote its contraction, to expedite delivery of the placenta, and prevent hemorrhage. But observe that we have necessitated this plan artificially by keeping the woman upon her back and taking away her child and consigning it to the nurse. Had the conventions of civilization and of modern obstetrics not interfered, the natural mother would have cared for her newborn child in the natural way. See then what would happen: The mother, if recumbent, would rise to a sitting, kneeling, or possibly standing posture; she would lean forward and take the child in her arms, and with maternal affection fold it to her bosom. The unbroken cord would be long enough, counting the length of the infant's body from the navel to the mouth, to allow the child to suckle the nipple, which it would immediately proceed to do, thus producing reflex uterine contractions, which would be further strengthened by the pressure of the child's weight and the perpetual motion of its feet, upon the fundus uteri. The uterus would also receive additional pressure upon the fundus, from the weight of the abdominal organs pushed down upon it by the woman leaning forward, and thus lessening the space between her diaphragm and pelvis. In prehistoric times this was the method—the natural method—by which uterine contraction, placental expulsion, and the prevention of hemorrhage were secured.

Journal of the American Medical Association, November 27, 1909.

Salt-free Diet in Nephritis.—V. C. Vaughan says that the following points seem fairly well established: "1. Urea and uric acid are not important constituents of the urine so far as their toxicity is concerned. I mean to say that neither of these can be regarded as the active agent in the causation of those symptoms that result from failure to function on the part of the kidney. 2. About 85 per cent. of the toxcity of the urine is due to its inorganic constituents, the most toxic of which is potassium chloride. 3. There are present in normal urine certain organic poisons, the nature of which has not yet been ascertained. 4. Although the inorganic constituents, notably potassium chloride, are markedly poisonous, they cannot be regarded as standing in a direct causal relation to that complex of symptoms which we designate as uremia. A small fraction of a grain of potassium chloride, as I have frequently demonstrated, injected into a ventricle of the brain of an animal, may cause prompt death, but neither the symptoms nor the postmortem findings are those of uremia." He is confident that withholding salts does not touch the real cause of uremia. It seems possible that the inorganic salts of normal urine and its organic constituents may neutralize each other partly. At least it has been repeatedly found that the ash of urine is decidedly more toxic than the whole urine, and he thinks that there is room for more research on this point. There is evidence also that an absolutely ash-free diet may disturb the health and this also needs further study. In dogs, long-continued feeding of salt-free diet materially reduces the acidity of the gastric juice, and it has been repeatedly shown that there is a minimum of salt content in the living tissues below which it is impossible to go. Single organic salts may be more poisonous than a combination, and, therefore, there is reason for suspecting that the inorganic constituents of the urine may neutralize each other. Vaughan shows that salt retention is not proved to be the cause of nephritis or of its edema, and it seems to him that the greatest good is to be secured by restricting salt in the diet of patients who may be called prenephritics, and there are many of this kind; he is in the habit of advising such individuals to have their food prepared without the addition of salt. He is positive that we eat too much highly salted food. With unsalted food we drink less and the kidneys are relieved of excessive work; otherwise, he has never been satisfied that he has seen any benefit in any form of nephritis in denying the patient the satisfaction of his thirst. It seems good sense to limit the consumption of food in nephritis, so far as possible without distress to the patient.

Hypertension in Nephritis.—J. H. Musser says the causes of hypertension in nephritis are unknown. The theories are based mainly on deductions from clinical experience and to a lesser extent on experiment. Neither of these, however, give us conclusive evidence, but each in its way points to a reaction of some chemical substance influencing the circulation. What that is, we do not know. Clinically we notice that hypertension and heart hypertrophy are encountered in that group of diseases in which uremia is also apt to occur, while both fail in practically all other types. In other words, hypertension like uremia is a sign of renal insufficiency. It naturally suggests itself that the poisons are the same, or if different are due to the same causes. If the same it may be possible to conceive that in small quantities it affects the vasomotor apparatus and in larger ones exerts its action on the nervous system. In support of this chemical theory it is frequently observed that the degree of the uremic manifestation has close relation with the blood pressure and that true uremia rarely occurs without hypertension. The effect of diet is also suggestive. Rich protein diet seems to increase tension in nephritis and makes the condition worse. All this probably means a retention of the products of nitrogenous metabolism and possibly of the undetermined nitrogen. The increase of these substances in the blood in the renal diseases, in which the uremia occurs, suggests not only that they may be the cause of uremia and include also the substance causing increased tension. Another view, which he thinks may be dismissed briefly, is that which connects hypertension with an internal secretion of the kidney. Little evidence has been brought forward in its support. Another closely related theory which he also considers inadequately supported by the facts is that which connects adrenalin or similar substances with the hypertension. More evidence must be accumulated before a definite opinion in its favor is adopted. The almost constant presence of arteriosclerosis with hypertension in chronic interstitial nephritis is one of the chief difficulties in explaining the hypertension. It is still a question which is the primary condition, though the view that the kidney is secondarily affected seems to be gaining ground. The renal disease following infectious diseases, in which the hypertension appears to be primary and the heart hypertrophy and arteriosclerosis secondary, throws some light on this subject. The hypertension of scarlatina is of special interest, since it comes on very early and at an age when arteriosclerosis can be ruled out. The only explanation which can be offered is increased peripheral resistance, a contraction of arterial terminations as a result of some chemical influence. The association of glomerular lesions with hypertension is also of interest, and this has been emphasized by Schmidt and Loeb. This is an important field for investigation and experiments definitely show that the high pressure associated with glomerular lesions cannot be explained by the older theory of loss of vascular territory in the kidney. Loeb offers the following hypothesis: "Since the renal activity varies directly with the blood supply, lesions of the glomeruli would limit local vasodilation. When the renal activity demands more than the local conditions allow, the stimulus goes beyond the kidney and there is exerted reflexly a splanchnic contraction which leads to an increased systemic tension and then an increased flow of blood through the glomeruli." This explanation, Musser says, brings out prominently the fact that hypertension, whatever its cause, is essentially a conservative process, its object being to favor the maximum functioning power of the kidneys. All the theories except the one of vicarious renal secretion bring us back to the chemical or retention hypothesis.

The Management of Uremia.—E. F. Wells says that in making a diagnosis of chronic interstital nephritis the physician should give his attention to the prophylaxis of uremia. He should inform the patient of the nature of the disease, give a tactful prognosis and directions as to proper diet and general regimen. The diet should be individualized and arranged so as to maintain nutritive equilibrium as fully as possible with the smallest amount of protein and carbohydrate foods. The liquids should be adjusted from time to time so as to help the elimination of waste materials and the regimen should consider residence, clothing, occupation, exercise, etc. Extraordinary care should be taken to avoid infectious disease. The physician should keep closely in touch with his patient, using modern methods of examination, and the patient should consult his physician promptly on the advent of any significant symptom, a list of which should be given to him. Wells does not believe in the probability of uremia occurring without such premonitions as can be detected by an alert observer. As is well known, the blood pressure is abnormally high in these cases. It can be reduced by various medicines, but ordinarily the high tension is conservative and should not be interfered with. In some cases, however, the rise is so rapid as to threaten danger to the weakened vessels, and in this case Wells advises artificial reduction by free bloodletting in urgent cases. In less urgent ones the slower methods may be used. The circulatory balance is seldom fully restored when once lost. Not infrequently circulatory insufficiency follows an acute infection or other depressing influences, without the patient experiencing the extreme tension above referred to. The part played by edema in the production of uremia is important, and Wells thinks special consideration should be accorded to its management in every case of nephritis. He recommends the following treatment from his experience, which, however, may be varied to suit individual needs: During the first day the diet should consist of thin gruels, cream and water, vegetable soups, tea, coffee, cocoa, water, and carbonated waters. From these there should be omitted the gruels on the second and soups on the third day; during the fourth and fifth days very little should be taken; on the sixth day the soups should be replaced and on the seventh day the gruels; later the ordinary careful dietary of the nephritic should be gradually restored. Every night of the first three days the patient takes 10 grains of mercurial mass, in two recently made pills of 5 grains each, followed by an efficient sulphate of magnesium saline purge in the morning. Beginning on the fourth morning, after free action of the saline, there is given 1/30 grain pure elaterin hourly for three doses; 1/24 grain every two hours for three doses; finally, 1/18 grain every three hours until ten or twelve copious watery bowel movements have been induced. During the last series of doses the intervals may well be p. r. n., or as specially directed. Subsequent to the discontinuance of the medicine there will be several more of the liquid evacuations. The elaterin must be pure, and it is preferably given in powder, with sugar of milk and finely powdered ammoniated glycyrrhizin. During the time the elaterin is being given the patient should remain in bed, using the pan. He should be informed of the abdominal distress, nausea, and vomiting which the drug sometimes induces. Without giving reasons for the opinion Wells is sure that, if satisfactory results are to be secured, it will be well to follow closely the spirit of the suggestions in regard to diet, medicine, and general regimen as detailed. He thinks that this treatment will usually drain a large amount of serum through the bowels, and during the period of alvine drain, renal activity is much reduced, but later becomes greatly increased both in quantity and urea content. In some unsatisfactory cases this fails and the edema continues. The other symptoms also subside to the great relief of the patient, but the full benefit is not experienced until about six weeks, and may continue for a long time. Careful medical management will augment the good effects of this treatment and properly directed exercise to keep up cellular activity will be advisable.

Militia Field Work.—F. W. Hendley says that the medical officers and the hospital corps have not been able to utilize recent maneuvers to any great extent on account of the smallness of their numbers. Using the statistics of Ohio, which are most available to him, he finds that the law authorizes for a total of 8,376 men, only 53 medical officers, and 236 hospital corps men, not enough to man two hospitals and two ambulance companies properly according to regulations, leaving out of consideration entirely all regiments and other organizations. In the special camps of instruction for medical officers, such as were established this year for the first time, separate and distinct from the maneuver camps, the medical corps had an opportunity to obtain such instruction but at a cost of doing their work twice over, once in the field with the militia and once in the special camp. Altogether only 170 medical officers out of the 700 or more in the United States attended these schools of instruction this first year, but those that were there were unanimous in expressing their appreciation of the benefits derived, and it can be taken for granted, he thinks, that such schools in the future will be crowded to their capacity. He gives the program of work as observed by him in the camp at Sparta, Wisconsin, where one of these schools was located, and makes the following recommendations for the future: "1. Medical officers should be increased 50 per cent. and the hospital corps 100 per cent 2. Training in field service should be provided for the medical corps and the hospital corps. 3. A progressive course of training, covering six months or more, should be provided, to be completed by attendance at a camp school of instruction. 4. Attendance at such school should be permitted only to those who attain proficiency in the preliminary work. 5. The retaining of a commission as a medical officer should be dependent on participation in such systematic course of instruction. 6. Medical officers in states not represented this year should at the next similar opportunity insist on their rights, and not allow their portion of the available fund be given to their state team at Camp Perry, as occurred in one State in the Northwest this year."

The Lancet, November 20, 1909.

Influenza with Marked Cerebral Symptoms.—H. V. Dillon records the case of a young man of 20 years whom he found in a semi-conscious condition, teeth clenched, face cyanotic, and breathing stertorous. Heart action was tumultuous, occasionally intermittent, 100 per minute. Temperature was 101° F. It was possible to rouse him partially. He was given stimulants, and under treatment gradually resumed his usual mental state, which was of a reserved type. Three days later he was again cyanotic and seemed scorbutic. The lung bases showed symptoms of congestion. The temperature fluctuated between 97° and 102°, as has been noticed in influenza and other microbic diseases when they affect the nervous centers. He was given quinine and an expectorant and gradually built up with good food. The author considers the case worth recording on account of the unusual cerebral symptoms. Prior to these the patient had complained of slight coryza resembling an ordinary cold. His cyanotic condition was congenital, as was also the cardiac irregularity, and he was a subject whom the invasion of microbic disease would be likely to affect more seriously than another having a greater constitutional resisting power.

Sporadic Elephantiasis.—Case reported by H. Barber, whose patient was a woman of 65 years, whose symptoms had come on without apparent cause eight months before. The legs began to swell and become painful on standing. They were stiff and heavy and the seat of cramp-like pains at night. A full description of the case when first seen is given. Treatment was practically without effect. Elastic bandages and massage improved her walking powers. The case is reported because sporadic occurrence of this condition apart from filarial infection is rare. The author found no evidences of pelvic tumor or enlarged glands. Recurrent attacks of an inflammatory nature in the lymphatics usually cause much pain and fairly pronounced constitutional symptoms. In this case the swelling preceded any pain and the constitutional symptoms were very slight, absence of fever being noticeable. The blood was twice examined for filaria, but with negative result. Another noteworthy feature was the complete absence of the lesion in the feet, considering the marked lesion in the legs.

Streptococcal Infection in Diphtheria.—The observations of D. M. Mathieson were made in the course of an epidemic of 80 cases treated in hospital. In 9 cases streptococcal invasion of the throat was found in the course of the disease. The author refers to the work of Sevestre and Martin, who have described certain phenomena occurring about the thirteenth day of the disease. These consist of an eruption, scarlatiniform or erythematous, albuminuria, joint pains, and constitutional disturbance. These were so marked as to suggest a new disease with an incubation period of 13 days. From frequently finding streptococci in the throat cultures of their patients and similar symptoms in pure streptococcus throats, they decided that this organism was probably the one to blame in diphtheria. The following is a brief summary of the author's seven cases in which the "thirteenth day" phenomena were observed. (a) Streptococcal cases: (1) Punctate erythema plus albuminuria; (2) sore throat plus joint pains and rise of temperature (100.8° F.); (3) otor-

rhea; (4) punctate erythema, and (5) punctate erythema plus rise of temperature (99.4° F). (b) Non-streptococcal cases: (1) erythema multiforme and (2) punctate erythema plus rise of temperature (99.3° F.).

British Medical Journal, November 20, 1909

Relapse in Scarlet Fever.—J. W. Fox comments on certain conditions which may be mistaken for scarlet fever. One is measles and particularly German measles, in which the error reveals itself in about 18 days after admission to hospital. Another condition is one produced by food poisoning. Here we have a scarlet rash followed by some fever and a sore throat, but this is never followed by the regular complications of the true fever and the desquamation if any is different. It often arises in several members of the same family at the same time. Some of the cases find their way into hospital wards and contract the true disease. A third form is the following: A patient is admitted with true scarlet fever, which runs a typical course. Yet sometimes after the nephritis the rash reappears, the patient is again acutely ill, the tongue repeals and he seems in every way to have another attack of the disease. Nephritis never redevelops. Are these true relapses; are we dealing with two distinct diseases; are the symptoms of the relapse nephritic or are they due to a pyogenic dermatitis? Sometimes the nephritis is wanting in the primary attack, but appears in the secondary. The author has never met a practitioner who remembers having seen a relapse of any other exanthem. He gives no answer to his own inquiries.

A Method of Intestinal Drainage.—M. Mamourian's method consists in the utilization of the Murphy button with a yard of soft rubber tubing. A purse-string suture of silk is passed around one end of the tube, the male or female half of the button is introduced into the lumen and the head tightened so as to grip the neck of the button. Next a segment of the distended bowel is clamped and a linear purse-string suture inserted. The gut is incised, the other half of the button placed in position and finally the two sections of the instrument are united in the usual way. The anastomosis between the bowel and tube is complete and on removing the clamp there is no leakage and the fecal contents pass out of the tube into a jar well away from the field of operation. The purse-string suture on the bowel need be secured only by a temporary knot so that the suture may be tightened and the incision instantaneously closed after the withdrawal of the button, the bowel being reclamped before the button is removed. If one opening does not give sufficient drainage, the process can be repeated with as many coils as desired or a piece of tubing can be passed up into the bowel and the intestines "milked." The method is, perhaps, more serviceable in cases which require immediate colotomy. The button remains in place four days or so, during which time there is no necessity to inspect the wound. When it comes away, the peritoneal cavity is completely shut off and the wound partially healed. An illustrative case is described.

Lymphangioplasty for Solid Edema.—A. B. Mitchell relates the history of a young man who had severe erysipelas of the face followed by solid edema of both eyelids. Artificial lymphatics of sterilized silk threads were introduced into the subcutaneous tissue. Two short curved incisions, half an inch long, were made into the edematous tissues, a similar incision was made at the outer edge of the orbit and another one down on the cheek below the thickening. The skin below this last incision was freely separated by a blunt director so as to leave a loose pouch into which the lower end of the thread could be dropped. A round needle threaded with sterile silk was then introduced through the incision in the upper lid and brought out through the incision in the orbital margin and the thread drawn through till its upper end, which was knotted (to prevent it becoming dislodged by facial movements), lay buried in the swollen orbital tissue. The needle was again introduced, carried along under the fascia of the cheek and brought out at the lower incision. The thread was now cut, leaving enough to drop into the pouch already prepared by the separation of the skin. A second thread was then introduced in the same way so as to drain the lower lid. The small incisions were sealed with benzoin and collodion. In the recent case the result was very satisfactory and the threads were in position nearly two years later.

Berliner klinische Wochenschrift, November 8, 1909.

Is Cholera a Nitrite Poisoning?—Hyman Van der Bergh and Gutterink call attention to Emmerich's theory that the symptoms of cholera were produced by the nitrites formed in the intestines by the activity of the cholera vibrio. They studied some of the recent cases in Rotterdam from this viewpoint by the spectroscopic examination of the blood familiar to them through their work on "enterogenous cyanosis," in one form of which the cyanosis is due to methemoglobinemia from absorption of nitrites from the intestines and upon dogs poisoned with nitrites. In the cases of cholera studied there was neither methemoglobin nor a trace of nitrites found in the blood.

Münchener medizinische Wochenschrift, November 2 and 9, 1909.

Pathology and Occurrence of Acquired Diverticula of the Appendix.—Konjetzny says that diverticula of the vermiform appendix must be divided into the noninflammatory and the inflammatory. The noninflammatory diverticula occur along the mesenteric attachment at the sites of the foramena of the vessels, and are merely invaginations of the mucous membrane into these openings, which have become dilated. The theories as to the cause of these vary, but the author does not believe that they are the result of local inflammations. The inflammatory diverticula are usually the results of small intramural abscesses. Such abscesses are not at all rare in association with acute appendicitis. The author found two defects of the appendicular wall in the case of a child of ten, each defect, one of which had perforated, holding the end of a bristle. Such cases teach that while foreign bodies rarely cause appendicitis, they may cause serious pathological lesions of the organ. Intramural abscesses may cause diverticula in three different ways. If the abscess is not progressive and does not perforate, it may be absorbed and the cavity be replaced by scar tissue. As this contracts it pulls the mucous membrane outward and thus forms a diverticulum varying in size according to the extent of the original abscess. This is especially deep if adhesions have been formed outside, and if the internal pressure is increased by an acute inflammation. Usually, however, the intramural abscesses do not heal, but perforate either through the mucous membrane or the serosa. If the perforation is through the serosa there are usually preformed adhesions. Thus even a slight increase of intraappendical pressure will bulge the mucous membrane outward to fill the empty abscess cavity. When the abscess perforates internally it may be through a very small opening which allows the otherwise intact mucous membrane to prolapse and later to regenerate around the walls of the cavity where lacking, or the entire mucous membrane over the abscess may be destroyed, in which case the defect may be very deep and have to be covered by invasion of mucous membrane from its edges. Over such diverticula the epithelium is thin and usually cuboidal. These diverticula are of clinical interest in that an inflammation keeping up in them may cause prolongation of the symptoms, they may be the cause of a recurrence, and they are a likely site of perforation. If the perforation occurs along the mesenteric edge it may cause phlegmon of the mesentery.

The Antitrypsin Content of the Serum in Psychoses.—Jach in consideration of the increased antitrypsin content of the blood serum in certain severe corporeal diseases and the close relationship between bodily and mental conditions investigated a series of patients with various mental disturbances as to the antitrypsin in their blood they included dementia precox patients, epileptics, idiots, and paralytics. The technique of Meyers was used. From his investigations he concluded that in a majority of the psychoses there occurred an increase in the antitrypsin content of the blood serum, that the increase was especially marked in paralytics, and that treatment with arsenophenyl glucin seemed to have a favorable influence upon the antitrypsin content of the paralytics.

Examination of the Cerebrospinal Fluid in Trypanosomiasis in the Dog.—Apelt calls attention to the symptoms occurring in men infected with *Trypanosoma gambiensis*, which closely resemble those of dementia paralytica, mental weakness, stupor, loss of memory, ptosis, general tremor, and aphasias. Spielmeyer has shown that dogs infected with trypanosomes show spinal cord degenerations closely resembling those found in the parasyphilitic diseases. Other cerebral lesions were found resembling those of tertiary syphilis. The clinical course of the disease and mode of infection also resembled syphilis. From these Spielmeyer stated that syphilis and trypanosomiasis must belong to one group of diseases. As it had been shown that in paresis, tabes, and syphilis of the central nervous system globulin occurred in the cerebrospinal fluid in 100 per cent. of the cases, the author investi-

gated the cerebrospinal fluid of six dogs which had been inoculated with trypanosomes to see if this relation to syphilis held also. He found that four to six weeks after injection the lumbar fluid shows a pathological increase of cell and protein elements (globulin and nucleoalbumin). Whereas the increase of the cells occurred in proportion to the progress of the disease, a similar progressive increase of globulin was not shown. Nevertheless, the unquestioned increase in globulin gives a further basis for Spielmeyer's theory of the relation of trypanosomiasis and syphilis.

Tuberculin Vaseline for the Conjunctival Reaction in Practice.—Wolff-Eisner says that in practice among ophthalmologists salves are preferable to drops, on account of the difficulty of keeping the latter sterile and the longer time the medicament remains in contact with the conjunctiva. For these reasons he has made a 1 and 2 per cent. tuberculin vaseline ointment for the ophthalmotuberculin test. Such an ointment remained active and sterile for nine weeks in summer in a common ointment jar. This gives it a great advantage over the watery solutions. Its longer time in contact with the conjunctiva makes it a much more delicate and accurate test than the usual Calmette test.

Systemic Lymphadenitis in German Measles.—Hamberger and Schey call attention to the glandular changes in German measles as observed by them in a recent epidemic. Though the posterior cervical enlargement has been mentioned by several writers, in many of the text books it has been entirely omitted. One or two authors have reported isolated cases with axillary or inguinal enlargements. To avoid the danger of error from glandular enlargements due to local causes the authors observed not only those ill with the disease but carefully studied children who had been exposed. This showed not only that changes in the glands occurred but that they appeared in the prodromal stage of the disease, several days before the rash came out. The adenitis at times was marked and the children were occasionally brought to the clinic for that alone. The glandular swellings were not confined to the neck, but involved the entire lymphatic system.

A Case of Banti's Disease.—Arthur Müller reports a case of Banti's disease in a boy of seventeen years, who made a good recovery after splenectomy. The case was of interest as the nitrogen metabolism was studied before and after the operation and found at both times to be normal. In this the case disagrees with that of Umler, who stated as the result of his observations that abnormal nitrogen catabolism was pathognomonic of Banti's disease.

Action of Canadian Hemp.—Kraemer states that the fluid extract of apocynum cannabinum acts through its glucocide apocynin and affects the heart similarly to digitalis. It is a cardiac stimulant and diuretic in doses of fifteen drops three times a day, though some prefer smaller doses—three to five drops—as being effectual without upsetting the digestive tract. The author reports a case of myocarditis with edema and ascites which had not responded to twelve of the common diuretics, but cleared up in a day under Canadian hemp. The "recovery," however, lasted but four days, and the edema returned, though the drug was continued.

Deutsche medizinische Wochenschrift, November 11, 1909.

Physiology and Pathology of Magnesium and Calcium.—Meltzer collects and summarizes some of the results of the investigations which he and his coworkers have carried on at the Rockefeller Institute. He says that little is generally known of the inhibitory action of magnesium, and less of the antagonistic action of calcium to this inhibition. In literature calcium is often spoken of as the inhibitive factor in blood serum. Various writers have shown that calcium may act not only as a depressant, but also under certain conditions as an excitant and as an antagonistic to other depressants. The inhibitive action of other substances than calcium has also been shown. Meltzer's work in association with Auer and others began in 1899. He showed that magnesium sulphate injected intracerebrally into rabbits produced sleep which lasted for hours. A similar injection of potassium carbonate caused convulsions. This raised the idea that possibly magnesium was the inhibiting agent in the animal body. His experiments were all on vertebrates, and were divided into 4 groups, in which the injections were made intravenously, directly into various parts of the central nervous system, into the peripheral nerves, and perfusion of nerve-muscle preparations. By intravenous injections were produced paralysis of voluntary movements, loss of all reflexes and anesthesia, while respiration remained good. With lethal doses death followed respiratory paralysis. For intramuscular injections the best results were obtained from solution of molecular concentration, for intravenous, of one-eighth molecular. Doses *per os* produced paralysis only in immense doses and following double nephrectomy. The second group of experiments included intraspinal injections in monkeys and men. Moderate injections caused loss or reduction of sensation and motility below the lumbar region lasting many hours. Larger doses caused unconsciousness without respiratory involvement. Still larger doses caused death by respiratory paralysis, which, however, could be prevented by artificial respiration. The circulation was in no wise injured by this procedure. Introspinal injections of sulphate of magnesium have been made in men many times, especially in cases of tetanus, and frequently repeated. In every case the convulsions were succeeded by muscle relaxation, and often coma. In from 20 to 30 hours all symptoms disappeared without any after effects. All of these and many other experiments demonstrate the inhibitory and depressive action of magnesium salts. The antagonistic action of calcium to this is equally striking. If a rabbit is completely anesthetized by magnesium, and then a calcium chloride solution is injected intravenously, the symptoms disappear at once. The respiration deepens, the reflexes return, and before the injection is finished the animal attempts to move and sits up naturally or hops away. This antagonism of calcium for magnesium was observed in all cases in which the magnesium was given subcutaneously, intramuscularly, or intravenously, but not when it was injected into the medulla, or intraspinally or was applied locally to the nerves. Strontium causes no antagonism to magnesium. Physostigmine in therapeutic doses improves decidedly the respiratory action injured by magnesium without affecting the other actions of the drug. This makes physostigmine a valuable drug in magnesium anesthesia. Magnesium delays the appearance of rigor mortis, whereas calcium hastens it. Of the three elements potassium, calcium, and magnesium, potassium is the least poisonous, and magnesium most so. Variations in this are due to confusing the poisonous action on single organs with those on the body as a whole. Every poisonous substance kills an animal by its action on the organ for which it is most poisnnous. The relative toxicity of the ions of magnesium, calcium, potassium, and sodium for the entire animal is in inverse proportion to the amount of the respective element found in the normal serum.

Intermittent Claudication.—Goldblatt states that this disease, first described as an intermittent lameness, is now known to affect not only the lower limbs but also the upper, and other organs as well, so that one speaks of intermittent claudication of the tongue, the intestines, the spine, etc. He reports four cases of the disease. The condition in many ways resembles migraine, and in some cases, instead of being an arteriosclerotic stenosis, may be a neurosis or spasm. Therapeutically must be considered four methods of recovery: resorption following recovery of the endarteritis, so that the diseased artery is again competent for the blood stream, the formation of new blood-vessels in the surrounding tissue, dilatation of collateral vessels which may carry the blood supply around the obstruction, or the disappearance of the cramp of the vessel. The most rational method of aiding all four of these factors is the production of arterial hyperemia. For this purpose the author recommends light baths and electric foot baths. He has had no experience with Bier's method.

Cerebrospinal Meningitis in the Nursling.—A. Lesage says that cerebrospinal meningitis in the nursing infant may be so ill-defined that a diagnosis is difficult. In general the symptoms are fever, agitation, loss of appetite, refusal of food, diarrhea, and evidences of suffering. All these symptoms might indicate gastroenteritis. The distinctive ones are stiffness of the body and neck, and Kernig's sign. The abnormal forms are a paralytic form in which the head falls about like that of a new-born infant, an attenuated form with few symptoms, but often ending in optic or acoustic atrophy, a tetanic form, a convulsive form, a comatose type, and a type in which intense nervousness is the chief symptom, combined with strabismus and nystagmus. The diagnosis can be made positive only by lumbar puncture, and the withdrawal of turbid fluid containing meningococci.—*Le Bulletin Médical.*

Book Reviews.

The Medical Record Visiting List, or Physicians' Diary for 1910. New revised edition. New York: William Wood & Company.

This well-known visiting list contains the usual lists for the entry of daily visits, for consultation practice, for obstetric engagements, births, record of vaccinations, register of deaths, addresses of patients and nurses, and cash accounts. Furthermore, there is much useful information on various topics, such as signs of death, hints on making a will, artificial respiration, treatment of poisoning and other emergencies, and a dosage table. The volume is compact, neat, and serviceable; it is made of good paper, and is handsomely bound.

The Physician's Visiting List for 1910. Philadelphia: P. Blakiston's Son & Co.

This visiting list is well made up, with a soft, flexible, leather cover, and good quality thin paper, making it particularly convenient to carry in the pocket. Each double page is ruled for a week, and has space for twenty-seven cases. The first few pages include gestation tables, incompatibility rules, antidotes, weights and measures, both apothecaries' and metric, a full dose list, resuscitation methods, and a comparative thermometric table. In the back are pages for memoranda, addresses of patients and nurses, accounts asked for, vaccination and obstetric engagements, record of births and deaths, and cash accounts. The book makes up as an attractive pocket visiting list.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles by Leading Members of the Medical Profession Throughout the World. Edited by W. T. Longcope, M.D., Philadelphia, U. S. A. Volumes I and III, Nineteenth Series. Philadelphia and London: J. B. Lippincott Company, 1909.

These two volumes of the well-known periodical contain numerous original articles on Treatment, Medicine, Surgery, Gynecology, Dermatology, Pathology, and other special fields of medical art and science. In Volume I Lawrence Flick writes on Hospitals for Advanced Cases of Tuberculosis; Campbell Howard gives a complete *resumé* of the literature on Mikulicz' Disease and Allied Conditions and adds several personal cases; Landouzy discusses Typhobacillosis, an entity first recognized and described by the author; Duval and Vinard write on Sporotrichosis; MacCallum discusses Absorption from the Peritoneal Cavity. There are several other articles of interest and a review of the literature for the year 1908, arranged under the headings of Treatment, Medicine, and Surgery. Volume III opens with an article by Francine, commented upon elsewhere in the Medical Record, on the Treatment of Tuberculosis; an interesting paper by Davina Waterson on Mesmer and Perkins's Tractors follows, the latter being an American quack's panacea for all diseases; Baruch gives statistical data in five hundred cases of typhoid fever; S. Solis-Cohen discusses Grave's Disease and allied vasomotor affections; James J. Walsh gives much interesting information on the *rôle* played by women in medicine of the past; Buerger writes on Migrating Thrombophlebitis; Ochsner writes on the Surgery of Exophthalmic Goiter; Pancoast presents a well-illustrated article on the Radiographic Examination of the Gastrointestinal Tract; several other articles in Otology, Neurology, and Pathology close the volume. The two books keep up the usual high standard of this publication.

Medical Sociology. A Series of Observations Touching upon the Sociology of Health and the Relations of Medicine to Society. By James Peter Warbasse, M.D. New York: D. Appleton & Co., 1909.

This volume is characterized by a good, clear, concise style, sound judgment, and a wide acquaintance with men and things both in the profession and outside of it. The title of the book hardly does justice to its contents. Some of these essays appeared in the *New York State Journal of Medicine* when Dr. Warbasse was the editor, and they carry the arrow of editorial soundness, now as they did when we first read them, straight into the very heart of the subject. The purpose of the book is to break down an artificial barrier that has grown up between the doctor and his public, and to tell to each what ought to be known about the other. Thus we have chapters on public policy and the medical profession, the alcohol question, the venereal peril, Christian Science, the family hazard, preventive medicine, the hospital interneship, the small medical society, doctors' sons, medical libraries, etc. There is an abundance both of wit and wisdom throughout the volume, and he must be dull indeed who cannot garner many helpful truths from its perusal.

Surgical Diagnosis. By Alexander Bryan Johnson, Ph.B., M.D., Professor of Clinical Surgery in the Columbia University Medical College; Attending Surgeon to the New York Hospital; Consulting Surgeon to St. Joseph's Hospital, Far Rockaway; Fellow of the American Surgical Association; Member of the New York Surgical Society. Three Volumes. New York and London: D. Appleton & Company, 1909.

This imposing book of three large volumes was written with the intention of treating the subject of Surgical Diagnosis on fairly broad lines. The needs of the general practitioner as well as the surgeon have been considered. Besides methods of operating-table and bedside clinical examinations, the pathology has been considered, and many details not often found in the writings of surgeons, as bacteriological, hematological, and analytical procedures, are thoroughly and accurately described. The book is profusely illustrated with photographs and radiographs taken from the author's own collection, and from those of the New York Hospital, and of many of the author's confreres in New York and Baltimore.

Volume I, of 810 pages, covers the subjects of wounds and their diseases, diseases of the soft parts and of the bones, tumors, fractures and dislocations, syphilis, the *x*-ray, the head and neck, the thorax and breast, the abdomen in general, and the peritoneum and injuries of special abdominal organs.

Volume II, of 777 pages, is devoted to the intraabdominal and genitourinary organs, the kidney alone taking up eleven chapters, and the bladder eight more.

Volume III, also 810 pages in length, discusses the spine, the nerves, the pelvic bones, and the extremities, and contains an appendix covering the recent advances in the knowledge of a variety of subjects, some surgical and others more or less closely related to surgical diagnosis, as the recent discoveries anent the parathyroid glands, the methods for the detection of the *Spirochetæ pallida*, exophthalmic goiter and hyperthyroidism, regional diagnosis of brain lesions, the serum diagnosis of syphilis, and the newer studies of status lymphaticus.

The author sticks closely to his subject of surgical diagnosis. Nothing is said as to treatment or operation, and the domain of the gynecologist is omitted *in toto*. While operative procedures are neglected, diagnostic ones, such as esophagoscopy, cystoscopy, ureteral catheterization, etc., are considered in full. The book is written in simple, straightforward English. As large as many systems of surgery, but the work of one man, it is much more of a unit than most books of its size, and is certainly the most extensive work on surgical diagnosis in English, if not in any language. The illustrations, and especially the radiographs, deserve especial commendation. The large, clear type, the insertion of heavy face type for subheadings, and the complete absence of small type notes make the book easy for reading and reference alike. The improper use of the word tubercular where tuberculous is meant is a minor error which may easily be overlooked in a work of such exceptional merit. The author is surely to be congratulated upon the completion of such immense labor with such happy results, and the surgeon and practitioner are also to be congratulated upon the publication of a book which cannot fail to be of the greatest practical help in the diagnosis of surgical diseases.

An Introduction to Chemical Analysis. For Students of Medicine, Pharmacy, and Dentistry. By Elbert W. Rockwood, M.D., Ph.D., Professor of Chemistry and Toxicology, and Head of the Department of Chemistry in the University of Iowa; Author of "A Laboratory Manual of Physiological Chemistry." Third revised edition, with 20 illustrations. Philadelphia: P. Blakiston's Sons & Co., 1909.

In the present revision of this work the author gives greater prominence than before to the ionic theory of the nature of solutions. This is quite necessary for those who wish to keep pace with the present day developments of chemistry. The book is divided into three parts, dealing respectively with qualitative analysis, volumetric analysis, and applied analysis; this last part containing chapters on the sanitary examination of water, the detection of poisons, and blow-pipe analysis. The work will form a useful companion to any course in chemistry, and as an introduction to chemical analysis it is of more than ordinary value in that it is calculated to make the student think for himself, and it also shows the relation of chemistry to materia medica, physiology, and toxicology.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held November 4, 1909.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

The Theoretical Considerations of the Wassermann Reaction and Its Practical Application, Based Upon a Study of 2,750 Cases.—Dr. D. M. KAPLAN read this paper. This reaction depended upon two factors: first, the syphilitic serum was said to possess the power of binding or deviating complement when brought in contact with the antigen; secondly, the hemolytic system, consisting of any blood corpuscles plus their hemolytic amboceptor, added subsequently, or rather after the deviation of the complement was more or less complete, gave no hemolysis. From the 2,930 analyses carried out at the Montefiore Home laboratory he believed that a syphilitic infection, after the subsidence of the acute manifestations, and its gradation into secondary and tertiary stages, produced changes in the various organs, preeminently the liver and heart, and that these organs served as depots of the antigen. These organs furnished the true luetic antibody, as well as other bodies of unknown chemical and biological nature. These depots were differently affected by the syphilitic virus, depending upon the patient's constitution. The stronger the individual resistance and the milder the infection, the sooner would the manifestations disappear, and the quicker did the reaction become after appropriate treatment. Mercury in proper dosage did away with the reaction, as well as most of the symptoms. It might be that the antigen depots were affected by the treatment so that no more molecules were furnished to the serum capable of liberating the inhibitory principle from the antigen used, or that the mercury neutralized the various antibodies formed and rendered them inert for complement deviation. It was not erroneous to argue that whereas the syphilitic serum treated with mercury was not capable of doing the same as the normal serum treated with mercury, that in the former the mercury was bound to the bodies responsible for the inhibition, rendering these bodies inert, so far as deviation of complement was concerned, and that in the normal serum, the mercury was not bound and, therefore, capable of uniting with the inhibitory body of the subsequently added serum and rendering it negative. An interesting phenomenon was observed when they worked with sera containing bile products; all such sera gave a positive reaction, although in most of them syphilis could be positively excluded. The majority of the sera submitted for analysis were for diagnostic purposes. The question was asked, "Was the serum from a patient with syphilis or not?" Dr. Kaplan did not believe it was just or safe to render a decision either one way or the other. It must be remembered that in the absence of bile in the serum, excluding various clinical conditions, a positive reaction certainly meant syphilis. It should not be forgotten that certain luetic sera gave a negative reaction; therefore, a negative result for diagnostic purposes was valueless. He advised that sera should be sent to the laboratory for diagnosis only when the clinical findings were extremely obscure. Knowing the shortcomings of the test, the doctor must form his own conclusions, or give the patient the benefit of the doubt, and treat him for lues, unless time was a factor and more urgent interference was necessary. This was specially true in surgical conditions of the brain and spinal cord. He believed that whenever time permitted, when alarming symptoms did not urge an operation, the patient was to be thoroughly mercurialized and the least improvement noted. If no improvement was apparent, plus a previous negative reaction, the underlying cause was likely not syphilis and operative interference was justifiable. Surgical skill was also to be resorted to when the reaction was negative in cases where the syphilitic deposit was accessible with safety, and without injury to neighboring parts, but it was advisable to exhibit mercury first. One should not send sera from a treated patient for diagnosis and not acquaint the serologist with this fact Dr. Kaplan said he believed the system recommended by Noguchi appeared much earlier as an indicator of syphilis than that championed by the Wassermann school. The Noguchi system could also be utilized to a greater advantage therapeutically. Having obtained on a previous occasion a positive reaction with this method, it persisted longer after treatment, sometimes remaining weakly positive weeks after the Wassermann reaction became negative. It also gave a positive reaction with sera from jaundiced individuals. Its simplicity, as well as the mode of keeping the biological reagents, certainly made it a desirable addition to the serologist. From the data given Dr. Kaplan's conclusions were as follows: (1) Not only syphilis but many other conditions gave a positive Wassermann reaction. It was not strictly specific for syphilis. (2) It was also not specific in the sense of Ehrlich. (3) For diagnostic purposes a negative reaction was of no value excepting when the patient showed signs suggestive of an initial lesion or symptoms bordering on this period. (4) Having excluded certain conditions, a decidedly positive reaction by both methods was highly suggestive of syphilis, even if no direct history of the infection was obtainable. (5) It was of no value to perform tests of sera without acquainting the serologist with the therapy. (6) A negative Wassermann reaction was an indicator for the cessation of treatment.

DR. CHARLES L. DANA said that Dr. Kaplan's work had been so carefully done that he had every confidence in the conclusions drawn and the observations made. Dr. Dana had had the test practically applied in about thirty patients during the last eight or nine months; these tests were made in the laboratory by Dr. Hastings, or by those under his direction, and the work had been very carefully done. The cases which were really the most important, from his standpoint, were those that bore upon syphilis of the nervous system. In the first place, regarding the subject of diagnosis, he not infrequently met with cases of rather acutely progressive paraplegia which seemed like cases of syphilitic spinal paralysis, but which might be the spinal type of multiple sclerosis or due to a compressing tuberculous process. Three cases of this kind were subjected to the Wassermann reaction; both the blood and cerebrospinal fluid were tested, with negative results. The tests were repeated and were again negative; there was no lymphocytosis. This led to the conclusion that the cases were multiple sclerosis, as no other symptoms of that disease were present. Dr. Dana thought that when the test was perfected, especially when the cerebrospinal fluid was tested also, the Wassermann reaction would be a decided help in diagnosis. When it came to the question of help in the treatment, so far as the neurologist was concerned, not much had yet been achieved. When a patient, however, had locomotor ataxia and the disease was arrested, the Wassermann reaction, if found, would lead one to keep up active treatment. The persistence or early reappearance of a positive reaction would also be a help in determining that treatment should be kept up.

DR. H. NOGUCHI said that after a clear presentation of the subject by Dr. Kaplan he had very little to add and he congratulated Dr. Kaplan in having entered into such extensive studies with the reaction. As a laboratory man he might, however, add a few hints which might be useful to those who were doing the test. When the test was properly carried out there were very few instances where the so-called non-specific positive reactions occurred. As a

matter of fact those who reported a large percentage of such results were somewhere at fault with the technique, namely, too much of the antigen was usually employed. It was well known that the exces of this reagent could give rise to non-specific reaction with certain diseases, no matter what system was employed. He, therefore, advised those who got such results to reduce the amount of antigen to such quantity as to not give over-sensitive reaction, since the delicacy of the test could be adjusted to any degree one desired to have. It interested him very much to note that the result which Dr. Kaplan obtained in a comparative study of thirteen hundred cases by the original Wassermann and his own method indicated clearly that the latter was more delicate than the former, and was as reliable as the former. This confirmed the findings of himself and of Dr. Howard Fox who made a comparative study of two hundred cases, and the result of Drs. Rosanoff and Wiseman on more than four hundred cases of insanes tested by his system upheld his view of the reliability of his method. It was not necessary to emphasize here that his method was very much simpler. Dr. Noguchi also found it interesting that jaundice gave a positive reaction to the Wassermann but not to his system, a fact which should also be considered by those who were going to adopt either of the methods. Finally, the study on the effect of the bile on the reaction was quite original and interesting. It might probably be due to the action of lipase and of coferments contained in the bile on the lipase substances serving as antigen, because liberation of certain fatty acids might lead to the inactivation of the complement.

Resuscitation by Means of Electric Currents of Subjects in a Condition of Apparent Death.—Dr. Louise G. Robinovitch read this paper and made demonstrations. Artificial heart beats and respirations were caused to take place by means of rhythmic electric excitations with various electric currents. The speaker's method consisted of (1) excluding the head from the circuit; (2) applying the cathode to the back of the chest; (3) using in the beginning the smallest possible voltage that would cause the amplest useful cardiac and respiratory reactions; (4) a gradual increase of voltage, if necessary, in order to maintain useful ample cardiac and respiratory reactions. Too ample or too small reactions might be fatal. The rhythmic excitations should be continued until spontaneous heart beats and respirations set in. In severe cases of apparent death the first spontaneous heart beats and respirations were apt to be slow in reappearing and feeble in nature. If the rhythmic excitations were then immediately suspended, syncope was apt to set in again. In such cases the ample artificial heart beats and respirations should be alternated with the feeble spontaneous heart beats and respirations until life was completely restored. Dogs electrocuted or killed with chloroform were resuscitated with the author's method. The first rhythmic excitations were made with from 15 to 20 volts; this potential was gradually increased to 25, 30, 35, 40, 45, 50, 60, or 70 volts of a direct current interrupted frequently, with or without a regulated period of passage. The milliamperage could not be measured on account of the short duration of closure of the circuit, from ¼, ⅛, to ½ second. The opening of the circuit lasted about one to two seconds, according to the gravity of the syncope. It was dangerous to use too high voltage in the beginning, because the cardiac excitability was thereby quickly exhausted. It was all important to economize this excitability to the utmost degree, because apparent death might continue for a period of some five minutes. The speaker had resuscitated with electric rhythmic excitations a woman in a condition of grave syncope caused by chronic morphinism. She had been accustomed to taking 30 grains of morphine daily during a period of two years, and had been suddenly deprived of the drug. She fell into a condition of syncope while being examined; the Sylvester method and rhythmic tractions of the tongue had been tried for twenty minutes without result. Rhythmic excitations with a special induction coil were applied from 20 to 25 seconds and the patient was revived. The coil was devised for use in resuscitation. The wire of the primary coil was 12/10 mm., that of the secondary 6/10 mm. Both coils and the core were of special dimensions. A coil made of coarser wire was useless; a coil made of finer wire was dangerous. Numerous experiments were made to find the proper diameter of the wire. The preferred current for resuscitation was the direct interrupted from 6,000 to 12,000 per minute, with a period of 1/10. Next in value was the direct interrupted of the same or higher frequency. Next in value was the induction current obtained with the author's coil, giving from 25,000 to 30,000 interruptions per minute. Next in value was a current of similar frequency obtained with the Vreeland oscillator, giving either a pure sine wave current or a direct oscillatory current. Next in value was the simple direct current; and the least desirable was the alternating current. Death was seldom instantaneous in subjects electrocuted accidentally. In the majority of cases there was simply cardiac and respiratory paresis, the patient continuing to breathe for some time after the accident. In spite of the application of all methods known, such patients generally died within one-half hour or so after the accident. Electric rhythmic excitation should be applied before removing the patient to the hospital. Subjects electrocuted at Auburn prison could easily be resuscitated with rhythmic excitations applied after the first shock with high voltage, 16,000 to 18,000 volts, six to nine ampere, because the pulse was perceptible after this shock. In numerous experiments the author never failed to resuscitate electrocuted dogs that showed the slightest sign of blood pressure. It was the shock with the low voltage that killed, because it induced ventricular tremulation. The method of legalized electrocution was unscientific; the voltage used was too high; the application of the electrodes, one at the leg, was contrary to the end in view; the leg was not a vital organ; the leg electrode should be at the back of the chest; with the current thus concentrated, cardiac and respiratory paralysis could be induced with a low voltage. Dr. Robinovitch presented three of her models of apparatus for resuscitation. (1) A wheel interrupter of a direct current used either for anesthesia or resuscitation, for hospital service. (2) A double ribbon interrupter of a direct current for resuscitation, for ambulance service. (3) A special coil with a ribbon interrupter, giving from 20,000 to 30,000 interruptions per minute, for resuscitation in ambulance service.

Electric Anesthesia or Sleep.—If properly applied, all electric currents produced a certain degree of sleep and anesthesia. Dr. Robinovitch found experimentally that all alternating or induction currents were dangerous for central application. The safe currents were the direct and the direct interrupted, with or without a regulation period of the passage of the current. But the safest of these was the direct interrupted, 6,000 to 12,000 per minute, period 1/10. These direct currents were invaluable in the treatment of the insane. The effect of all currents was probably due to their being stored up in the body and to their electrolytic effects. The stored up direct current in the human body could be measured with an ordinary milliampèremeter within one-half hour after the beginning of the passage of the current. The cathode should always be applied at the head. The anode at the head caused dyspnea. If applied centrally, the induction current caused death within one hour, with high temperature. The alternating current was the most deadly of all to cellular life

The d'Arsonval high frequency current had an irregular wave, the effects of which were seen on an animal in the circuit; the animal shivered synchronously with the rapid succession of the irregular wave. Dr. Robinovitch was the first to use electric anesthesia in laboratory work, in 1906, and she was the only one to-day who used this anesthesia instead of chloroform. All electric currents caused abortion in the pregnant animal. The bad results obtained by Dr. Brewer and others in this country were due to the use of dangerous currents and bad interrupters.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held October 28, 1909.

DR. JOHN OSBORN POLAK IN THE CHAIR.

A Case of Hematoma of the Abdominal Wall Simulating a Dermoid Tumor.—Dr. SOLOMON WIENER reported this case. The patient was a woman, forty-two years old, with no history of tuberculosis, syphilis, or typhoid fever. Six weeks before she was examined she had fallen on her back on a wooden floor. She had a slight pain referred to the lower abdomen, which soon subsided. For three weeks she had experienced occasional dull pain, and for several days had noticed a swelling of the right side of the abdomen. There had been no vomiting, disability, disturbance in urination, nor defecation. She sought advice solely because of the presence of a palpable tumor. Palpation disclosed the presence of a smooth, rounded mass, about the size of the closed fist, extending from just below and to the right of the umbilicus to above Poupart's ligament. It was firm, not elastic nor tender. It was slightly movable from side to side, but not from above downward. The preoperative diagnosis was dermoid tumor. The anterior rectus sheath was incised and the muscle was bluntly divided. In so doing a cavity was entered from which about a pint of old clots and tarry blood was evacuated. The cavity was situated between the rectus and its posterior sheath, with several side pockets branching out into the belly of the rectus. There was a distinct lining membrane, and the muscle fibers forming the wall of the cavity were of a dirty, greenish-gray color, ragged, and felt soft and degenerated. The pathologist's report on the pieces of muscle removed was chronic inflammation. It was comparatively easy to differentiate the tumor from an intraabdominal one. The differential diagnosis was not so simple. Of the causes of tumor formation in this locality, abscess, gumma, tuberculosis, hydatid cyst, lipoma, or actinomycosis hardly came into consideration. They were readily ruled out by the history and the physical signs. There remained only a metastatic growth, dermoid, and hematoma to differentiate between. In view of the excellent condition of the patient and the absence of all other local signs and symptoms, a metastatic growth could fairly be ruled out. The history of the fall upon her back might point very strongly to hematoma. Yet the well known frequency with which patients first notice solid tumors after some slight trauma, the location of the mass, and its physical characteristics, pointed very strongly toward its being one of the latter. The mistaken diagnosis made it seem worth while reporting. There could be but little doubt that when the patient fell supine the rectus muscle was subjected to a sudden violent stretching between its fixed points, with rupture of some of its fibers, and possibly of some branch of the deep epigastric vessels. Treatment should consist of incision and drainage whenever the hematoma was large. Hematoma of the abdominal wall, other than such occurring during convalescence from typhoid fever, and such as were due to direct injury, were exceedingly rare.

Dr. SIDNEY D. JACOBSON said that a dermoid was merely a fibroid tumor, harder in consistency and of a closer texture. It might occur in any part of the body where connective tissue was found, but was most common in fasciæ and in tendons. He reported the following case: A patient, thirty-two years old, married, a multipara, had noticed for several years a slowly growing lump in her right lower quadrant. Lately the skin over this growth became irritated because of the pressure of her corset. Upon examination a round, smooth, hard mass was found. By exclusion a diagnosis was made of a dermoid of the abdominal wall, situated within or intimately connected with the transversalis fascia. The mass could be moved in the long axis of the patient's body, but not transversely. The mass could be moved across the fibers of the muscle or fascia holding it, but not in the direction of those fibers. It was plain that the tumor must be in the transversalis fascia. Enucleation of the mass was a simple procedure and the patient was now well. Upon section the tumor presented a white, glistening surface, and the tissue grated under the knife as it was cut. Upon microscopical examination it exhibited the characteristics of a dermoid tumor, with spindle-shaped cells in small numbers scattered through a dense stroma of parallel fibers very closely knit together.

Dr. H. N. VINEBERG said that he had operated upon two similar cases; in neither of these was there much difficulty in making a diagnosis. One case was a very extensive one, and he experienced some difficulty in bringing together the muscles after the operation. As a rule one must go quite deep into the tissues in the removal of such tumors. He did not recall any case of large hematoma of the rectus muscle resulting from a fall.

Dr. S. WIENER said that the suggestion made that the tumor should have been aspirated in order to aid in making a diagnosis was a good one, but the blood was so thick and tarry that it could have been accomplished only by the use of a very large aspirating needle. Moreover, even if some blood had been so obtained, they would still have considered that they were dealing with a rapidly growing, hemorrhagic, solid neoplasm.

A Case of Hematometra in an Aged Woman.—Dr. ARTHUR STEIN reported the case of a woman, 66 years old, a widow, who had had two children, the last thirty years ago. Two and a half years ago she began to urinate quite frequently, and she had difficulty in starting the stream. At the end of urination there was a burning sensation. She had no thirst, no loss in weight, no bleeding, no leucorrhea, but she did complain of pain in the lumbar region. She had edema of the legs. She noticed that her abdomen was becoming larger. The external genitals were normal. The vagina was senile; the cervix was about one-half an inch long and was pushed backward. No body of the uterus could be felt. In its place, however, was a large, round mass with smooth surface, cystic, and somewhat movable. It occupied the whole of the small pelvis and pressed down the anterior wall of the vagina. The diagnosis made was either a myoma of the body of the uterus or a monolocular ovarian cyst. There was also an external inguinal hernia. A panhysterectomy was performed. In operating the uterus was accidentally punctured and about twenty ounces of chocolate-brown colored blood escaped. The microscopical examination showed nowhere any signs of malignancy in the body of the uterus; in the wall of the cervix, however, instead of finding normal cervical glands, there were columnar cells in many layers, in some places still maintaining the glandular type; in others they had undergone metaplastic changes and were transformed into cells of the squamous type. The diagnosis was made of a large hematometra and adenocarcinoma of the cervix uteri. The patient made an uneventful recovery. In going over the literature of the past thirty-two years he said he was unable to find a similar case.

Dr. EUGENE COLEMAN SAVIDGE reported a similar case.

A woman, sixty-five years old, came to his office apparently presenting an ovarian cyst which she wished removed. In order to learn the position of the uterus, a sound was introduced, and this was immediately followed by a gush of dark, unclotted blood. He washed the uterus out, packed it, and sent her to a neighboring hotel. She made a good recovery. Three years later, when she was sixty-eight years old, she had a similar occurrence; the uterus was emptied again as before. A third time the uterus filled. There was no pathological report. There were no malignant conditions. About six years after first coming under his observation she died of diabetes.

The Care of Pregnancy and Labor Complicated by Nervous Overdevelopment.—Dr. Franklin S. Newell of Boston read this paper. There was a widespread theory in the medical profession as a whole that the duty of the obstetrician was satisfactorily performed if the maternal life was saved. The life of the child was usually considered as a secondary matter, and the after health of the mother received little or no consideration from the average practitioner. No man should feel that he had conducted a case of labor properly in which a child was lost after reaching a viable age, when he had had personal charge of the case throughout pregnancy and labor. Many serious injuries might be inflicted upon the child which might affect seriously its after health. The after health of the mother was a consideration which should receive serious attention, but which was seldom considered until too late. Each patient should be studied carefully, particularly in relation to her power of standing pain and what effects the long-continued pains of labor might have upon her after life. The modern civilized woman was a doubtful risk nervously, although she might be physically well equipped. It was, therefore, an important part of their professional duty to lessen the strain during pregnancy and labor by every means possible. Every patient brought up under the conditions of city life should be considered as abnormal unless she could be proved to be normal by the most searching examination. In each case it was necessary to learn what the patient's previous life had been In many cases it would be found that she had been subjected to such educational and social strain at the time of puberty that she had become merely a bundle of nerves. It had been estimated in Boston that the majority of girls who entered society had at least one or more nervous breakdowns, demanding a modified rest cure, before reaching the age of twenty-five, the time at which a woman should be at the height of her powers. The same might be said of a large proportion of college women. A third group of women were those who had always been sickly and delicate. A class which should receive careful attention were those who had shown no definite weakness before pregnancy, and in whom no definite pathological conditions during pregnancy could be discovered, but who developed a lack of accommodation to pregnancy. They suffered from minor toxemic conditions—vomiting, did not improve physically during pregnancy, did not take proper exercise, and came to labor in poor physical condition. The general indications to be met in the treatment of unfit parturient women might be divided into prophylaxis and palliation. There could be no doubt but that the pernicious influence of early education was one of the most serious factors with which they had to deal. The social standard was so definitely set that a girl's education was crowded into a few years, so that she could be turned out as a finished society product at a definite age, with all the modern accomplishments, and this necessitated a system of hot-house education at a time when the girl was undergoing her greatest physical development. Few parents would be socially so ambitious as deliberately to sacrifice their daughter's welfare if the risks were carefully pointed out and the means of minimizing the damage furnished. Each patient should be studied in order to determine the class to which she belonged. If a patient was considered unfit, the hygiene of her life should be regulated, and she should be treated as though pregnancy and labor were pathological conditions. Many patients could stand operation well, although a long-continued strain would predispose to physical or nervous collapse. In the borderline cases, and in those in which it was calculated that no definite harm would result from labor, much might be done toward lessening the pain and exhaustion by the early use of anesthetics; morphine and scopolamine might be employed in certain cases with advantage. The advantages of surgery should be employed in these cases, and the patients delivered instrumentally at the earliest moment possible without the risk of undue damage. An important part of an obstetrical case was the supervision of the convalescence and the repair of the damage caused by labor. The custom of allowing patients to get up at the end of ten or twelve days was pernicious; three weeks in bed after confinement was none too long to insure a good result. Malpositions and lacerations should be attended to before the patient got up. The physician and not the nurse should have the personal charge of the patient from the beginning of her labor. It was clearly recognized to-day that the elective cesarean section, performed before labor began, carried with it nothing more than the ordinary mortality and morbidity of accident when performed by a competent surgeon, and it might unhesitatingly be recommended to patients who were in the class where the life of the child was of extreme importance. This was distinctly an operation to be performed on those who were considered unfit for the strain of labor, and in whom it was feared that pelvic injury at the time of delivery might produce invalidism.

Dr. Edwin B. Cragin believed that the most important part of the paper related to prophylaxis; the facts were that in cases with this sensitive, high tension nervous system, the women often simply "pressed the button" and then expected the obstetrician to do the rest. The problem was to overcome this faulty development. It must be admittted that the girl was overworked in school during her developmental period, during the first years of her menstrual life. One could see any day such a girl walking along Fifth avenue carrying home a large bundle of books to study late in the evening, when she needed time for rest and development. This certainly did not tend to make her fit for maternity. Dr. Cragin had compared the life of the girl in the city, after leaving the preparatory school, with the life of the girl in college; this comparison resulted in favor of the college life. The alternative was bridge whist, afternoon teas, late hours, etc. If one asked the educators of girls to-day what the chances were for a girl with a college education, as compared with one without it, they would tell at once that the better chances rested with the girl with a college education. They had a great advantage Dr. Cragin viewed the matter from another standpoint the training of the man who was to do the obstetric work under the conditions mentioned by the reader of the paper Years ago obstetrics and gynecology, perhaps also diseases of children, were practised and taught by the same men; later, as gynecology developed, it became separated from obstetrics, as the older men doing obstetric work had usually gone into it from general medical practice, without surgical training, and the younger men, with surgical training, were attracted to gynecology. Now, with the increased demand for surgical skill in obstetrics, the two subjects were coming together again. In watching the men and the staff at the Sloane Maternity he had noticed that, in general, the man who had come from a surgical service made a better obstetrician than the one from a medical service In looking forward, the obstetrician of the future must be the obstetric surgeon, one who had had gynecolog-

ical training and was able to deal with any complications affecting the pelvic organs. Personally, he did not believe that one could tell beforehand whether a young woman with a so-called overdeveloped nervous system was unequal to the strain of labor or not. A great many women, very frail looking, would go through labor without the slightest trouble; whereas, on the other hand, a robust woman, one who rode horseback, who exercised a great deal, with a pelvic floor very rigid, would often have a much more difficult labor. Prior to the first labor none could tell how such a woman was going to pass through it. He agreed, however, that in a certain number of cases, where previous labors had shown that the woman was unable to deliver herself, cesarean section was justifiable. In some cases, if the baby's life was to be saved, this operation was the only alternative. The whole question resolved itself into a careful observation of both the mother and baby; the preparation of the obstetrician to enable him to deal with surgical complications; the realization that the work of the obstetrician required skill in the use of other instruments aside from the obstetric forceps.

Dr. Eugene Coleman Savidge said that there must first be pregnancy in the nervously overdeveloped before it could be managed. If women were overcivilized enough there would be none to manage. If they were properly educated, maternity would begin and end naturally. Improper education caused the troubles under discussion. He believed that woman was entitled to her maximum development, mentally, morally, and physically; that was to say, to her maximum nervous development. The question was What was this maximum, and what were the results of nervous overdevelopment? A woman might be educated out of proportion to her possible destiny, out of sympathy with her environment, and still be within the scope of her mental and physical capacity. Happiness being the basis of health, the question only became medical when it resulted in unhappiness. Woman might be said to be overcivilized when her nervous system disqualified her for utility as sweetheart, wife, or mother. This was the viewpoint of man, the Church, and the State. Individualism was the particular enemy of the State. The right to develop her individuality might seem more sacred to the woman herself than her communal function of breathing the breath of life into masculine clay. The overstrained, broken down athlete was muscularly overcivilized. The intellect of a Guy de Maupassant, pushed by every form of stimulation beyond the limits of finite capacity, was another form of extreme overcivilization. A training that disqualified for the average obligation the average return to the race for the blessing of existence, was an overcivilization. Nature had a very definite average for each species, and had implanted a strong instinct to hold these limits. The unfair division of vital force, the overdevelopment of the psychical element, left the physical, especially the glandular elements, undeveloped or demagnetized; and we had an almost sexless mentality instead of a woman. Nature stopped this process of overbreeding by withholding posterity. The basis of life must always remain the primitive and elemental gland call for cell union. A demagnetized gland, regardless of bulk, lacked the primitive power. We saw men enduring, aspiring, inflicting death, and even losing life for the elemental and primal, but never solely for the brilliant intellectual. Just as the discovery of radioactivity of the supposedly ultimate elements had led to a still further division of matter and had revolutionized modern physics; just as the concept of the vital energy of the cell was surely pointing to the cancer cause, so this problem of the conservation and equal distribution of vital force was looming into the medical problem. Even if women were to choose the individuality instead of the posterity there would still be a grave penalty. An infantile uterus had long been recognized as the result of overexpenditure of vital force in intellectual or emotional outlay. Bulk had little to do with the comprehensive malady of infantile uterus and demagnetized gland, and it had a wider moment than question of race and posterity. Less than five years would sometimes change an infantile uterus in an unmarried girl with amenorrhea into a condition of turgid congestion with profuse menstruation. The pathology was obscure, but there was an analogy between this condition and the gastric engorgement and hemorrhage attending certain stages of cirrhosis of the liver. These patients frequently reached the operating table as a consequence, and there as a final penalty gave up their essential essence of femininity, with a result to longevity which had elsewhere been elaborated. Suppose oversubtle women were only partially so and became mothers. We handled them judiciously and delivered them adroitly. On the other hand, suppose nature was trying to shut up the oversubtle within the offending generation by inflicting uterine and mammary atrophy. Our routine gynecology sometimes thwarted her, and helped pass oversubtlety along to another generation. All this being within our capacity, we yet transcended ourselves when we trained women to become mothers naturally; when we kept the local organs from need of local attack. Foreseeing, forethinking, and foreplanning did this.

Dr. Egbert H. Grandin considered the topic under two heads: (1) The sociological aspect was of vital importance to the integrity of the race, and it was the duty of the physician in so far as in him lay to teach his patients the importance of beginning the training for marriage from childhood up. In short, prophylaxis was the self-evident remedy against the rearing of the type of women so graphically portrayed by Dr. Newell. Poor hygienic surroundings during childhood, education of the brain at the expense of the body, lives of leisure without physical exercise, of necessity these factors resulted in undeveloped nerve centers and in infantile genitalia. The end result was that such women were not suitable for entering into matrimony. Should they do so, the physicians were up against the questions propounded by Dr. Newell in the event of conception ensuing, and the resulting child meant simply a second edition of the neurotic mother. (2) The practical phase of the paper dealt with the management of labor, and Dr. Grandin said he had very decided views which were the result of experience, and he could not altogether endorse certain of Dr. Newell's statements. Thus, reference was made to scopolamine-morphine anesthesia. He objected to this because the use of morphine during labor interfered with the eliminatory organs, and it was above all essential that these should act physiologically, especially since just after labor extra strain was of necessity thrown upon them. Again, the chemistry of scopolamine was rather obscure, and the reports from European clinics proved that it was not free from danger both to the woman and to the fetus. He was satisfied that certain well established measures answered better in the case of the neurotic, underdeveloped woman. Fortunately this type of woman was rarely met with amongst the poorer classes, where the remuneration of the physician, at best very inadequate, did not permit of the careful supervision which women in the well to do class could command. The physician should be the master of the lying-in room. Anxious relatives should be excluded Moral suasion could thus be brought to bear and the nervous tone maintained at a higher average. When the uterine contractions became efficient during the first stage, a large dose of quinine intensified the action of the involuntary muscles. Hyocine often controlled the nervous excitement. Chloral equalized the force of the contractions, the intervals between them becoming longer, as well as the duration. The first stage completed, in the absence

of contraindications, chloroform administered during the muscular, expulsive contractions took the edge off the suffering. On the appearance of maternal or fetal exhaustion, version or forceps, according to indications, entered into consideration. Thus he had guided scores of neurotic women through labor, and this too without ever feeling that in the absence of relative or absolute indications the cesarean section was allowable. Indeed, in reference to this latter point, he could not speak too strongly. The field for this latter operation he was opposed to widening unnecessarily lest, as a result, the mortality rate, now at such low ebb, should be materially raised.

Dr. George L. Brodhead said that he had found it very difficult to estimate just how much a nervously developed woman would do in labor. He did not think that one could tell without a previous history how much assistance would be required for some patients, for it was impossible to tell how much pain the woman could suffer, or how far labor would proceed before intervention became necessary. The tendency among women, especially in the cities, was to spend too much time at bridge whist, suppers, and social functions, with too little fresh air and relaxation. Personally Dr. Brodhead had observed that by limiting the diet mainly to proteins after the sixth month, the child would be of moderate development. There seemed to be an inability or an unwillingness or both on the part of many women to stand the requisite amount of pain for spontaneous delivery. In cases of delayed labor, the use of the Champetier de Ribes bags was of the greatest value

Dr. Franklin S. Newell of Boston believed that the educational period for girls must be extended so that they would be subjected to less strain at the time of puberty and in the years immediately following. To lessen this strain on the individual girls, either the requirements of education must be lessened, or the length of time given to education increased. In regard to the question as to whether a college education did more harm than society life for the average girl, he believed that it was certainly no greater if careful supervision was maintained. It was a difficult question to decide in borderline cases how far they were justified in giving a woman a chance. Experience had shown that many patients would react badly to labor, but would stand the strain of operation well. With regard to limiting the patient's diet so as to reduce the size of the child at birth, he believed it was not so much the question of what the woman ate as it was of how much she ate. If the women could be made to eat just enough food to keep themselves in good physical condition, the supply of nourishment going to the fetus would be lessened and the baby itself smaller.

Philadelphia Neurological Society.

At a stated meeting held November 26 Dr. F. X. Dercum reported "A Case of Juvenile Paresis," occurring in a young man, nineteen years old, whose father had been treated for syphilis for a short time by Dr. Dercum before marriage. The symptoms had begun two years previously The knee-jerks were exaggerated. The pupils were inactive to light, while reacting in accommodation. The mental state was one of well-being, without delusions of grandeur. Dr. David Riesman presented a communication entitled "Febrile Mania of Long Duration Ending in Recovery." He reported the case of a woman suffering a mental shock in each of two pregnancies from the death of a close relative. Following the easy and uncomplicated birth of the second child the woman became manaical, repeating frequently various phrases at different times. The mental derangement was attended with elevation of temperature continuing for six months without obvious underlying disturbance Pelvic infection and other inflammatory disorders were considered and excluded. The leucocyte count was preternaturally low, 1,000 in the cu. mm. Insomnia was a most disturbing feature, and large amounts of hypnotics and sedatives were employed without harmful result. Dr. Alfred Gordon presented "A case of Syringomyelia With Involvement of the Face, Scalp and Larynx." The patient was a woman who presented sensory dissociation with respect to heat and touch, and pain on the left side of the face, head, trunk, and extremities and also of the pharynx and larynx, with some wasting of the thenar and hypothenar eminences and exaggerated knee-jerks. Dr Gordon also demonstrated "A Case of Pseudohypertrophic Dystrophy of Upper and Lower Extremities." The patient was a young colored boy who presented the characteristic enlargement and firmness of the calves, with the peculiar climbing method of arising from the floor, and *alæ scapulæ*. The biceps muscles of the arms were firm in extension, while they appeared soft and flabby in flexion. Dr. Chas. S. Potts presented "A Case of Periodic Paralysis." The patient was a young man employed as a stenographer, who on several occasions found himself entirely helpless without apparent cause, and examination disclosed loss of knee-jerks and of response to faradic stimulation. Dr. S. D. Ingham demonstrated "A Case of Probable Syphilitic Multiple Neuritis." The patient was a man who had been treated for syphilis some twenty years previously and who presented foot drop, steppage gait, at one time pain in the lower extremities, temporary slight bladder symptoms, and inequality of pupils, one of which was irregular. Of course there was some question as to the exact etiology. Dr. E. Lindauer reported "A Case of Tabes Dorsalis Showing a Charcot Joint of the Hip." The patient suffered from pains in the lower extremities, with pupillary changes and abolition of knee-jerks, but without ataxia. X-ray examination disclosed the characteristic destructive changes of tabetic arthropathy. Dr. T. H. Weisenburg read a paper entitled "The Occasional Difficulty in Diagnosis Between Brain-Tumor and Central Paresis."

Is the Placenta a Good Culture Medium for Microbes?—Paul Gueniot used the placenta as a culture medium for various microbes in order to see whether it formed a good soil for their development. He cultivated staphylococcus, streptococcus, bacteria of charbon, *Bacillus pyocyaneus*, colon bacillus, and gonococcus. It was noticeable that the streptococcus grew much less plentifully than the staphylococcus and colon bacillus. The placenta is an excellent culture medium for a number of pathogenic bacteria, but the placental relations do not predispose to streptococcus infection. Clinically, in placental retention the streptococcus is rarely present when the discharge becomes fetid. The colon bacillus and the anaërobes are more frequent. Puerperal infections are generally polymicrobic, although the streptococcus is the principal agent in their production. In putrid placental infection it is found to be ether bacteria that are the causes.—*L'Obstetrique.*

Grippal Aortitis.—Michel Marmorstein says that acute aortitis following influenza is somewhat rare. He recites two cases of this complication of influenza, one of which came to autopsy. In general, it is not the number of germs present that occasions the severity of the attack, but the virulence, the sensibility of the subject, and his means of defense against them. There are cases of aortitis found in young persons that arise without any symptoms that would indicate a chronic process. The symptoms are those of dyspnea, dullness on percussion over the aortic area, and pain or discomfort over the same location. Lesions of the vessel and aorta in the course of influenza cause formation of thrombi, favored by the feebleness of the heart and the slowing of the blood current. Such thrombi occur in various organs. In one of the author's cases a thrombus caused a cerebral encephalitis. The author sums up his observations thus: There is no good reason for denying the existence of acute aortitis in young persons. Such lesions may exist as a result of influenza without any other heart complication Considering the large dilatations of the aorta that are found in young persons, it is probable that they result from some form of infectious disease.—*Revue de Médecine.*

Books Received.

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TRAITÉ INTERNATIONAL DE PSYCHOLOGIE PATHOLOGIQUE. Directeur Dr. A. MARIE. 8vo; paper; 1,028 pages; illustrated. Félix Alcan, Paris, France.

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE. 8vo; paper; illustrated; 344 pages; price 7 shillings and sixpence net. Longmans, Green & Co., London, England.

TRANSACTIONS OF THE AMERICAN DERMATOLOGICAL ASSOCIATION. 8vo; paper; 287 pages; illustrated. By the Association.

PRINCIPLES OF PATHOLOGY. Vol. II. By ADAMI and NICHOLLS 8vo; cloth; 1,082 pages; illustrated. Lea & Febiger, New York.

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DIE CYSTOKOPIE IM DIENSTE DER CHIRURGIE. Von Stabsarzt Dr. O. RUMPEL. 4to; paper; 107 pages; illustrated; marks, 30. Urban & Schwarzenberg, Berlin, Germany.

DIE GICHT UND DIE SALZSÄURE-JODKUR. Von San.-Rat. Dr. FALKENSTEIN. 8vo; paper; 186 pages. A. Hirschwald, Berlin, Germany.

TUMORS OF THE KIDNEY. By EDGAR GARCEAU, M.D. 8vo; cloth; 421 pages; illustrated. D. Appleton & Co., New York.

DIAGNOSTICS OF INTERNAL MEDICINE. By GLENTWORTH REEVE BUTLER, M.D., Sc.D., LL.D. 8vo; cloth; 1,193 pages; illustrated. D. Appleton & Co., New York.

TRANSACTIONS OF THE AMERICAN OTOLOGICAL SOCIETY. 8vo; paper; 573 pages; illustrated. Pub. by the Society, Boston, Mass.

AURAL SURGERY. By WEST and SCOTT. Cloth; 8vo; 201 pages; illustrated; $2.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

THE PROTEINS. By T. BRAILSFORD ROBERTSON. University of California Publications in Physiology. Berkeley: University Press. 1909.

QUAIN'S ANATOMY, Vol. III, Part 2. Edited by SCHÄFER, SYMINGTON, and BRYCE. 4to; cloth; 384 pages; illustrated. Longmans, Green & Co., New York.

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BIOGRAPHIC CLINICS, Vol. VI. By GEORGE M. GOULD, M.D. 8vo; cloth; 402 pages; $1.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of December 4, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	576	173
Diphtheria	343	30
Measles	411	3
Scarlet Fever	382	16
Smallpox	—	—
Varicella	178	—
Typhoid Fever	82	14
Whooping Cough	23	3
Cerebrospinal Meningitis	5	8
Malarial Fever	—	—
Totals	2,000	247

Syphilis of the Stomach.—M. H. Pater finds that more men than women are affected by syphilis of the stomach, and that alcoholic indulgence leads to it. It appears in surgical cases in the third stage, in others the lesion is secondary in general. It may occur in inherited or acquired syphilis. The time between the chancre and the lesion varies from two to forty years. It may be a diffuse infiltration, gummatous new formations, ulcerations, cicatrices, or stenoses. It may occur at any part of the stomach, and vary in degree and dimensions. It may involve the mucous membrane or all the coats. There are not always vascular lesions. Symptoms: rare gastric pain, dyspepsia, crises of vomiting, loss of appetite. There may be simple gastric catarrh, functional disorders, gastralgia, gastroenteralgia, etc. When ulcer occurs it gives the usual symptoms. Tertiary syphilis may exist in one of three forms: gastritis, ulcer, and a cancerous type with or without stenosis. There is no characteristic symptom of any of these conditions that differs from the conditions when arising from other causes, hence the diagnosis is difficult. The only remarkable thing about these conditions when arising from syphilis is the rapidity of cure under mercury and the iodides.—*Gazette des Hôpitaux.*

Vertebral Fibromata.—Le Jumtel says that vertebral fibromata may be either periosteal or retroperiosteal. The latter vary in size; small ones produce few symptoms, and their diagnosis is practically impossible. If the tumor is abdominal and is of considerable size it will give the following symptoms, although they are not marked: asymmetrical abdomen with a marked depression on one side corresponding to a protrusion on the opposite side; absence of pain; on palpation a regular, circumscribed tumor of extreme hardness; little effect on the general condition; slow evolution. These tumors are exceedingly rare in the thoracic region, and, as far as recorded cases go, have given no symptoms at all. In the cervical region they are indolent, pressure causes no pain, unless there is interference with the nerves of the cervical plexus. They remain isolated from the soft parts, and do not surround them as malignant tumors would do. They may interfere with the movements of the neck if they become very large. These tumors are not dangerous, but only inconvenient. In rare cases there is compression of the intestines and even obstruction occurs. The only thing to be feared is the change into a malignant form of tumor.—*Journal de Médecine de Paris.*

Plastic Massage in Dermatoses of the Face.—Raoul Leroy says that massage of the skin of the face, even when by unskilled hands, is of value in lessening dermatoses of the face. Associated with diet it constitutes a powerful and easy method of treatment. Each sitting produces a marked congestion of the skin, with elevation of temperature in the skin, and a sort of succulence and turgescence, causing the papules to be more prominent. This soon passes away and the opposite effects result: there is retraction of the papules and whitening of the skin, with a pleasant feeling. Indications for massage are all conditions in which there is poor circulation. Digestive erythemata, acne, melanoderma, facial obesity, chloasma, and seborrhoeic eczema are among them. Acne is especially benefited by it; the papules become smaller and cease to suppurate. In cicatricial forms the new papules evolute without producing cicatrices. The effect of the massage, which is violent, is reducing, and removes pigmentation. It acts on the tonicity of the skin and restores it to a normal condition.—*Gazette Médicale de Paris.*

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Original Articles.

A BRIEF HISTORY OF THE TREATMENT OF STAMMERING WITH SOME SUGGESTIONS AS TO MODERN METHODS.*

BY G. HUDSON-MAKUEN, M.D.,

PHILADELPHIA.

PROFESSOR OF DEFECTS OF SPEECH IN THE PHILADELPHIA POLYCLINIC HOSPITAL AND COLLEGE FOR GRADUATES IN MEDICINE; LARYNGOLOGIST TO THE CHESTER HOSPITAL, CHESTER; CONSULTING LARYNGOLOGIST TO THE FREDERICK DOUGLASS MEMORIAL AND ROOSEVELT HOSPITALS, PHILADELPHIA.

My object in writing this paper is twofold, first, to emphasize the well-known fact that quackery reigns supreme in the treatment of stammering, and, second, to point out some of the fallacies and absurdities which are being practiced in connection with this treatment. First of all, let me say that there is generally a grain of truth in the chaff which is being dealt out by charlatans for the sustenance of these unfortunate victims, but the single grain is not at all adequate to their needs, at least in the majority of instances.

It has been estimated that there are upwards of three hundred thousand stammerers in the United States alone. It is quite probable that about one-fourth of the entire number would overcome their defect of their own accord, or at least with the little help that always comes from interested friends, but the remaining three-fourths present a very different problem, in that they must expend a great deal of time and energy upon the work of recovery, and secure in addition the assistance of those having acquired a good working knowledge of the anatomy, physiology, psychology, and pathology of the organs employed in the production of speech.

Stammerers are not alike, except in a few characteristics, and they require, therefore, a certain amount of individual treatment. Our experience with the one-fourth of the entire number, to whom I refer as being easily cured and to whom the grain of truth might prove adequate, can, of course, form no criterion as to a basis for the general treatment of stammering, but nevertheless, because of the great ease with which these exceptional few are managed, inexperienced observers have reached false conclusions and formulated so-called "methods" of treatment which are misleading, fallacious, and even absurd.

For instance, a stammerer is told to nod his head whenever he speaks, and because this procedure happens in his particular case to divert his attention sufficiently long to enable him to speak freely for a time, he thinks he has made a discovery and he immediately evolves a theory and establishes an institute with a secret "method" which consists solely in nodding the head in unison with the natural rhythm of speech.

Another advises beating time with the forefinger and thumb, or with the hand and arm or with the foot, during the process of speaking, and each one of these schemes has been dignified as a "method" which has been dispensed for a consideration, and under bonds of secrecy. Experiences, similar to this, have generally been the starting point of the numerous "methods" which have been promulgated, from time to time, and which have resulted only in confusion to the many really severe stammerers who have been seeking relief.

There is even now a separate and distinct method which characterizes nearly every school and teacher engaged in this work, and these methods in many instances amount to little more than tricks, to beguile the stammerer into freedom of speech, while his mind is preoccupied with something else.

It is well known, of course, that many people stammer under certain conditions largely because they think they will. All their past experiences with speech have combined to confirm them in the thought, and it soon becomes a sort of "fixed idea." It is nothing for which the stammerer should be censured, because it is a perfectly natural consequence, and the idea or notion that he will stammer under certain conditions will remain fixed until it has been supplanted by absolute confidence in his ability to speak freely under all conditions.

That this confidence can be acquired in nearly all cases is my firm belief, but to be absolute the confidence must carry with it the ability. It is not enough for the patient to think that he can do it or even to know that he can do it, but he must know that he knows he can do it. Among the many interesting cases that I might cite, illustrating this point, is that of a young woman from the South referred to me by Prof. Coplin of the Jefferson College. She was fifteen years of age and under my treatment for several months. In due course of time she was discharged as cured, or rather as being able to take care of herself. Her speech was all that could be desired for several months, when she developed an attack of appendicitis. Curiously enough, the surgeon who was called to attend her was himself a stammerer, and during the patient's convalescence she began to stammer again in a very marked manner. When she was able to be about, however, she immediately resurrected the note book which she had made and used during her course of treatment, and proceeded to cure herself again. After it was all over, Dr. Coplin called me on the telephone and told me the story, interesting equally to him and to me. It was quite a year afterward, I think, when she visited my office and a more fluent and graceful speaker I have rarely heard. I have

*Read in the Section on Eye, Ear, Nose, and Throat Diseases, Medical Society of the State of Pennsylvania, Philadelphia session, September 27-30, 1909.

referred to this case because it illustrates, among other things, one important point, and it is this: A stammerer is never thoroughly and permanently cured who has not, like this young woman, so mastered the physiology and psychology of speech, that should it ever become necessary he can recure himself. He must, of course, take heed lest he fall, but should he fall he must be able to pick himself up again.

In reviewing briefly the history of the treatment of stammering, we find that such men as Galen, Celsus, Klencke, Dieffenbach, Detmold, Wolf, and others, supposing that the difficulty existed entirely in the tongue, directed their attention chiefly to this organ, and we have records of mechanical contrivances for holding the tongue in certain positions, and such surgical operations as divisions of the hypoglossal nerve, the lingual frenum and the various extrinsic and intrinsic muscles of the tongue. Dieffenbach went so far as to remove wedge-shaped sections of the tongue, Galen cauterized it, Detmold passed needles through it, Kustner applied embrocations, cauteries, and blisters, and Yearsley and Braid excised the tonsils and uvula. Others suggested holding cork between the teeth, pressing the thumb on the chin, lifting the tongue to the palate, beating time, as I have said, with the head, the thumb and forefinger, the arm and the foot, and numerous other such schemes. The story of Demosthenes, struggling to speak with pebbles in his mouth, is well known, but the probabilities are that the pebbles might better have been left upon the seashore, and that Demosthenes became a great orator not because of the pebbles, but in spite of them.

I do not wish to be understood as characterizing all these practices for the cure of stammering as being fallacious, for many of them may have some value in connection with a well-ordered and scientific treatment. To suppose, however, that the tongue is chiefly at fault and to direct our treatment toward this organ, whether the treatment consists in the application of mechanical contrivances, the knife or what not, is manifestly absurd and should not be thought of for an instant. The trouble is not so much in the tongue, nor in the lips, nor in the palate, nor in the pharynx, as it is in something back of them all. It is not so much in the peripheral as it is in the central mechanisms of speech. And thus it happens curiously enough that there is a grain of truth even in the theory and practice of surgery for the cure of stammering, and it is found in the psychic impression of the operation.

I, myself, often think it fortunate on this account when there are tonsils and an adenoid to be removed, a septal deflection to be corrected, or an elongated uvula to be snipped; but these are operations, of course, which always tend toward the betterment of speech whether or not it is of the stammering sort, and they are operations, too, which are frequently indicated in these cases. I have been especially impressed with the large number of stammerers having intranasal pressure due to septal deflections and spurs.

History records also various educative methods for the treatment of stammering, many of which are theoretically and practically sound. Making use of opposing movements in respiration and vocalization, regulating tongue and lip action, exercising patients on difficult words, making use of rhythmic exercises, and whispering exercises are among the most important, but no one of these methods nor all of them combined can be regarded as a complete system for the cure of this affection.

The scientific treatment of stammering must have in view the actual substitution of normal speech for abnormal speech, and its aim primarily, therefore, should be not the cure of the stammering, but the development of correct speech. The cure of stammering should be regarded as of secondary consideration, although of course it follows as a natural consequence. The stammerer's speech is faulty in every particular. His central as well as his peripheral mechanisms are out of gear and his mental attitude toward speech is wholly wrong. The instrument is out of tune, and the player is unskilled in its use. He cannot retune his instrument and if he could he would be unable to play upon it. The affection, therefore, is a complicated one, involving not only all the various mechanisms of speech but also some of the higher intellectual and emotional centers of the brain. Indeed it involves the whole being, and its scientific treatment, therefore, must have for its purpose a thorough reeducation of the individual; it must supplant his stammering speech with normal speech; it must make it easier for him to speak freely than to speak hesitatingly; it not only must correct the stammering habit, but it must remove the fear of stammering, upon which much of the trouble depends.

If we correct the habit, without, at the same time, restoring the patient's confidence in himself and in his ability to speak freely, the cure will be only temporary, and if we develop confidence in the patient, by the use of the so-called suggestive method, whether it be given in the hypnotic or waking state, without, at the same time, correcting the physical habits, as is frequently done, the results are only temporary and of course unsatisfactory.

It is not unusual to hear of stammering being cured in a few treatments or in a few weeks, but it is quite unusual to hear of such rapid cures being permanent. It is possible in nearly every case, by a short-cut suggestive method, to appear to cure stammering, and hence it is that the commercially inclined "stutter-doctor" is able to guarantee a cure and even to promise to refund the money in case of failure. A written guarantee of this sort is nearly always given in these institutes but no one has ever yet heard of the money being refunded, although it is a fact that only a few of the patients are actually and permanently cured. On the other hand, many of them are often made distinctly worse by their unfortunate experience.

The stammerer must be taught to speak in somewhat the same way as a person is taught to play upon the violin or the piano. The stammerer's instrument, of course, must be put in good condition by the removal of all obstructions to good speech, and then, as in the case of the would-be violinist or pianist, he must be taught to play upon this instrument. The exercises, which are purely educational and physiological, must continue for a sufficient length of time to enable the patient to form entirely new habits of speech, and they must, of course, be adapted to the special requirements of each individual case.

Stammering in the majority of instances, therefore, cannot be cured in a few weeks. On the contrary it often requires several months or even years to bring about the desired results. The man who guarantees to cure stammering in six weeks, or indeed who guarantees to cure it at all, is either ig-

norant of the true nature of the affection or possessed of some ulterior motive, and is therefore not to be trusted.

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THE TECHNIQUE OF AMPUTATIONS WITH ESPECIAL REFERENCE TO OSTEOPLASTIC METHODS.*

By ALEXIS V. MOSCHCOWITZ, M.D.,

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The question of technique of amputations is a broad one, and affords possibilities for discussion from many viewpoints. I shall confine myself this evening, however, to the discussion of certain phases of the subject of wide scope, which have afforded fields of fruitful activity in connection with the subject of amputations, especially in recent years. I refer to the formation of a good stump. Indeed, it is practically the only phase of the subject of amputation technique that can be said, so as to speak, to be still alive. With due submission, I venture the opinion that surgeons have not applied themselves to this subject in proportion to the importance which it deserves; and the reason is very manifest; the construction of a good stump is not a life-saving measure. The pleasurable fact that the patient has recovered outweighs, in the eyes of most surgeons, all considerations as to whether the stump is of the greatest comfort or utility to the patient. I hold, however, that in these days when the safety of an amputation has reached such comparatively satisfactory limits, the success of an amputation should not be entirely measured by this criterion. We have arrived at the point where we are willing to spend extra time to ensure the strongest possible abdominal wall after laparotomies, and I see no reason why the same consideration should not be shown toward the formation of a good stump.

It must be admitted, however, that it is not because of a lack of ingenuity that this condition of affairs exists. The various methods that have been devised for the purpose of attaining the best possible stumps are legion, and some of these are among the most time-honored operations in surgery. I believe, however, that the majority of these operations have been devised under a misconception of the essential principles involved in the construction of serviceable stumps. For years I have been practising these operations with an ever increasing sense of dissatisfaction. When Bier in 1807 evolved his method of osteoplastic amputation, I adopted it in subsequent operations, wherever possible, with the result that I have become an unreserved disciple of the principles involved therein. The result has been that practically all of my previous notions on the proper methods of amputating have been dissipated, leaving me with a series of firm convictions on the subject, that I shall now endeavor to place before you for discussion.

In the first place, what do we mean by a good stump? Before a stump can be classified into this category, it must have the following requisites: 1. It must be painless. 2. It must be capable of performing physiological functions, so that the wearing of a prothesis may be possible. Now, if we examine the anatomy of a stump, there are only five structures, or groups of structures, that require technical manipulation, and it is in the disposal of these that we must seek the cause of success or failure. These are (1) skin and cicatrix, (2) muscles, fasciæ, tendons, etc., (3) blood-vessels, (4) nerves and (5) the bone and periosteum.

I shall discuss each of these structures in order.

1. The skin and cicatrix. The proper disposition of the cicatrix, so that it shall not lie directly over the end of the stump, is still regarded as of paramount importance in amputations, and numerous incisions, particularly of the flap varieties, have been devised with this object in view.

In order to prove or disprove this point to my satisfaction, I have examined in the course of many years a large number of stumps, of many varieties of construction. I found, not only that the tenderness of the stump has no relation to the site of the cicatrix whatever, but, furthermore, that the cicatrix was in a majority of cases even anesthetic.

This was strikingly brought home to me in one instance. It occurred in a patient whom I had the honor to present before this section. I performed an osteoplastic amputation in the middle of the leg, in a young man, for Raynaud's disease. I performed the amputation lower down than usual, against my convictions, but in deference to the earnest entreaties of the patient. The expected happened: both cutaneous flaps necrosed, exposing the bone flap in its entirety. Slowly, however, the periosteum of the bone became covered by skin epithelium, and the wound healed. Despite the inauspicious character of the cicatrix the stump is absolutely painless and is capable of end bearing qualities. I am of the firm conviction, therefore, that the importance of the cicatrix in amputations is merely a venerable tradition and should be abandoned. Of course, I do not refer to those rare instances where a sensory nerve happens to have been included in the cicatrix. These are merely exceptions which do not prove the rule.

There is another time honored tenet, that I shall dispose of briefly. It is this: that wherever possible the stump should be covered with skin, that is normally subject to pressure. This notion was derived from the unvarying success observed after Pirogoff and Gritti amputations. As I shall subsequently show, however, this deduction was based upon a false premise. In fact, I discard the question of the quality of the skin entirely, and if pressed by circumstances do not hesitate to so calculate my incision, as to take the skin from anywhere in the neighborhood. My only considerations are viability and absence of infection.

2. Muscles, fasciæ, and tendons. The fact that a stump must be covered by a well padded mass of muscle has long been one of the cardinal rules in performing amputations, and has given rise to many operations, chiefly of the transfixion, inverted cone, and funnel shaped varieties. It is true that the stumps formed by such amputations are objectively very beautiful; they are massive looking, well rounded, and cushion like. Unfortunately on examination the stumps will be found to be quite as tender as those that are covered by practically nothing but skin. Moreover, the advocates of this procedure forget that ultimately the muscles atrophy and leave the end of the stump in as proverbial nude a state as if no attempt had been made to cover the end of the bone.

*Read at a meeting of the Surgical Section of the New York Academy of Medicine, November 5, 1909.

Recognizing the fact that the sawn surface of the bone is the tender point, some surgeons, and Wilms in particular, have attempted to obviate this possibility by covering the end of the bone with fascial structures, or, better still, by tendon. My personal experience is limited to one case, and as far as pain

Fig 1

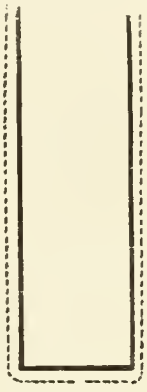

Fig 2

or tenderness is concerned this resulted in an absolute failure. Wilms himself could not obtain an end bearing stump, although he claimed that the stumps were not painful. Inasmuch as no conclusive statistics are available this question can be said to be still in abeyance.

3. Blood-vessels. These not be considered seriously as factors in the production of pain.

4. Nerves. That the cause of a painful stump may lie in the nerves is a fact known to you all and I shall not discuss this phase of the subject at any length. It will be sufficient to say, merely, that only a small minority of painful stumps is due to this cause, and in the vast majority of these there has occurred a violation in the technique of proper nerve division; methods which are known to you all.

5. Bone and Periosteum. Having excluded the four previous structures as factors in the production of painful stumps, we are, *à priori*, forced to the conclusion that the essential etiology must lie in the bone and periosteum. These structures being so intimately related, I shall discuss them together.

The evolution of the disposal of these structures in amputations is highly instructive and interesting to follow. In the simplest method, and, indeed, it is among the earliest, the bone and periosteum are divided at equal levels (Fig. 1). It did not take long for surgeons to discover that painful stumps invariably followed. Conceiving that the pain was due to the bareness of the bone surgeons devised the so-called subperiosteal method, in which a cuff of periosteum was used to cover the bone surface (Fig. 2). But the resuts were anything but good, and, to my mind, even worse. The cuff of periosteum either failed to produce the requisite amount of bone or produced it in such profusion that in the course of time veritable stalactites were formed, and it requires no stretch of the imagination to see how these can contribute to a patient's misery.

The next step was one in the backward direction. Surgeons argued that if an excess of periosteum was baneful, perhaps it would be wise to eliminate the periosteum altogether. As a result the so-called aperiosteal method was devised, in which the periosteum and osteomyelon as well were cut away for a short distance above the sawn surface of the bone (Fig. 3). I have employed this method a number of times in recent years, whenever for valid reasons the osteoplastic method was unavailable, and with, I confess, a fair sense of satisfaction. In one case, however, perhaps due to injudicious selection, necrosis occurred.

Let us now critically examine the reason why the plantar surface of the foot, designed by nature for walking, is not painful, while on the other hand an amputation stump constructed according to any of the previous methods is always more or less so. This may appear to you foolishly obvious, but it remained for Bier to apply the answer lying behind this question toward solving the problem of painless stumps. The answer is this: that in the planta pedis pressure is applied upon normal bone covered by normal periosteum; in the amputation stump, on the other hand, pressure is exerted either upon a sawn surface of bone, or bone not covered by periosteum, or bone covered by inflamed and proliferating periosteum. Acting upon this principle, therefore, Bier devised the method of covering the end of the bone with normal bone, covered by normal periosteum. This is the so-called osteoplastic amputation (Fig. 4). We can now understand the reasons why the Pirogoff, Stokes-Gritti, Sabanajeff, Abrashanoff, and Biers diaphyseal methods of amputation resulted in painless stumps.

Having eliminated pain as a necessary consequence of osteoplastic amputations, it remains to judge the results of such amputations by the second criterion of a good stump, namely perfect physiological function. In the lower extremity physiological function comprises two essentials, support and locomotion. For stumps these same requirements hold good for prosthetic purposes. I do not wish to enter here too largely into the subject of the prosthetic art. I shall merely give you the barest outlines of the principles of prosthetic construction. It is obvious that the best support will be obtained if the weight is borne directly upon the end of the stump. Furthermore, the better the sup-

Fig 3

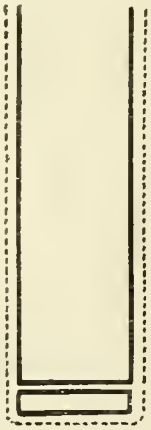

Fig 4

port, the better the locomotion. The attainment of these objects is, however, practically impossible in stumps, not constructed by osteoplastic methods, because of the tenderness. The consequence is that artificial limbs are made so as to draw support from some bony prominence above the end of the stump.

In regard to stumps of the upper extremity, the question of physiological function is not so important; even here, however, perference should be given to osteoplastic technique, because it at least ensures absence of pain and tenderness. I cannot

allow this occasion to pass, however, without mentioning the apparently well directed and meritorious efforts of Vanzetti to enhance the physiological function of stumps of the upper extremity. His ingenious procedure consists in the formation of projecting loops of tendons which are covered by skin. These loops can be attached to various forms of prosthetic apparatus and are capable of performing comparatively complicated movements. The method appears promising and requires more extensive trial.

I shall now return to another phase of the subject of amputation technique that bears strongly upon many of the points that I have already raised. I refer to the solution of the question as to the proper site for amputation. This question is so large that it could easily be made the subject of a separate thesis of considerable dimensions. For this reason I shall discuss the subject merely in a broad way.

The cardinal rule in the solution of the question as to the proper site for amputating is this: Amputate at the lowest possible level commensurate with the existing or prospective viability of the tissues. As I have already said, the quality of the skin or the disposition of the cicatrix should not be considered. The term "seat of election" is a much discussed, and, I fear, a much abused term. This term was much in vogue in former years, when peglegs were the commonest and most available forms of prosthetic apparatus. By "seat of election" surgeons refer to amputations at that part of the leg, usually the upper third, which would enable the patient to wear a pegleg with the best cosmetic effect. I believe, however, that no surgeon should deprive a patient of the possibility of his wearing the best possible artificial leg by any such consideration. The phrase, seat of election, in this sense, can therefore be relegated safely into the limbo of antiquities and should mean nothing but the lowest possible site for amputations. The selection of the proper site depends naturally largely upon the disease calling for the amputation. In a broad way I should urge the utmost conservatism in noninfected traumatic cases and radicalism in rapidly progressive infections and in malignant tumors. There is one malady which I shall discuss more fully; first, because of the frequency of this malady, especially at Mount Sinai Hospital, and, secondly, because the selection of the best site for amputation has hitherto been an extremely delicate task. I refer to Raynaud's disease, or better, as Dr. Leo Buerger has termed it, on the basis of his painstaking researches, thromboangeitis obliterans. Formerly the problem of where to amputate in this disease resolved itself largely into a matter of guesswork. Thanks to a namesake of mine, Moskoviez of Vienna, a test has been offered to us, which affords us a fairly approximate working guide. I describe it briefly. A Martin elastic bandage is applied high up on the extremity sufficiently tight to cause an anemia. After allowing the bandage to stay in place for a few minutes it is unrolled. The extremity is then carefully inspected in order to note the lowest border of the area of primary reactive hyperemia. This is the line where the amputation is to be done. I have found this test to be an extremely reliable guide. When I acted according to this test I have never obtained necrosis; when for some reason or other I saw fit to disregard this test I always obtained necrosis.

In conclusion let me ask you to look up your hospital records of amputations you have performed. I trust and I believe you will probably find that the histories of the vast majority of the patients close with the pleasurable word "cured." This word, however, implies a degree of perfection which the subsequent course of events, if looked into, will not justify. I believe, however, that this consummation will be more nearly approximated, if more frequent resort is taken to osteoplastic amputations. If I have been able to awaken among you a more extended trial of this method, I shall feel myself amply repaid.

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THE PHYSICAL DECAY OF NORTHERN EUROPEANS IN OUR NORTHWEST.

By CHAS. E. WOODRUFF, M.D.,

MANILA, P. I.

In an editorial article in the Medical Record of June 22, 1907, mention was made of the recently discovered harmful effects of the excessive sunshine of Western Canada, and the fact was pointed out that an important experiment in migration was now being unconsciously worked out by the people flocking into that wonderfully rich country. The query as to their ultimate survival has been answered much sooner than was anticipated, for Dr. S. Carlsen of Spring Grove, Minn., has published in a Norwegian medical journal (*Tidsskrit for den Norske Lægeforening*, No. 10, 1909) an account of the rapid decay of Norwegians in our own Northwest, the title of the article being "Influence of climate upon North European emigrants, particularly Norwegians in America." He mentions an article by Dr. Austin O'Malley (*American Medicine*, November, 1908), whose investigation of 34 Irish families, who migrated to the latitude of Maryland after the famine of 1847, and who have since decayed in a startling manner from insanity, epilepsy, chronic nephritis, tuberculosis, and neurasthenia, besides producing a woful number of chronic drunkards. The families which settled in Canada did far better. Carlsen then goes on to show that a similar fate has overtaken the Norwegians who, about the same time and since, have settled in our Northwest. In certain Chicago districts they have been almost completely replaced by southern Europeans; and the decay of those in the rural districts of Minnesota and the Dakotas is marked "in spite of good hygienic conditions, good food, large, airy, and warm houses, and temperate life." The deterioration of the offspring is shown by anemia, lack of development, early dental caries, and catarrhs, while 80 per cent. or more are nervous. "The farmer's daughters are often as slender and delicate as the city women; if we do see a sound, healthy woman with rosy cheeks and strong physique, we may be sure that she is a newcomer from a country district at home." In view of the sturdy condition of the ancestors who built up a prosperous profitable farming community, the decay is amazingly rapid, yet Carlsen states that the Norwegians who settled in Texas about the same time have completely disappeared, not by amalgamation, but by inability of the offspring to develop properly in an unfit climate.

Similar conditions have been mentioned among the Swedes in the Northwest, and he states that Scandinavians are furnishing a deplorable number of inmates of the jails and asylums. Perhaps we

can now see why there is so little trace of the Swedish colonies which flourished in the 17th century in the lower Delaware valley, and though, to be sure, some of the people married into other nationalities and are now represented by mixed type descendants, yet the Nordic type has already disappeared, all the same, through the greater mortality of the descendants with yellow hair and light blue eyes.

In marked contrast to the Norwegian Americans are the phlegmatic stay-at-home cousins so graphically described by Dr. C. K. Austin in the *Boston Medical and Surgical Journal*, July 8, 1909. Norway is a haven for neurasthenics.

Carlsen has come to the conclusion that the blond Norwegians have developed a physique which fits them for the cool, dark, moist climate of the Scandinavian fjords, and that they are injured by both the excessive winter cold and summer heat of our Northwest and particularly by the excessive sunshine against which they have insufficient pigment protection. He shows that they have always died out when they went so far south as Central Italy or Southern Pennsylvania, and that they cannot colonize except in a country resembling their native land. He shows that they can and do survive in Scotland with its 259 cloudy days, but not in Yuma, Arizona, with its 19 or El Paso, Texas, with its 28. Moreover, the excessive number of cloudy days at home has given rise to their instinctive love of the stimulation of their few sunny days, but he states that on coming to America where they get too many such days, they should give up their traditions, hide from the sun, use sunshades, plant shade trees, and avoid overstimulation. He even states that this nervousness is responsible for the appalling number of murders in America—relatively nine times as many as in England and Wales—and enormously greater than in Norway, by the way.

Carlsen's article has made a profound impression in Norway and among Norwegian Americans, and will no doubt check the ancient custom of leaving Norway for southern homes in which permanent survival is impossible. There is already a tendency to look upon all southern lands as places to secure wealth and then return home to enjoy it, and the northern European governments will naturally favor such a policy of repatriation. The ultimate political effects of these new studies of climate and race are therefore bound to be far reaching and revolutionary.

But as for the Canadian West, the ultimate result upon the Baltic type of man must be the same as in Minnesota, only quicker. The hardy blond pioneer himself will survive to old age perhaps, but his children will be smaller, weaker, and more nervous and his grandchildren positively degenerate. The type which should survive there is the swarthy brunet who has been evolved by similar climates in Eastern Europe and Northern Asia.

Among the Norwegians we find the highest percentage of what is now being gradually accepted as the original Aryan, which has had such a profound influence all over the world, whose languages and civilizations are becoming universal. They are the most valuable element of our population, and we should try to preserve them as many generations as possible, unless we are to depend upon a constant stream of immigrants who in time will only look upon America as an outlying plantation, and consider Scandinavia or Scotland as their real home. The medical profession, therefore, has a keen interest in the problem of living in the intense sunshine of Western America.

The decay of northern types shows that survival of migrants is not solely a matter of avoiding the infections, as believed by Colonel Gorgas. His wonderful work at Panama has led him to believe that since Europeans have been able to escape death a few years, therefore they can raise children there, and permanently colonize the tropics, and that the differences between Norwegians and Mediterraneans, so carefully evolved by nature, are meaningless. But really, nature is not foolish to go to all this trouble of selecting the fittest. If Scandinavian colonization is impossible in our west, how utterly impossible must it be in the tropics.

It must not be forgotten that family survival is often possible even when certain types die out. Davenport is proving that Mendel's law applies to man, more or less rigidly. If, therefore, a Baltic type marries a Mediterranean, for instance, the offspring are not blended, but the characters of each parent exist segregated, some evident and others hidden or partly hidden. In subsequent generations the characters may appear as now so clearly explained. We constantly see brothers and sisters of opposite type, and if one type has a higher mortality, the other perpetuates the family and the unfit ancestor leaves no trace.

A recent observation of the offspring of half-breed Indians in Western Canada has shown some to be almost pure Indian in type and some to be almost pure European in the same family. Under such circumstances the lines, by survival of the fittest, revert to the Indian. It is now believed that the ancient Aryan type died out in India quite promptly, although the ruling families may have survived a long time, indistinguishable from Hindus. This is the process which is making our old stock brunet, although in the extreme northeast some few yellow-haired types still persist even where not attributable to infusion of new blood. Havelock Ellis has shown that the same increasing brunetness is an almost universal phenomenon in the great families of England, where, as a rule, the fortunes of the family were established by a blond of the recent invaders, who married into the more brunet native stock, and the blondest offspring disappeared through higher morbidity due to the same defective development shown in higher degree by the Norwegians in America. The kings of England, up to the time of Elizabeth, were generally of this tall blond invading stock, often with yellow hair, as in Edward IV, but the type has almost disappeared in the royal family.

There is no doubt that as we go from the Equator to Scandinavia and Northern Scotland, the average weight of the brain and average intelligence increase. There is also no doubt that we think with our brains and that the bigger they are the better the thoughts. That is the reason nearly all of the world's great thoughts arise in the northwestern corner of Europe or originate with migrants from that place. To be sure, when we find post-mortem that some highly trained specialist attained distinction in a very limited sphere with a brain smaller than the average, some man arises to remark that brain weight has no relation to intelligence. Only recently a college professor expressed amazement that the brain of some other professor was smaller than that of an ignoramus who had never had any training, assuming that college professors were

necessarily more intelligent than those in outer darkness. As a matter of fact some of our grandest teachers have attained greatness simply because they had brains capable of specialization, and have been notoriously ignorant and stupid in other lines.

Brain weight does count after all is said, and it should be our national policy to favor the immigration and survival of races having the highest average brain weight, and those are the races in the blond area of Europe. It is appalling that they should die out as quickly as Carlsen shows and as others have shown. Something can be done to preserve them longer and that something is the realization by the medical profession that nature is not a fool. We must learn why Norwegians can survive millenniums in Norway or its vicinity but not in America, except here and there. Whenever I see a marked blond I always investigate his ancestry and his family is generally found to be a recent arrival, the few exceptions being in those who have remained in our cloudiest coldest places east of the Mississippi Valley. I have gone into this matter more fully in my book, "Expansion of Races" (The Rebman Co.), but this little article of Carlsen's shows that the matter of deterioration of migrants in unfit climates has much more profound results than any of us have hitherto realized. A recent observation of the graduating class of a New England college, where nearly every member was of the intelligent prosperous classes, mostly old stock, showed a remarkable uniformity of complexion—the hair color being medium or light brown. Black hair and dark eyes were decidedly fewer than blond hair and light blue eyes. The class represented the survivors of Aryan invaders of America.

It must also be remembered that northeast and east of Scandinavia we have conditions similar to the east of our Rockies—cold winters, hot summers and excessive sunshine—but that west of the Scandinavian mountains the conditions are almost identical with western and southern Alaska, a place which is already proving wonderfully suited to northern Europeans, for it has the same latitude and same seasons and cloudy climate. There is where survival of the Aryan type can be predicted *a priori* and where experience already proves we are bound to have an influential, rich, vigorous, and highly intelligent population. Since the world has long been in control of this northern type of man, which has also been in Scotland for some two or three thousand years, it is not at all a stretch of the imagination to look to Alaska as the future breeding ground for the supporters of American civilization. The ignorance of Alaska's agricultural and residential possibilities has heretofore prevented our realization of these stupendous facts, but, perhaps, the publicity given to them by the Seattle Exposition will force them on public attention. Perhaps, in time, immigrants from Norway will go straight to the Alaskan fjords, where they will find a new home identical with the old—a new Arya.

To-day I was consulted by an American who had been here less than two months, working daily in the tropical sun. He evidently brought tubercle bacilli with him, but the heat and light have destroyed his resistance and he is now a far advanced case, liable to die before this letter reaches its destination—so rapid is the disease when we are out of adjustment to the climate. If he had gone to southern Alaska he might now have been on the road to recovery.

As a health resort for neurathenics alone, our northwest coast deserves attention from the medical profession, but as a breeding ground for our future governing class, it must be considered seriously by everyone. The Alpine and Mediterranean types now flooding the land and surviving as the fittest in a climate suitable for them, never have upheld an Aryan civilization and never will. For thousands of years they have been organized by a northern blond aristocracy whom they would not permit to engage in trade or the mechanical arts of the people organized. History repeats itself when the conditions are the same, and we are bound to find this northern type of our mixed population, the leaders and the supporters of civilization; and all this in spite of the fact that the two brunet races furnish occasional variations of wonderful ability. Already, many observers have noted the fact that practically all our leaders have names indicating an origin in northwest Europe.

In addition, it is evident why there is such a tremendous movement to return to the ancestral northern home. They find comfort, peace, and happiness in the cool mists and fogs, protected from the goading heat and light of America. Why not shunt them off to our northwest coast? The Carnegie type of American is carrying back "home" immense quantities of America's wealth; can the flow be checked, or is it merely natural law? Chinese, Japanese, Italians, Swedes, Poles, Slovaks—indeed all of them—are beginning to do the same. Is America to be merely the wealth producer for Europe?

THE TREATMENT OF PULMONARY TUBERCULOSIS BASED ON THE ASSUMPTION THAT THE DIETETIC CAUSE OF THE DISEASE IS LIME STARVATION.

DISCUSSION OF THE HYPOTHESES.*

By JOHN F. RUSSELL, M.D.,

NEW YORK.

The mysteries of physiological chemistry are so profound that an attempt to explain pathological chemistry and physiology is but a step into greater darkness. But, since all experiments in the treatment of disease must start from some working basis and the really important matter is the result of such experiments, the excuse for the following is that, right or wrong, the reasoning seems to the writer to have led to a decided improvement in the dietetic treatment of pulmonary tuberculosis and its further application may lead to better results in the treatment of other disease conditions which readily suggest themselves, but which the limit of this paper forbids special discussion of here. For example, it is hoped that it will be made evident that a milk diet without acid, or accompanied by acid foods, is wrong in the prolonged fevers of adults, because it seems well settled that fever is the commonest cause in checking the secretion of hydrochloric acid in the stomach. In consequence lime starvation, more or less severe as the case may be, results. If milk is given raw and undiluted its normal acid appears to be sufficient to activate rennet-zymogen in children, in the majority of cases, but not so often in adults. The latter appear to need a greater degree of acidity. A milk diet accompanied by acid, in fever, is theoretically per-

*See article on the preliminary report of the results of treatment in the MEDICAL RECORD, November 27, 1909.

fect because, in a given quantity, milk contains the greatest amount of lime salts of any food, and casein is the most easily digested of all the albumins. In this connection the old practice of giving "refrigerant" drinks during fever is interesting. All cases of pregnancy and lactation should be treated after this plan. Again, in recent years a great deal of interest has been aroused in the possible relation of epilepsy, tetany, and the nervous manifestations of rickets to disturbances in lime metabolism.[1] Any means which will aid the assimilation of this element should be of value in these investigations. Its bearing upon the work of the surgeon scarcely needs mention. Because the success of his work is so immediatelly connected with the repair of flesh wounds and fractured bones, the normal absorption of lime becomes of the greatest importance. This applies to the management of diet before as well as after operation as will be made clearer later on in the paper.

Such brevity in the following is much regretted but, under the circumstances, unavoidable.

In order to support the assumption that lime starvation is the dietetic cause of tuberculosis it is necessary to show, First, That this condition is equally prevalent and that it is common to all ages. Secondly, How this condition favors the growth of tubercle bacilli. Thirdly, How lime starvation is produced.

1. The most prevalent disease of childhood is rickets. True rickets has been produced in animals by feeding them food deficient in lime.[2] Most writers admit that a deficient supply of lime will result in rickets, but deny that this is the only cause of rickets, chiefly on the ground that the disease develops in children whose food contains an ample supply of lime. It was then pointed out that the result will be the same whether there is deficient supply or deficient absorption of lime and that, in the cases just mentioned, the fault lay with absorption. To answer this it was shown by experiments that lime is absorbed when administered to rachitic children.[3] The suggestion advanced in this paper is that while lime phosphate (and probably other salts of lime) may be absorbed from the alimentary canal and reach the blood current as an inorganic salt, unless it has first formed certain combinations with organic matter it cannot be employed by the tissues as building material. As will be shown later these combinations are the result of the action of rennet. Cases of rickets which develop in children whose food contains a sufficiency of lime are due therefore, to lack of rennet in the gastric secretion.

Rickets is here considered as typical of lime starvation in the young. What are the symptoms of lime starvation in the adult? Rickets should not be regarded as a bone disease merely, for it involves the structure and function of muscles, ligaments, mucous membranes and all the organs of the body, particularly those of the nervous system. In experiments upon animals it has been observed that the symptoms which followed the administration of food lacking in lime varied in the order of their appearance and in their severity. These variations were found to be due to the age of the animal and the rapidity of its growth. Young, rapid-growing animals develop severe bone symptoms first while in the more mature or fully grown, muscular and nervous symptoms predominate. Man is a slow-growing animal and it is a common observation that many cases of rickets pass unrecognized. That is, a child may develop symptoms of muscular, nervous and digestive disorder, which are really due to rickets, but because bone symptoms are not pronounced (the grade of lime starvation being mild) the disease is not recognized until later in life when distinctive bony deformities have made their appearance. In other words, a positive diagnosis of rickets is not made without bone symptoms.

The prominence of bone symptoms in rickets is due to several causes. First, The incomplete development of bone at the age when the disease occurs, consequently failure of their chief function, support. Secondly, The irritation produced by muscular effort upon bones which are not only incompletely developed, but, just at this age, are growing with great rapidity. Thirdly, Their impaired rigidity, due to lack of lime phosphate, resulting in deformity. All organs, including bone, continue to grow during the course of rickets. That is, there is an increase in organic material; lime phosphate is deficient. The greater this imperfect development and the longer it continues, the more pronounced the signs of the disorder. It seems clear that if the disease occurred after the bones were developed symptoms of their disorder would be insignificant and of different character. This applies also to the nervous system. Nervous symptoms are more pronounced in all diseases of children because of the great instability of the nerve centers, due to their incomplete development. Lime starvation occurring at an age when the organs are developed would manifest itself by signs of different relative importance. Lime phosphate would not be needed for the development of the organs but, since a daily supply is necessary to repair physiological waste, a deficiency of this salt would nevertheless cause symptoms of impaired function. The name rickets is a misnomer, even for the disease in children, but suppose for illustration we imagine rickets to have developed in an adult. In such case bone symptoms would be practically absent; certainly far less pronounced than those arising from disorder of organs more immediately connected with vital processes. The changes in bone due to rickets are characteristic and, therefore, distinguishable from those due to other diseases. Unfortunately there are no signs by which muscular, nervous, and digestive disturbances due to lime starvation, unaccompanied by bone symptoms, may certainly be distinguished from those due to other causes. Nevertheless, such symptoms are known to occur in animals when there is an insufficient supply of lime.[2] My purpose is to suggest that the symptoms of lime starvation in man differ at different ages in the same way and for the same reason as in animals of different ages which are fed on food lacking in lime. In children, bone, muscular, nervous, and digestive symptoms occur; disturbances in bone and the nervous system most pronounced. In the more mature and adult, bones being developed, muscular, digestive, or nervous symptoms are most pronuonced and of different character because of the difference in the stage of development.

The condition which is recognized as preceding the active development of tuberculosis in the adult may be considered as due to lime starvation and its degree of severity varies just as it does in the disease of infancy.

2. Among inorganic substances lime salts appear

to be of special physiological importance. The formation of cells,[4] the clotting of blood and milk, nervous and muscular equilibrium,[1] depend upon their presence. Phosphate of lime forms a part of the normal structure of every organ in the body. Lime is being constantly discharged from the body as physiological waste material. It is, therefore, an essential food element. Three results must then follow an insufficient supply of lime. First, imperfectly developed organs. Secondly, lowered resistance to disease. Thirdly, lack of power to repair physiological waste; lack of power to repair injury. Imperfect structure of an organ leads to impaired function. Resistance to disease is a physiological function, therefore, imperfect organs must exercise imperfect resistance. Growth and repair are dependent upon cell formation. Cell formation will not take place in the absence of lime phosphate. Again, disease having been established, its extension is unobstructed because no plastic effusion is possible in the absence of lime phosphate. In other words, lime does not act as a poison to the bacillus in the treatment of tuberculosis, but serves to restore the normal protective function of the cells in producing a fibrosis at the point of irritation caused by the growth of the bacillus.

3. Lime starvation will result, (1), when there is a deficient supply of lime in the food. (2), when there is lack of absorption in a form suitable for cell-food. The first proposition needs no discussion.

Many substances are absorbed from the alimentary tract which are not of service for nutrition. After circulating in the blood they are excreted unused by the tissues. This appears to be the case with many inorganic salts taken with the food in excess of the needs of the body. It is conceivable that this may occur with the soluble salts of lime and to some extent with the insoluble phosphate. For, as has before been stated, it has been demonstrated that the alkaline blood-serum has the property of holding earthy phosphates in solution, but if the salts are not in organic combination it is difficult to suppose that the cells can appropriate them for food. To be available as nutriment they must be organically combined. Physiologists are agreed that the absorption of lime phosphate in an assimilable form, is best assured when in combination with proteid substances. As before stated it is suggested that the action of rennet in the stomach causes the chemical combination of lime phosphate and casein. It is admitted that the action of this enzyme results in a combination of these substances. The question has been whether the combination is mechanical or chemical. It is necessary for my purpose to show that this union is chemical. For otherwise, if mechanical only, the presence of lime must be looked upon as accidental and the action of rennet without importance for its absorption in an assimilable form. If, on the other hand, this combination is accepted as chemical then it is a fair inference that the action of rennet upon casein in the presence of lime must have an important bearing upon, if it is not essential for the further digestion and preparation of lime for absorption in a form suitable for the nutrition of cells.

Pure casein has a peculiar affinity for lime salts, particularly the phosphate, and combines with them chemically.[5] I have been unable to find a demonstration of the condition in which lime phosphate exists in paracasein. It apears to be an unusually difficult chemical problem. Various authors have, however, expressed very decided opinions. A few of the older writers state that the lime in the precipitate produced by the action of rennet on cow's milk (paracasein) is mechanically combined.[6] Their statements are not positive and imply doubt. The more modern writers all speak of paracasein as a lime salt of casein.[7] The conclusion is plainly justified that these authors regard the combination as chemical. If this conclusion be accepted it follows that in the absence of rennet the chemical combination of lime and casein will not take place. What is the influence which prevents the presence of rennet in the gastric secretion?

Rennet occurs in the stomach either in an active free state (as in calves and sheep) or in the form of an inactive zymogen which is transformed by acids into the active form.[8] In man it occurs in the form of zymogen. Its presence is never wanting in sucklings.[9] The formation of the ferment from the zymogen is entirely dependent on the presence of free acids so that in the absence of the latter from the gastric juice the free ferment is invariably wanting, even though the zymogen is present.[10] Almost all acids may be used for converting zymogen into the active ferment. The best is hydrochloric acid; the least effective, acetic acid.[8] In the stomach lactic acid and other organic acids also act as zymoplastic agents, in the absence of hydrochloric acid. Rennet zymogen is never absent from the stomach of man, even in pathological conditions, unless the secreting glands are destroyed, as in carcinoma.[11] It is evident, therefore, that insufficiency of free acid is the cause of deficiency of free rennet in the stomach. Calcium chloride also is said to activate zymogen.[12]

Absence of free hydrochloric acid from the gastric secretion has been reported in many diseases, particularly during fever and gastrointestinal disorders of both children and adults.[13]

Lime starvation must follow very quickly the complete absence of free acid; but because, in the majority of instances, lime starvation develops very slowly it is probable that variation in the degree of acidity is the commonest fault. The necessary daily amount of lime is small, especially in adults, and if there is enough hydrochloric acid secreted by the stomach, or organic acids taken with food, to bring about the combination and normal absorption of a small, though still inadequate amount of lime, evident symptoms of starvation will be delayed for a long time.* This would explain the exacerbations and remissions observed in the course of tuberculosis.

Rennet or its zymogen has been demonstrated in the stomach and many other organs of animals, birds, and fishes; in the digestive juices of carnivorous plants and in the fruit, leaves, seeds, or other parts of many trees, plants, and vegetables. It is found in bacteria and it is particularly interesting that this ferment has been prepared from the bacteria which occur in milk. This extensive occurrence of rennet in nature obviously points to some broader function of the enzyme than the clotting of milk.[15] If it could be demonstrated that the action of rennet upon casein from any source, as well as that contained in milk, in the presence of lime brought about a combination, it might be infer-

*Recent investigations make it appear that present methods for the determination of the degree of acidity of stomach contents are inaccurate.[14]

red that in this manner animals and plants received their necessary lime for growth and reproduction and a partial explanation at least, of the frequent occurrence of rennet given. But, even in this case, the explanation would not be complete. Vegetable casein is found in many plants (the leguminosæ), but it is difficult to believe that enough casein would be obtained from this source by fowl, for example, to satisfy their large demand for lime combination. If it could be shown that the action of rennet brings about a combination of other albumins and lime as well as casein and lime the reason for the presence of rennet in all these situations would be clear. So far, however, such combination has not been proven.

If it is true that lime starvation favors the growth and development of tubercle bacilli, it follows that rickets and conditions which lead to lime starvation, such as pregnancy, lactation, prolonged fevers, should show a marked tendency to be followed by infection with tubercle bacilli.

Tuberculosis is far more frequent during the time of the greatest growth activity, in the second to the third year than it is, for example, in the sixth to tenth year, in which growth has become slower.[16] The reason all rachitic children do not develop tuberculosis is because (1) they either do not become infected with tubercle bacilli during the active course of the disease, or (2) having become infected, their lime starvation is relieved and the further growth of bacilli checked, because the cure of rachitis must obviously also be the cure of tuberculosis. Rachitic children develop tuberculosis when infection takes place and their lime starvation is unrelieved or incompletely cured.

In the United States no race is exempt from rickets. In New York City the greatest susceptibility is among Negroes and Italians. Extreme cases of rickets are almost invariably in one of these nationalities. It is exceptional to see in a dispensary or hospital a child of either of these races who does not show, to a greater or less degree, the signs of rickets.[17] The mortality rate from pulmonary tuberculosis among Negroes, in the Negro block, is 3½ times that of the average for the city.[18] The mortality rate from pulmonary tuberculosis among Italians in New York City compiled by the Health Department, is said by a recent writer [19] to be misleading when employed to estimate the frequency of the occurrence of the disease in this race. He explains that pulmonary tuberculosis is very prevalent among Italians in New York City and "it is a well known fact that all adult Italians once affected by a serious disease, and so informed, board the first steamer and go back to Italy to die." This writer quotes the following as an illustration of how common the disease is among emigrants who return to Italy. "The total number of emigrants who returned to Italy in 1906 was 81,412, of whom 5.61 per 1,000 were cases of advanced pulmonary tuberculosis."

Another proposition is suggested, viz., the organ which suffers most from lack of lime in its organic structure at the time of infection should become the seat of tuberculosis. But there are no chemical observations showing which of the various organs of the body suffers most during lime starvation occurring at different ages.* When the active development of bone begins, its demand for lime becomes enormous, comparatively speaking, and, if there is a deficient supply, this organ must suffer most at this period. If infection with tubercle bacilli now takes place bone offers the least resistance and becomes the seat of disease. That bone tuberculosis does not manifest itself during the active course of the disease is explained by the fact that rickets, though prolonged, ends in recovery in the large proportion of cases so that the growth of tubercle bacilli, always slow, meets with great resistance in this situation and only manifests itself after a prolonged contest in those cases which end in incomplete recovery. In adults and children, during the first two years, the seat of election is the lungs. Rickets occurs most frequently between the ages of six months and two years. That the structure of the lungs especially is impaired during lime starvation and its resistance to disease lowered in consequence is suggested by the tendency of rickety children to develop pulmonary disorders. For example, as before stated, rickets in New York City is found more frequently among Negroes and Italians than any other race. In this city the mortality rate for bronchopneumonia is highest among Italians and Negroes. The Italian rate reaches the enormous height of 710 per 100,000.[21] Tuberculous meningitis is always secondary to other tuberculous lesions. Its frequency in children may be explained by the condition of the blood-vessels during lime starvation, to be mentioned later.

Every physician has witnessed the dire effect of pregnancy and lactation upon the course of tuberculosis. Pregnancy usually hastens the process, though it may be held in abeyance. After parturition the disease advances rapidly.[22] Pregnancy and lactation frequently introduce tuberculosis.[23] Certain of the specific fevers predispose to tuberculosis, among which measles and whopping cough stand prëeminent. Typhoid fever is thought by some to predispose to tuberculosis and influenza, variola, and syphilis are all believed to favor the development of the disease.[22]

Bovine Tuberculosis.—Dairy cows are kept in a constant state of either pregnancy or lactation or both. These conditions call upon the animal for large quantities of lime. During pregnancy the supply of lime necessary for the development of the fetus is large, and if the amount excreted in milk is added to this, the total becomes very large. For example, a cow yielding twenty quarts of milk loses about 480 grains of lime daily by this channel alone.

Because pregnancy and lactation are normal conditions and should not, therefore, produce disease, it is suggested that the cause of tuberculosis in these animals is due either to improper methods of breeding or an insufficient supply of proper food or both.

If pregnancy and lactation are factors in the causation of tuberculosis in dairy herds statistics should show greater prevalence of the disease in cows than in bulls and calves, and if their breeding and feeding is at fault, statistics should show greater prevalence of the disease among domesticated cattle of both sexes, among which such matters are controlled, than among cattle the food of which is abundant and of proper quality and their instincts, both as regards breeding and choice of kind and quantity of food, are unrestrained.

Certain facts should first be considered.

*Organic demineralization has recently been suggested, however, as a cause of tuberculosis.[20]

The extent of the occurrence of tuberculosis among animals is striking. The disease has been found practically in all species of animals, cold as well as warm-blooded. But there is a very great difference in the frequency of its occurrence in different species. With some it is common, with others rare. In other words, some species exercise great resistance to the growth of tubercle bacilli while others develop the disease on slight exposure to infection. Individuals of the same species differ in their power of resistance to the growth of tubercle bacilli just as species differ, though it may be in less degree. The power to resist the growth of tubercle bacilli when exposed to infection is therefore, as great, if not a greater factor in the spread of tuberculosis than the mere exposure to infection. For example, the classes of all species most affected are breeding animals and dairy stock.[24] Among ruminants tuberculosis is of much more frequent occurrence among bovines than among sheep and goats. Among bovines it is much more frequent in cows than in bulls and steers, and is very rare in calves, though the mothers may be tuberculous and the young are constantly exposed after birth. The number of tuberculous cows found in dairy herds is very large, but it is noticeable that even among these highly susceptible animals some individuals escape. Goats escape infection under surroundings and conditions most unfavorable for bovines. For example, "In Prussia, in 1899, in 381 slaughter houses 47,705 goats were killed. Of this number only 148 head (0.41 per cent.) were infected, either generally or locally. This result must be the more astonishing because the goats, with only a few exceptions, were kept under conditions eminently favorable to the spread of tuberculosis. Petersen, quoting these same figures, says that the goats ran freely in the cattle sheds, ate out of the racks of the tuberculous cows, and, owing to the well-known proclivities for mischief, took hay out of the mouths of the cattle, whereby they exposed themselves to the greatest possible infection."[25]

All statistics, both those of foreign as well as those of domestic slaughter houses, show that tuberculosis is more common in cows than bulls, steers, or calves. But the difference in the frequency of its occurrence in foreign slaughter houses and the large slaughter houses of this country is striking. For example, statistics from German abattoirs[26] show that 6.9 per cent. cows, 3.6 per cent. steers, 2.6 per cent. bulls and 1 per cent. of the young are tuberculous, while in this country under Federal inspection of 4,841,186 cattle slaughtered in 1900, 5,279 or 0.11 per cent. were sufficiently affected to cause condemnation of any part of the carcass.[24]

These facts may be explained by the hypothesis of lime starvation as follows:

The susceptibility of bovines to tuberculosis and the comparative immunity of goats may be explained by the difference in size of the animals.

In the artificial production of rickets in animals it is observed that large animals develop rickets much earlier and more certainly than small (large dogs in 22, small ones in 90, days). "A diet which supplies the need of lime for a small growing organism is not sufficient for a larger organism, since the latter does not take an amount of food proportional to his greater growth wherefore, he takes comparatively less lime. The animals of large build, therefore, demand a diet relatively richer in lime."[2] If, however, small animals are subjected to conditions which call for large outputs of lime, particularly if this loss is not supplied by proper food, these animals will also develop lime starvation. The great resistance to infection ordinarily displayed by goats has been mentioned and yet tuberculosis is occasionally found in herds of milch goats. For example, "There was a goat (in a large herd of 28 head) which had been brought for treatment and which, after its death, which soon followed, was found to be tuberculous to a high degree. This made it imperative to inoculate the remaining 27 head with tuberculin. In 18 of these, in consequence of the inoculation, a rise of temperature occurred of 1° to 2.5° C., and only in 9 did the increased temperature amount to less than 1° C. (0.6° to 0.9°). Because of this result 68 per cent of all the goats had to be retained on suspicion of being tuberculous, and only 32 per cent. were to be looked upon as probably free of tuberculosis. The owner could only make up his mind to have three slaughtered, of which two were suspected of being tuberculous and one was probably free of the disease, the result justifying the conclusion that the diagnosis was correct."[25] Milch goats if not restrained will breed twice a year and sometimes three times in a year. Such frequent breeding is recognized as injurious for the doe, but, if it were allowed to take place, and at the same time these animals obtained an insufficient supply of proper food, lime starvation would result and their resistance to infection destroyed. It is a fair inference that some such condition prevailed in the herd just described.

The insusceptibility of calves to tuberculosis has everywhere been noted. It has been recorded that calves produced by tuberculous cows, and left with the mothers until weaned, rarely show reaction to tuberculin and if separated from the mothers after weaning, as rarely develop tuberculosis.[27] Two explanations may be offered to account for the immunity of calves. First, they receive an ample supply of lime from the mother's milk. Secondly, rennet is found free in the stomach secretion of calves so that they are enabled to utilize all the available lime received. Possibly this may explain also the great difference between the human and bovine young in their susceptibility to tuberculosis.

It has been observed that beef cattle coming to our markets are singularly free from tuberculosis. As before stated tuberculosis is, however, found among them (.11 per cent.) and it is, therefore, manifest that the resistance of all classes, cows, steers and bulls, to the growth of tubercle bacilli is much greater in beef cattle of this country, than in similar animals of foreign countries. Most of the animals slaughtered for beef at the great packing houses of this country are raised on the plains and it is probable that their increased resistance is due to this fact. Of the many advantages for maintaining health which range cattle possess, such as less close association, wider excursions, etc., the greatest, it is but fair to assume, is the character of the food and the opportunity to exercise their unrestrained instinct in the selection of its kind and quantity.

Nature furnishes proof of the importance of lime, and normally supplies special sources of sup-

ply, during pregnancy. Theses stores occur in the form of osteophites and disappear after parturition. Pregnancy and lactation are normal conditions and it is incredible that under normal conditions they should lead to disease. Faulty digestion, as well as faulty diet, produce lime starvation in man. Among domesticated cattle the chief cause would appear to be defective methods of breeding and improper or insufficient food.

The following apparently disconnected subjects are briefly discussed because of their relation to lime and tuberculosis.

Hemoptysis.—Hemorrhage from the lungs is frequent in pulmonary tuberculosis. Repeated attacks occurring in the course of the disease make the prognosis unfavorable. Common as this symptom is it is not diagnostic of tuberculosis. Cases of hemoptysis have been recorded by careful observers which recovered and pulmonary disease did not subsequently develop.[28] Hemorrhage from the lungs may be explained by the disordered nutrition of the blood-vessels, to be mentioned later, caused by lack of lime phosphate. In the cases which recovered without subsequent signs of tuberculosis, lime phosphate was either restored before infection took place or in time to check the further growth of tubercle bacilli. Repeated and profuse attacks of hemoptysis indicate a severe grade of lime starvation and necessarily increase the gravity of the disease.

The Degeneration of Tubercle.—All tubercles undergo either softening, fibroid limitation, or calcification. Fibroid limitation and calcification are healing processes. Fibroid limitation means the growth of cells, which cannot take place in the absence of lime phosphate. Recent studies in pathological calcification show that the presence of fat is necessary for the deposition of lime.[29] Caseation of the tubercle, therefore, affords suitable soil for the deposition of lime salts and the formation of lime soaps and leads to healing by calcification. If too little lime is supplied, softening proceeds, and the disease extends.

Fat and Lime.—It is a universal practice to prescribe fat in the treatment of rickets, scrofula, and tuberculosis. The beneficial result from this practice is mentioned by all observers. The explanation is unknown. Allusion has been made to the relation between fat and lime in pathological calcification. The probabilities that the same relation obtains in normal calcification has been discussed but no conclusion reached.[30]

The Raw Meat Treatment of Tuberculosis.—The systematic, continued exhibition of raw meat in the treatment of pulmonary tuberculosis has been followed by good results. The purpose in mentioning it here is to suggest that the explanation of the good results of this treatment lies in the fact that raw meat is acid and contains rennet. Most meat is poor in lime, but one writer unconsciously supplied the deficiency in this regard in the treatment of his cases by adding, as he says, "one, two, or three eggs nature-swallowed like oysters" before each meal.[31]

Infantile scurvy and rickets frequently occur together in the same individual. Infantile and adult scurvy appears to be identical diseases. Scrofula and tuberculosis are associated. There is reason to believe that these diseases may all be merely different manifestations of the same fundamental disorder, viz., lime starvation.

The object in undertaking these experiments was to advance the dietetic treatment of tuberculosis and, while a discussion of the diseases just mentioned is not necessary for the fulfilment of this object, and I have no experience in their treatment to relate in support of the suggestion made, yet, in view of the importance of these diseases, a brief discussion of this conception of their origin does not seem inappropriate. It appears to the writer to be but carrying the hypothesis to a logical conclusion.

Three facts suggest a common cause for rickets and infantile scurvy. First, the two diseases are very frequently present at the same time in the same infant. Secondly, both diseases occur most often in artificially fed infants. Thirdly, the administration of acid food (raw milk and fruit juice) acts as a specific remedy in infantile scurvy.

1. In rickets, symptoms due to changes in bone, in scurvy, symptoms due to changes in blood-vessels and blood, are the most characteristic and striking. These differences are relative only, and due to differences in the degree of lime starvation. Scurvy is an acute disease and results when the supply of lime is entirely cut off. The blood is constantly losing lime by way of the intestines and kidneys. Tissues which are richer in lime yield part of their supply to the blood, but this source must soon fail, particularly in infants whose organs are still incompletely developed. All organs require lime phosphate for their normal development and the repair of waste. All organs, therefore, suffer when there is an insufficient supply, and the most urgent and striking symptoms will arise from derangement of the most vital organs. Nutritional derangements occur in the walls of the blood-vessels, in common with all of the organs of the body, and are quickly made manifest because the normal circulation of the blood is dependent upon their integrity. Changes in the walls of the blood-vessels allow the transudation of the blood. The most striking changes in the blood are caused by lack of lime, because the normal clotting of blood depends upon a normal supply of lime. As between the walls of the blood vessels and the composition of the blood, the vessels will suffer first because but one salt of lime, the phosphate, will answer for their nutrition. A number of lime salts will serve for the clotting of blood.[32] Possibly, even in the total absence of rennet from the gastric secretion, the soluble salts of lime, after absorption from the alimentary canal as inorganic salts, may be combined in the blood current to a slight extent, because rennet has been demonstrated in blood-clot.[33] Rickets is a chronic disease and is the result of a lesser degree of lime starvation. In this disease the walls of the blood vessels are affected, for it has been demonstrated that the heart, arteries, and capillaries are enlarged,[34] but the changes are not extensive enough to allow transudation of blood. From this reasoning it follows that it is possible for rickets to occur without scurvy but inconceivable that scurvy should occur without some degree of rickets. It will be remembered that, in the absence of hydrochloric acid, organic acids may serve to activate rennet zymogen. The treatment of infantile scurvy by fruit juices or raw milk, or both, has probably prevented in many instances the farther development of rickets.

2. The natural food of infants is milk. In ad-

dition to lime and casein normal human and cow's milk contains citric acid which, it is assumed, has power to activate rennet zymogen.* Rickets and scurvy develop when the secretion of hydrochloric acid has diminished and the infant is fed milk which has been prepared in such a manner that its property of activating rennet zymogen is destroyed. This follows too great dilution with water, the addition of alkalies, and heating. Diminished secretion of hydrochloric acid follows some of the many influences which cause fever in infants, such as improper feeding, gastrointestinal catarrh, bronchopneumonia, the exanthemata, etc.

Citric acid is destroyed when milk is heated. It combines with lime and falls as the insoluble citrate of lime.[36] The action of rennet is delayed or entirely destroyed, 1, when raw milk is diluted with water, the particular effect depending upon the degree of dilution; sixty per cent. destroys the action. 2. The action is destroyed when more than thirty per cent. lime water is added to raw milk; when more than fifteen per cent. is added to heated milk. 3. When milk is heated; so-called sterilization. It is interesting, that raising the acidity of largely diluted raw milk and largely diluted sterilized milk, without the addition of lime, causes a clot with rennet in normal time.

The following tables show the action of rennet after adding very weak solutions of dilute (10 per cent.) hydrochloric acid to either raw or heated milk.†

RAW MILK DILUTED 50 PER CENT. WITH WATERY SOLUTIONS OF HYDROCHLORIC ACID OF VARIOUS STRENGTHS.

	Time of Clot. (Body temperature)
Plain water.	100 minutes
Strength of acid solution:‡	
1/10 of 1 per cent. acid solution.....	5 "
5/100 of 1 per cent. acid solution.....	5 "
2/100 of 1 per cent. acid solution.....	5 "
1/100 of 1 per cent. acid solution.....	25 "
Action of nitric acid the same.	

HEATED MILK (ARNOLD STERILIZER 20 MINUTES) DILUTED 50 PER CENT. WITH WATERY SOLUTIONS OF HYDROCHLORIC ACID OF VARIOUS STRENGTHS. ACID SOLUTIONS ADDED AFTER HEATING.

	Time of Clot. (Body temperature)
Plain water did not clot at end of 20 hours.	
Strength of acid solution:‡	
1/10 of 1 per cent. acid solution.....	5 minutes
5/100 of 1 per cent. acid solution.....	10 "
2/100 of 1 per cent. acid solution.....	1 hour 5 min.
1/100 of 1 per cent. acid solution.....	2 hrs. 55 min.

When raw milk is diluted 50 per cent. with the strongest watery solution of hydrochloric acid mentioned above (1/10 of 1 per cent.) and raised to a temperature of 100 deg. Fahr., curds are at first produced but are so fine as to offer no obstruction to the passage of the mixture through a rubber nipple. After a few miutes these curds are dissolved by the hydrochloric acid and disappear.

*It has been suggested by others that citric acid may be the antiscorbutic element of fresh milk[35].

†Attention is directed to the fact that length of time required to produce clotting of milk by rennet, in a given series of experiments, is only relative. Milk from different dairies, milk from the same dairy on different days and different parts of the same day, difference in strength of solution of rennet used, will all show difference in time results. In the above experiments, conducted in the writer's laboratory, the same milk and same solution of rennet were employed. As soon as milk was received in the morning experiments were begun and completed as soon as possible.

‡The percentage of acid refers to the watry solutions, not to the mixture of solution and milk.

In the light of the foregoing the course of rickets toward spontaneous recovery is explained by the intake of acid foods. Improvement usually begins about the time that undiluted raw milk, meat, vegetables, and fruit are added to the child's diet.

Adult Scurvy. The conception that adult scurvy is caused by lime starvation receives support from (1), symptoms which point to changes in bone, (2), lack of power to repair injury, and (3), the character of foods which act as specific remedies in the treatment of the disease.

1. In advanced cases (adult scurvy) necrosis of bones may occur, and in young persons even separation of the epiphyses. There are instances in which the cartilages have separated from the sternum. The callus of a recently repaired fracture has been known to undergo destruction.[32]

2. Traumatism, even slight, is often followed by serious results. In confirmed scurvy the slightest pressure suffices to open the skin and give rise to an ulcer which increases rapidly in size. Sometimes the disorganization of the flesh is sufficiently complete to expose the bones and produce caries.[37] In other words repair is impossible without lime phosphate.

3. The number and variety alone of antiscorbutics is impressive. They appear to have but one characteristic in common, viz., acidity. A few such as raw meat, figs, pineapple, paw paw, artichokes, contain rennet in addition.

To one whose attention has never been drawn to this subject the small number of foods which fail to show an acid reaction is surprising. Salt pork is the only meat so far examined which failed to give an acid reaction, either before or after cooking. No exceptions are found among vegetables or fruits. The degree of acidity varies, of course. For example, lettuce is very faintly acid, while romaine is very decidedly so. Among fruits the most potent antiscorbutics are the most acid. Foods which are acid and contain lime phosphate and casein, such as undiluted raw milk, or, are acid and contain both lime phosphate and rennet, such as raw meat and blood together, are certain antiscorbutics.

Cases of scurvy have been reported in which analysis of stomach contents showed no free hydrochloric acid.[38]

Scrofula is regarded as a manifestation of incompletely cured rickets or of lime starvation occuring after the greatest activity of development of bone has taken place.

It would appear from the foregoing that lime starvation may be a menace from the time of conception to extreme old age and, as compared with those made in the first part of this paper, much broader deductions drawn as to its effects, viz.: First, lime phosphate is essential for the growth of cells. It is, therefore, necessary for the normal structure of organs and the repair of injury. Secondly, without the action of rennet the combination of lime and casein suitable for the physiological needs of the body is not produced. Thirdly, lack of such lime combination is the cause of many diseases.

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21 WEST ELEVENTH STREET.

THE INCANDESCENT AND THE ARC LIGHT IN MEDICINE.

DIFFERENTIAL INDICATIONS FOR THEIR USE.

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THERE is no more important and efficient method in its relation to therapeutics than the application of light and heat, and although much has been written about it, and much use has been made of it, yet, from the standpoint of those who from personal experience fully appreciate its value, it seems surprising that there is not a more universal recognition of its varied therapeutic properties.

In the few remarks that follow on light therapy it is not my thought to include the whole of phototherapy. I do not propose to discuss the Finsen Light which is a very important part of phototherapy, but for the information of those who have a confused idea of what constitutes the Finsen light, and imagine that it is a very simple and easy thing to get, a word may fitly be said. The Finsen light, whether derived from sunlight or the electric arc light, exerts only actinic or chemical effects. In Finsen's original installation, an arc light of 20,000 candle power was used, and the intense heat thus developed had to be absorbed by an elaborate cooling process, before the ultraviolet rays were available for practical and efficient use. The original Finsen lamp required 80 amperes of current and sixty minutes of exposure, but with simplified apparatus good work can be done with five amperes and less exposure. Strictly speaking, the essence of the Finsen light is not light at all, for the ultraviolet frequencies of infinite rapidity are no more visible than the still higher frequencies of the *x*-ray, or the far lower frequencies that we appreciate as sound or heat. The effect of the so-called Finsen light then is local and superficial, of remarkable value, in the treatment of skin affections, but of little worth in deep seated morbid conditions.

The ultraviolet ray has no power of penetration. It is immediately absorbed by the blood, and even when the parts are rendered anemic by pressure or by adrenalin and cataphoric action, its penetration is still comparatively superficial. Used alone and

uncombined it exerts no general constitutional effect, and acts only on the periphery, but as Finsen demonstrated is invaluable in dermatological cases and especially in the treatment of lupus. It cannot be too often repeated that the difference in forms of physical energy is one of degree rather than of kind. The three things that go to make up a complete light treatment, or phototherapy, are the heat, light, and chemical rays which are simply different rates of vibration. Sound, which is a lower rate of vibration, we do not regard of therapeutic value, but as vibrations increase in frequency and decrease in length we get the heat rays, then light (the visible spectrum) until finally we enter the region of the invisible (the ultraviolet), and beyond this the *x*-ray. Light, heat, and chemical energy constitute the trinity of phototherapy. These combined effects are undoubtedly represented best by the rays of the sun—which when concentrated act more powerfully than those from any artificial source, but for obvious reasons their general and successful utilization is impracticable.

The two available artificial sources of this method of treatment are the incandescent lamp and the arc light, either of which are superior both in physiological and therapeutic effect to the ordinary hot air bath, for the reason that the latter is more depressing and far less penetrating than radiant heat, and is without chemical activity. In the administration of light energy, one should bear in mind an important fundamental principle, viz., that resistance develops energy, a principle as striking on its moral and intellectual side as on its physical. Electricity, for example, is of value therapeutically only as it meets with resistance, and in the same way, light cures disease, only as it meets the resistance of the human body, and is transformed into radiant energy. The rays from a powerful incandescent or arc lamp readily penetrate the skin, but in overcoming the deeper and denser structures are converted into heat. Heat, therefore, is one of the principal therapeutic factors in the use of the electric light.

It may be observed further, that radiated heat, as developed by the incandescent, and especially by the arc light, results in a more rapid and powerful dilatation of the superficial vessels than the action of simple hot air, and this relaxation of vessels, because of no appreciable heating of the surrounding air, can be continued indefinitely. These light rays exert a remarkable stimulating effect upon the peripheral nerve endings, and may be utilized to excite perspiration more quickly than any other method The superior efficiency of this form of radiant energy is increasing oxidation, and tissue changes are evidenced in the elimination of carbon dioxide. As indicated by this elimination, oxidation goes on far more rapidly under the influence of radiant light than of simple hot air. Another well recognized and important factor in the light treatment, more especially the arc light, is its action on the blood. The hemoglobin carrying power of the red corpuscles is demonstrably increased, and through the influence of its invisible rays upon microorganisms we get pronounced bactericidal effects.

My first experiences along this line were with the incandescent lamp, not the ordinary incandescent light bath, made up of many small electric bulbs enclosing the body of the patient, but of a single lamp of 500 candle power.

Placed within a cylindrical metal hood and suspended by a convenient mechanism, the light can be easily applied to any and all parts of the body For the relief of pain and especially in the treatment of neuritis it is invaluable.* I even went so far as to say that in the relief of local painful conditions and in its general constitutional influence it was superior to the arc light. In this I believe I was mistaken. After a more extended experience in its use I do not hesitate to assert, that while the arc is quite as valuable as the incandescent light for the relief of pain, its influence upon defective blood and skin conditions is far superior. From what has already been said as to the composition of these two manifestations of light, it is not difficult to understand why this may be so. Both are forms of radiant energy, but in the incandescent or leucodescent lamp, the glass globe effectually intercepts the chemical rays, while the arc light with no intercepting barrier gives the full value of the concentrated solar ray. While, therefore, theoretically, it is no difficult matter to decide upon the relative value of these two forms of light and to rule as to some differential indications for their use, practically it has not been quite so easy. Many cases had to be treated, some by one method, some by the other, with results on the whole seeming to indicate the greater efficiency of the arc light, but it was not until the two methods were successively used in the treatment of the same patients that the superiority of the one method to the other became strikingly manifest.

Of several cases thus alternately treated, the one here given may be regarded, it seems to me, as especially suggestive and conclusive, and is the basis and inspiration of what precedes.

Case.—Miss H., aged 16 years, I first saw November 13, 1908. Her general appearance was one of extreme inanition and profound anemia. The whole course of the spine was extremely tender to the touch, and she suffered from such severe and constant pain in the region of the ciliospinal center, and down the right arm, and in a lesser degree in the left, that hypodermics of morphine had been a necessity for the past two months. The menstruation was irregular and scanty, and unusually light in color, but painless. Other symptoms there were of occasional hysterical attacks, associated with vertigo and double vision, but for our purpose those given are sufficient. It may be said that among various remedies, iron had been freely taken, but with little if any result. Under the light treatment from the incandescent lamp the patient began to improve. It was applied to the neck, body and arms, the seances being gradually increased from ten minutes to half an hour. Twenty applications were administered at intervals of a day, and for three weeks the improvement was progressive. She was able to dispense with the morphine and the pain in a great measure subsided. During the following three weeks, however, she did not improve further in any marked or satisfactory degree, and for the time being discontinued treatment, yet feeling that much had been accomplished. Some two months subsequently she came again with somewhat increased pain in neck and arms, but not sufficiently severe to compel a resort to morphine. In other respects she was about the same as when last seen—very weak and anemic. The arc light was now used instead of the incandescent, and with results that were soon manifest. The pain very quickly disappeared, more quickly, without doubt, because of the results obtained with the former treatment, but the point of

*See article on Phototherapy in Neuritis, Medical Record, November 9, 1907.

special interest was the ready response in a constitutional way to the newly instituted treatment. The appetite and digestion both improved markedly. There was increase of weight and strength, and three weeks after beginning the second course of treatment with the arc light there was a recurrence of almost normal menstruation. The improvement in the hemoglobin carrying power of the blood was indicated by a gradual disappearance of her extreme pallor.

Briefly stated then, the superiority of the arc light to the incandescent in the treatment of certain local surface conditions, and conditions constitutional and general is due to the fact that with light and heat are combined the subtle chemical reactions which are wanting in the other. The arc light represents all the rays of the spectrum as does the sun itself, and practically it is nothing but sunlight. Fortunately, however, for our therapeutic purposes, it is far more controllable than sunlight, and can instantly be made intense or mild, concentrated or diffused, and even the different light rays selected or excluded at will.

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THE GENERAL DEATH RATE FROM MALIGNANT GROWTHS IN THE PRINCIPAL AMERICAN CITIES, 1883 TO 1907.

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Now that the medical profession and sanitary authorities have become conversant with the cause and means of prevention of the great white plague, there is probably no other scourage to which the human race is subjected that is receiving more universal consideration than cancer. In several of our cities cancer hospitals have been established and, while the data presented in the various reports appear to indicate an advance in the methods and results of treatment, usually operative, still there is little doubt but that the mortality from this disease is on the increase.

Of the 375,990 deaths among males reported in the registration area of the United States in 1907, cancer caused 11,800 deaths, or 3.1 per cent., and of the 311,044 deaths of females 18,714, or 6.0 per cent., were classified as due to cancer and malignant tumors. In the aggregate, cancer, as a cause of death, ranked eighth, causing 4.4 per cent. of the total mortality. These figures indicate an increase of 2.3 per 100,000 of population in the cancer mortality rate over the preceding year, 1906, for the same area.

In compiling the data included in the following tables, all of which were obtained directly from the reports of the local bureaus of vital statistics, the causes of death considered as cancer were the same as those indicated in the International Classification of Causes of Death which was adopted by the Census Bureau for the compilation of the mortality statistics of 1900, and which has subsequently been quite generally adopted throughout the registration area.

The cities included in these tables comprise practically all of those for which the returns are available for this consecutive period of years. The data are complete, with the exception of those from Cleveland for the year 1883, New Orleans for the year 1883 (for which no vital statistics are available), Nashville for the years 1883 and 1884, and Savannah for the year 1899. Unfortunately, the returns from Baltimore were not reported by color until the year 1891*, which necessitated its inclusion among the Northern and Western cities.

The following table illustrates the increase in the death rates from cancer as returned for the thirty-five cities under consideration.

For the Northern and Western cities there has been a gradual increase in the death rates, vary-

*Annual report of the Sub-Department of Health of Baltimore for the year ending December 31, 1904, p. 24.

TABLE I.—MORTALITY FROM MALIGNANT GROWTHS IN THIRTY-FIVE AMERICAN CITIES—1883–1907

Death Rates per 100,000 of Population

Years	Northern and Western Cities				Southern Cities, "White"				Southern Cities, "Colored"			
	No. of Cities	Aggregate Population	Deaths	Rate	No. of Cities	Aggregate Population	Deaths	Rate	No. of Cities	Aggregate Population	Deaths	Rate
1883	27	6,097,585	2,960	48.5	5	225,013	89	39.6	5	153,738	60	39.0
1884	28	6,485,020	3,283	50.6	6	399,356	218	54.6	6	220,130	97	44.1
1885	28	6,694,809	3,235	48.3	7	446,518	237	53.1	7	248,887	108	43.4
1886	28	6,920,303	3,368	48.7	7	458.769	243	53.0	7	256,079	103	40.2
1887	28	7,154,345	3.705	51.8	7	471,020	235	49.9	7	263,272	105	39.9
1888	28	7,396,731	3,751	50.7	7	483.271	240	49.7	7	270,465	85	31.4
1889	28	7,649,847	3,814	49.9	7	495,522	280	56.5	7	277,658	75	27.0
1890	28	7,911,541	4,273	54.0	7	507,774	302	59.5	7	284,852	117	41.1
1891	28	8,158,919	4,525	55.5	7	517,673	281	54.3	7	290,087	121	41.7
1892	28	8,398,033	4,711	56.1	7	527,573	278	52.7	7	295 323	106	35.9
1893	28	8,644,048	4,765	55.1	7	537,474	322	59.9	7	300,559	126	41.9
1894	28	8,897,106	4,876	54.8	7	547,376	292	53.3	7	305,796	121	39.6
1895	28	9,157,682	5,377	58.7	7	557,278	327	58.7	7	311,033	135	43.4
1896	28	9,426,242	5,638	59.8	7	567 180	326	57.5	7	316,271	115	36.4
1897	28	9,702,822	5,802	59.8	7	577,084	334	57.9	7	321,510	122	37.9
1898	28	9,987,490	6,087	60.9	7	586,989	349	59.5	7	326,750	130	39.8
1899	28	10,280,656	6,542	63.6	6	571.375	352	61.6	6	304,370	156	51.3
1900	28	10,582,049	6,891	65.1	7	606,799	394	64.9	7	337,229	165	48.9
1901	28	10,859,560	7,357	67.7	7	616,704	394	63.9	7	342,469	188	54.9
1902	28	11,137,077	7,521	67.5	7	626,609	425	67.8	7	347,709	163	46.9
1903	28	11,414,599	8,024	70.3	7	636,514	468	73.5	7	352,949	180	51.0
1904	28	11,692,121	8,419	72.0	7	646,419	493	76.3	7	358,189	188	52.5
1905	28	11,969,646	8,937	74.7	7	656,324	523	79.7	7	363,429	183	50.4
1906	28	12,247,171	9,423	76.9	7	666,229	546	82.0	7	368,669	196	53.2
1907	28	12,524,695	9,686	77.3	7	676,134	612	90.5	7	373,909	227	60.7

ing from 48.3 per 100,000 of population in 1885 to 77.3 in 1907. With the exception of the years 1885, 1888, 1889, 1893, and 1902 there has been an increase over the preceding year. In the white mortality from cancer in the seven Southern cities there has been an even greater increase, ranging from 39.6 per 100,000 of population in 1883 to 90.5 in 1907. Sixteen of the twenty-five years show an increase over the preceding year. Especially noticeable is the steady increase during the decade ending with 1907, for which period the figures should be the most trustworthy. The same may be said of the colored mortality in the Southern cities during the last decade; only there are pertinent reasons for doubting the reliability of these returns, with the possible exception of those for Washington and New Orleans.

Table II illustrates the death rates from cancer in each of the thirty-five cities, individually and in the aggregate, for the quinquennial periods. Of the twenty-eight Northern and Western cities two have more than doubled—Haverhill, with an increase in the death rate of 67.4 per 100,000 of population, and San Francisco, with an increase of 52.3. In the cities having a population of 500,000 or more in 1907, the increase in the death rates have been as follows: Chicago, leading with 30.9; Baltimore, with 29.2; St. Louis, with 25.2; Philadelphia, with 24.6; Boston, with 22.7; Manhattan and the Bronx, with 21.0, and Brooklyn, with 20.6. In eleven of the twenty-eight Northern and Western cities there has been a steady increase over each preceding quinquennium, and in the aggregate the increase has been consistent. New Bedford, with only 0.8 per

MORTALITY FROM MALIGNANT GROWTHS IN THIRTY-FIVE AMERICAN CITIES—1883–1907

DEATH RATES PER 100,000 OF POPULATION

NORTHERN AND WESTERN CITIES	1883–'87		1888–'92		1893–'97		1898–'02		1903–'07	
	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
Baltimore	969	50.6	1,233	57.0	1,483	62.9	1,720	67.6	2,180	79.8
Boston	1,472	74.8	1,556	69.6	1,844	74.0	2,203	79.1	2,901	97 5
Brooklyn	1,528	45.1	2,033	50.3	2,563	52.8	3,579	61.5	4,462	65.7
Cambridge	187	62.3	227	64.7	257	63.1	362	79.3	387	79.4
Camden	85	32.6	128	43.9	122	37.9	186	49.4	251	60.2
Chicago	1,277	34.1	2,335	43.2	3,415	49.9	5,038	59.6	6,490	65.0
Cincinnati	570	41.4	737	49.8	932	59.9	1,059	65.0	1,426	83.8
Cleveland	327	40.1*	526	40.4	813	51.4	949	49.9	1,315	59.5
Dayton	89	35.6	167	54.5	249	67.9	284	66.6	388	79.7
Elizabeth	60	37.1	62	32.8	132	59.9	127	48.7	170	56.2
Gloucester	54	49.6	70	56.6	87	63.2	79	59.9	87	66.9
Hartford	131	55.0	149	55.0	173	52.0	239	59.9	393	84.4
Haverhill	33	29.9	88	65.0	97	63.2	140	76.9	184	97.3
Hoboken	85	45.2	109	49.3	144	53.9	155	52.1	263	80.3
Jersey City	287	38.2	383	46.7	383	41.9	478	46.3	679	58.4
Lynn	139	60.3	171	61.8	191	61.3	232	67.4	316	82.0
Newark	404	52.4	485	53.3	623	58.0	719	58.3	999	70.5
New Bedford	114	68.1	156	75.0	190	69.9	243	77.1	256	68.9
New Haven	210	58.7	206	50.5	283	60.3	401	74.3	488	80.4
New York (Man. & Bronx)	3,768	55.7	4,570	59.8	5,403	60.9	7,165	69.7	9,146	76.7
Paterson	138	43.5	177	45.1	234	48.8	274	52.2	359	64.4
Philadelphia	2,361	50.1	2,669	51.0	3,285	56.4	3,901	60.4	5,290	74.7
Providence	405	68.6	394	59.7	459	62.4	684	78.5	933	94.6
St. Louis	814	40.8	1,045	46.3	1,269	49.8	1,677	58.4	2,101	66.0
San Francisco	817	61.7	1,075	72.3	1,410	88.1	1,906	111.3	2,079	114.0
Sommerville	79	51.7	114	56.5	116	44.7	181	58.9	290	83.7
Springfield	79	41.7	119	53.8	164	63.2	232	74.6	333	90.6
Trenton	69	37.7	90	32.6	137	43.4	185	50.5	323	76.7
Total	16,551	49.6	21,074	53.3	26,458	57.7	34,398	65.1	44,489	74.3
SOUTHERN CITIES, "WHITES"										
Charleston	57	48.9	76	63.7	80	66.5	95	78.4	86	70.5
Memphis	27	19.8	49	27.4	57	25.9	102	38.9	181	59.6
Nashville	19	16.3†	72	31.4	106	43.5	125	49.2	207	78.4
New Orleans	429	63.5*	603	67.7	649	67.2	722	69.1	940	83.7
Richmond	79	37.3	98	40.4	119	46.7	107	40.5	197	72.1
Savannah	46	52.2	41	40.5	50	43.2	77	73.3*	110	75.7
Washington	365	55.6	442	57.4	540	62.4	686	71.6	921	87 7
Total	1,022	51.1	1,381	54.5	1,601	57.5	1,914	63.6	2,642	80.5
SOUTHERN CITIES, "COLORED"										
Charleston	68	46.6	51	33.1	70	44.7	75	47.5	65	40.8
Memphis	20	18.3	27	18.5	25	12.7	71	28.4	60	19 8
Nashville	11	15.2†	21	14.7	60	40.4	80	53.2	78	51.3
New Orleans	165	66.5*	188	57.7	207	58.0	239	61.2	324	76.4
Richmond	43	28.6	51	31.8	37	22.9	56	34.7	105	65.2
Savannah	26	26.9	26	22 8	38	29.7	20	17.7*	51	33.2
Washington	140	43.8	140	37.3	182	41.7	261	59.9	291	62.6
Total	473	41.4	504	35.5	619	39.8	802	48.4	974	53.6

*Four years only.
†Three years only

100,000 of population, shows the smallest rate of increase; Cambridge is next, with a rate of 17.1, and Gloucester is third with a rate of 17.3. Of the white mortality from cancer in the Southern cities, Nashville shows the greatest increase with a rate of 62.1; Memphis second, with an increase of 39.8; and Richmond third, with an increase of 34.8. Nashville and Washington are the only cities which show a consistent increase over each preceding quinquennium. Of the colored mortality from cancer in the Southern cities little can be said except that, generally speaking, the colored race is not as susceptible to cancer as the white race. In the aggregate there has been an increase of 12.2 per 100.000 of population.

In considering the death rates from cancer three very important factors present themselves—First: how far is the rate affected by the inclusion of persons coming to the cities for treatment, resulting in ultimate failure, but whose deaths were reported in the city records. This is amply illustrated by the city of Boston. During the eight calendar years ending in 1907 the death rate from cancer was 76.4 per 100,000 of population. Among residents and those whose residence was not determined the rate was 65.9, making a reduction of 10.5, or about 14 per cent., in the local death rate from this cause. If this be true of most of the large cities, which is very probable, a considerable reduction would occur in the rate, affecting the later years more than the earlier. Second: how far does improper diagnosis and false or careless methods of death registration affect the rate. The assumption is that this would only have its effect upon the earlier periods in question because of the fact that the medical profession has made rapid strides, both in the matter of accurate diagnosis and also in the more accurate reporting of the causes of death. How much this would affect the rate it is impossible to say. Third: what effect has the age distribution of the population upon the rate. As cancer is distinctly a disease of the older ages (in the registration area during the period 1903 to 1907 about 80 per cent. of the deaths from cancer occurred at ages 45 and over) it seems reasonable to assume that allowance for this factor would cause no material depreciation in the general rate.

Finally, it seems safe to assume that the mortality from cancer is on the increase and has been so for the last quarter of a century in this country.

DISEASES OF THE EYE IN PELLAGRA.*

By A. B. CLARKE, M.D.,

PLANTERSVILLE, S. C.

In diseases of the eye occurring in pellagra, I find no peculiarities in the symptomatology, characteristic appearances, or complications, save only they are very prone to exhibit the same cycle, as it were, a recrudescence in early spring time, and, as summer progresses, make recovery.

My observations and findings have been primarily upon the rice field negro, who has been inured to hardships, poorly educated, and equally poorly nourished, seldom able to read, and when he has visual disturbances, attributes it to local conditions. My patients have invariably given the history of using damp meal, grits in lumps in bags which have been wet, buying week's supply and leaving in the sack openly exposed to vermin and dew, many times sours and eating sour corn-bread.

My attention was first directed to this disease in 1906. The patients gave me history of rheumatic pains, general malaise, sensation of heat in the esophagus and region of the kidneys, radiating to the hands and feet, noticeably the palms and soles. One child has spastic paralysis. All complained of vertigo, neuralgic pains in the posterior aspect of the neck. The backs of the hands and feet were "sunburnt," the skin being swollen, tense, burning, and itching; severe stomatitis noted. The reflexes were exaggerated, and the patients had insomnia, anorexia, and erythema with petechiæ occuring at times, also small oval blisters, even bullæ, which upon breaking down left indolent ulcers. The chief physical symptoms were delusions, apathy, melancholia, disorientation with symptoms of dementia præcox. In two of my cases between the fingers were cracks extending to the metacarpal bones and exposing the ligaments. The tongue is heavily coated with a dark streak in the center, notched around the edge, and very red; or it is smooth and denuded of epithelium, or marked by deep fissures. I have never seen any change in the hair and nails. All give digestive disturbances and lack of appetite. As the disease progresses, the mental disturbances increase. The patients are dull and apathetic, slow in speech, listlessly tired, or suffer from a dread of persecution, or exhibit suicidal tendencies. Many of the patients complain of pains in the eyes, one of diplopia, and others of various symptoms.

Case I.—Man 42, negro. Had been working timber and living upon a diet of grist and cornmeal mush, crackers and cheese, all of which he stated had become mouled and soured, as he had no place to keep them. Had marked pellagra symptoms. He was suffering from ectropion, both eyes being affected with slight conjunctivitis. Iris was dilated. Very little photophobia, cornea, aqueous, and lens clear, vitreous slightly hazy, choroid showing marks and scars of atrophy. Arteries pale, veins thick and heavy. The other eye was normal, consensual reaction from left to right, but not from right to left. I made several further attempts at examination, but patient was in a cachectic condition and refused, dying in seven days after last attempt to view the fundus.

Case II.—Child 6½ years, boy, negro; epiphora both eyes, marked pellagra patient, talked incoherently all the time, had 3/5 degree fever (axilla). The mouth, tongue, and nares were raw. Mother stated that child's eyes became sore every spring, which suggested vernal catarrh. He had marked conjunctivitis with small granulation, which resisted all treatment, cornea, aqueous, lens, and vitreous were clear. Opthalmoscopic findings: Fundus showed a dark black spot similar to retinitis pigmentosa, only limited to about 4 mm. around the nerve-head, and involving the macula region. There was no evidence of choroiditis, nor were these dark areas in any other part of the fundus. Mother stated that child's eyes had been sore in the spring time for three or four years, when his hands and feet became sunburnt. His vision had become worse this time. (From this child I recovered uncinarias upon two occasions.) Child's hands, feet, arms, legs, and nape of neck in horrible condition, extremely emaciated. He died in five days after my seeing him. The parents refused autopsy, nor would they allow me to remove one of his eyes.

*Read at the Pellagra Conference, Columbia, S. C., October, 1909.

Case III.—Man, 36 years, negro. Working in swamp, making shingles, living on grits and condensed milk; he would make enough at night to do the next day; sometimes it would sour in the pot, he said, but if boiled again it was fit to eat. It had given him indigestion, he stated. Both hands, arms, and legs presented distinct line of demarcation with round ulcers, some confluent with irregular edges, and edema. Patient was painfully emaciated, complained of pains in the eye with burning sensation and failing vision. Upon examination I found fundus apparently normal; optic nerve was pale, almost white, there was beginning nerve atrophy. Patient was to return in 14 days, but was unable to do so, dying in 19 days after last visit.

Case IV.—Girl, 17, negress. Anemic enlarged glands, cervical and epitrochlear. In the right eye the cornea was hazy, with small ulcers, iris irregularly dilated, posterior synechia, aqueous hazy, vitreous muddy, there was a large fundal hemorrhage on the temporal side. Patient stated she was not aware that she was blind in that eye. Had floating bodies. I was unable to get any detail of fundus. Left eye normal. In the inner canthus of each eye was a small papilla which exuded watery substance upon being punctured. Patient came regularly for four weeks, but became rapidly worse, and died in 11 days after last visit.

Case V.—Women, 42, negress. Second year had "sunburnt" hands with sore mouth, vertigo, had lost considerable flesh and had grown melancholy with hallucinations. Iritis in right eye three weeks. She gave a history of living on damp grits and damaged meal. Upon examination, hands and feet were seen to be desquamating in layers, leaving a shiny, tense, and in places raw bleeding surface beneath. Lips and tongue were denuded. She suffered from insomnia and had no memory. Opthalmoscope gave no fundal lesions. Patient is recovering.

Case VI.—Woman, 26, negress. First year mouth became sore and denuded, bright red in appearance, distinct erythema; complained of pains in the eyes, smarting, and burning. Patient came every other day for two weeks, and each morning had a film of bluish tint over the cornea in each eye. At the end of six weeks she stated that her eyes gave her no further trouble. Physical condition was improved, and mentally she was slowly making progress. Opthalmoscopic examination showed the nerve head normal, arteries very small, veins enlarged, small hemorrhages in veins to nasal size in physiological cup. This patient gave positive history of having lived on damaged meal.

In presenting these histories, I have refrained from repetition as much as possible, also from citing pellagra symptoms. The class of persons who suffer are they who lack nitrogenous food. Many exist upon rice, grist, and potatoes, and a little cheap poor grade pork, termed "second" or "butts." They need meat, red meat, and a variety of vegetables. In four out of seven cases that I examined I found uncinaria. The treatment has been supportive and nutritious. Tonics in increasing doses of tincture of the chloride of iron up to 30 minims three times a day; Fowler's solution to point of tolerance as high as 24 minims three times a day; cod liver oil and eggs; acetate of lead and opium for the diarrhea; phosphoric acid and fish diet, also oat meal; strychnine or tincture of nux vomica; milk in abundance. I find local applications of practically no value. From my observation, I am of the opinion that pellagra is a trophoneurotic condition, involving the entire sympathetic system; not an autointoxication, but secondary to the ingestion of a fungi or ferment which cause catabolic changes.

Longitudinal Hypertrophy of the Cervix Uteri as a Complication of Pregnancy and Labor.—Andrea Boni gives the histories of three cases of longitudinal hypertrophy of the cervix complicating pregnancy and labor, which have been observed by him, and a short résumé of forty-one cases described in medical literature. The seriousness of this complication depends on the amount of hypertrophy that occurs. In slight cases the hypertrophy does not prevent the normal delivery of the child. In some cases it is so extreme that the cervix forms a tumor which protrudes from the vulva and becomes ulcerated or even necrotic. In these cases delivery is only possible by means of operation. The subjective symptoms are disturbances of urination, weight in the pelvis, leucorrhea, and ulceration. The etiology includes previous hypertrophy of the cervix. Other cases originate in the pregnancy itself. Still others result from prolapsus of the uterus and involve chiefly the cervix. The microscopic changes in the organ are these: the muscular and connective tissues are increased in amount proportionally to the amount of hypertrophy; in the fourth month the elastic tissue is much hypertrophied, but at the end of pregnancy it is in relatively normal amount; the glandular tissue has undergone cystic degeneration; the vascular tissue is that which is most affected by hyperplasia, and hypertrophy. This increase in vascular tissue is an exaggeration of a process normal to pregnancy. Normally there is a great amount of hyperemia, and irritation results in greater congestion and new formation of blood-vessels. If the organ projects from the vulva there is still greater irritation. In cases of marked hypertrophy the best treatment is amputation of the cervix. In lesser degrees it is in order to wait and see if simple dilatation of the cervix will not enable the delivery of the child. If the fetus is dead embryotomy is in order.—*Gazzetta Internazionale di Medicina.*

Effect of the X-Rays in Infantile Leukemia.—G. Zamboni says that the *x*-rays do not benefit the condition of young infants affected with myelogenous leukemia, the only modification that is produced being reduction of the white corpuscles and the myelogenous cells. In lymphatic leukemia the results are always unfavorable. In myelogenous leukemia of later childhood the results have been better, although an entire cure has not been obtained. The diminution of the white blood cells and of the abnormal cells is due to the leucolytic effect of the rays. The diminution of red blood cells and hemoglobin is due to the direct hemolysis caused by the rays. The reduction of the size of the spleen is caused by a double action of the *x*-rays, by the neutralization of the pathogenic agent, and by causing necrobiosis of the new-formed elements that have emigrated. It is best to use applications of the rays that do not penetrate deeply, and to limit them to the splenic region, with short sittings and long intervals. In cases of long standing with cachexia the rays should not be used, since they make the condition of the patient worse. The rays do not act as a radical cure of this condition, but only as a palliative measure, which will relieve certain symptoms.—*Rivista Internazionale di Terapia Fisica.*

Sixty Cases of Antituberculous Vaccination.—Ezio Calcaterra tells his experience in the antituberculous vaccination of sixty cases with a variety of materials. The material used contained antigens and precipitins of tuberculosis, and they were inoculated into persons sick with a variety of diseases. There were ten positive cases of tuberculosis, and ten babies under six years, of whom six had tuberculosis of the surgical type. The skin was scarified, and after vaccination the lesions covered with aseptic dressings and guttapercha tissue. A local reaction was frequent at the point of vaccination, occurring in thirty-nine cases. A zone of hyperemia formed with a papule, which rapidly became pustulous and formed a small erosion. If the vaccination was not deep no scar resulted, but if it extended into the lower layers of the skin a scar remained. There was some spontaneous pain. The lymphatic glands became moderately swollen, and tender; there was no reaction in the tuberculous lesion in those cases in which tuberculosis was shown to be present by the physical signs. Fever was rare, occurring only in the tuberculous subjects. The tuberculosis patients gave a more severe reaction than other patients. Quite small doses of the vaccinating material seem to be sufficient to produce active immunization.—*Annali dell' Istituto Maragliano.*

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THE ANNUAL REPORT OF THE SURGEON-GENERAL OF THE ARMY.

In his annual report to the Secretary of War for the fiscal year ending June 30, which has just been published, General Torney treats of a number of interesting topics. We have had occasion several times to deprecate the severe physical test to which the officers of the army are submitted once a year, and we are greatly pleased to find that General Torney is also opposed to them. He says that four years ago the Surgeon-General recommended that a progressive system of physical training under the supervision of medical officers should be adopted by the army, so that its personnel might be at all times physically fit for active service. This recommendation was approved by the Secretary of War but instead of its being carried into effect, a severe physical test was established for the officers with the ostensible object of maintaining a "physical condition which would enable them to be always fit for active field service." This the test does not accomplish and General Torney says it is believed that it "not only fails in this purpose but may result in serious damage to elderly officers. Its defect is that it requires officers to be fit only once a year." The suggestion made by General Barry in his report of April 1, 1909, is concurred in, that the test ride be modified in its requirements for those serving in the tropics and that for officers of 62 years or more the taking of the test ride be optional.

An experiment has been made, or rather begun, to determine the efficacy of antityphoid vaccination in the army. During the summer of 1908 Major F. F. Russell was sent to England to study the methods in use there in the prevention and stamping out of typhoid epidemics both in the army and among the civil population. Upon his return his report and recommendations were submitted to a board made up of six members of the Army Medical Reserve Corps in addition to General Torney and Major Russell. This board found that the method of antityphoid vaccination is useful and harmless, and recommended that the practice of voluntary vaccination be introduced at once. A room in the Army Medical Museum was fitted up as a vaccine laboratory, and by the end of February of this year a considerable amount of vaccine was ready for use. Many volunteers offered themselves, and up to the date of the report 830 completed record cards had been received. The greater number of the vaccinated received three doses, fewer received two doses, and about 5 per cent. only one dose. The amount of protection given by the vaccination, as judged by the quantity of antibodies in the serum of the vaccinated, was very great, exceeding in some cases that following an attack of the disease. "The procedure has been introduced so recently that it is not possible to form any very exact idea of the protection given from statistics showing the morbidity and mortality from typhoid, but it is at least interesting to note that no cases of fever have appeared among the 830 who have been treated, although they have been exposed equally with the rest of the army."

Another point of interest touched upon is the effect of uncinariasis on the general health of the army. In December, 1908, Capt. Joseph F. Siler reported from the recruiting depot at Fort Slocum, N. Y., that out of nineteen Southern recruits examined sixteen were found to be infected with hookworm. A later report from Capt. Siler covering 124 Southern recruits showed 109 infections. These figures excluded men who had been many years away from their Southern homes or who had lived only a short time in Southern cities. Major Chamberlain, in observations made at Jackson Barracks, Miss., found that out of 44 Southern-bred recruits 68 per cent. were infected; out of 57 Southern-bred soldiers in first enlistment 54 per cent. were infected, and out of 34 Southern-bred soldiers in second, or subsequent, enlistment only 15 per cent. were infected. In the army of Cuban pacification, of the 24 cases of infection reported, where the length of service of the individual was given, 16 were in their first enlistment, 4 were in the second, and 4 had served more than two enlistments.

The fact is apparently shown by these statistics that the infection, which is necessarily mild, otherwise the recruits could not have passed the physical examination, tends to disappear spontaneously, and General Torney does not think that it is a very serious factor as regards the health and efficiency of the army, however vast its economic importance may be in the Southern States.

In discussing conditions in the Philippines, the Surgeon-General mentions an investigation being conducted by the Board for the Study of Tropical Diseases of the value of orange-colored underwear in excluding the actinic rays. Since the publication of Major Woodruff's book on "The Effect of Tropical Light on White Men," the theory that the actinic rays of sunlight, and not the heat, are the chief cause of the injurious effects of a prolonged stay by Northerners in the tropics has been much discussed. An interesting test has now been undertaken. This plan, which was approved by the division commander, provided for a test upon approximately 1,000 men, half of whom were to wear the colored underclothing, the other half to wear white underclothing of similar weight, to serve as controls. Organizations having over a year to serve in the division were selected to furnish the subjects for the test. A medical officer was designated at

each of the posts, who was to have charge of the details of the experiments, and who was to stay with the selected organizations during its course. The plans for the experiment contemplate a comparative record of strength and blood-pressure tests of pulse, respiration, and temperature after fatigue, practice marches, or drills, of all symptoms referable to the effect of the sun after exposure thereto, and a measure of anemia by red and white blood corpuscle counts, differential leucocyte counts, and hemoglobin estimations. Special tests will be carried out upon a small number of men in addition. Experimental work upon the effects of heat and light upon small plant and animal life is also contemplated. The experiment is now in full progress, and it is thought that some conclusive evidence will result.

It is gratifying to learn that the "increased inducements to enter the Medical Corps, provided by the act to increase the efficiency of the Medical Department, approved April 23, 1908, and the recent increase in pay for the army at large have resulted in a considerable increase in the number of candidates appearing at the preliminary examinations for that corps. . . . The year before the approval of this act but 10 physicians were obtained to attend the Army Medical School preliminary to being commissioned in the Medical Corps if they demonstrated their fitness therefor. Last year, 33 candidates were secured and 29 were finally commissioned as compared with 10 the previous year." The number of medical officers in the service is, however, still 135 below that which will be allowed under the present law when the total increase is legally available, which will be in 1911, and in order to fill the service by that time 60 new medical officers would have to be commissioned each year for the next three years, which is practically impossible.

THE FEDERAL BUREAU OF HEALTH.

During the political campaign, which resulted in the election of Mr. Taft to the Presidency of the United States, the medical profession took a quiet part in politics, a part of sufficient activity, however, to procure the embodiment in the platform of both of the leading parties of planks advocating the uniting of all matters connected with the health of the nation, under a single organization backed by Federal authority.

In his recent message to Congress President Taft discusses the subject as follows: "For a very considerable period a movement has been gathering strength, especially among the members of the medical profession, in favor of a concentration of the instruments of the National Government which have to do with the promotion of public health. In the nature of things, the Medical Department of the Army and the Medical Department of the Navy must be kept separate. But there seems to be no reason why all the other bureaus and offices in the general Government which have to do with the public health or subjects akin thereto should not be united in a bureau to be called the 'Bureau of Public Health.' This would necessitate the transfer of the Marine-Hospital Service to such a bureau. I am aware that there is a wide field in respect to the public health committed to the States in which the Federal Government cannot exercise jurisdiction, but we have seen in the Agricultural Department the expansion into widest usefulness of a department giving attention to agriculture when that subject is plainly one over which the States properly exercise direct jurisdiction. The opportunities offered for useful research and the spread of useful information in regard to the cultivation of the soil and the breeding of stock and the solution of many of the intricate problems in progressive agriculture have demonstrated the wisdom of establishing that department. Similar reasons, of equal force, can be given for the establishment of a bureau of health that shall not only exercise the police jurisdiction of the Federal Government respecting quarantine, but which shall also afford an opportunity for investigation and research by competent experts into questions of health affecting the whole country, or important sections thereof, questions which, in the absence of Federal governmental work, are not likely to be promptly solved."

The words of the President speak for themselves as to the need of a Federal Bureau of Public Health and require but slight comment here. The question of States rights has been overcome for the Department of Agriculture, and it can surely be waived in this instance also. Mr. Taft says that the Public Health and Marine-Hospital Service should be transferred to the new bureau. This splendidly organized and efficient national institution should in fact be the foundation stone upon which the new structure will be built. Possibly the most feasible procedure would be to make no great fundamental change, but merely to widen the scope and power of the present organization and to place all matters of national hygiene under the direction of the surgeon-general. Later we may hope for a Federal department of hygiene, whose secretary will have a seat in the cabinet and also for the adoption of a national bureau of examination and registration and the abolition of the farce of individual State boards. These will be the natural outcome of such a bureau, and will be of the greatest benefit to physician and layman alike. They must, however, come gradually and the first step should be the broadening of the Public Health and Marine-Hospital Service into a strong, competent, active Bureau of Public Health. It is to be hoped that the present Congress will give heed to these words of the President, and by a proper organization of health matters will do for our citizens at least as much as it has done for our crops and our cattle.

PSEUDOBULBAR PALSY.

The disordered emotional manifestations which accompany it might lead an inexperienced observer to believe that purely functional causes were at the root of the form of disability known as pseudobulbar palsy. This syndrome, however, is the result of bilateral interruptions in the corticobulbar projection fibers. The lesions, though sometimes extensive, are usually of the lacunar type, and small, though

numerous. It is seldom that they do not produce some modification of control of the limbs in addition to the preponderant interference with the power of moving the lips, tongue, palate, pharynx, and larynx, which is the source of dribbling of saliva, regurgitation through the nose, the choking, and characteristic dysarthria and vocal monotony of these patients. The crural dyskinesia consists mainly of *marche aux petits pas* with its shuffling, hesitating, short steps slightly spastic in type, the doddering gait of the senile. The reflexes are usually slightly exaggerated, though clonus and the Babinski sign are rarely present. As a rule, the patient can make quite extensive, though uncertain, movements of his legs when urged to do so: it is only in the walk or other automatic acts that the movements are so restricted. When the lesions occur below the red nucleus they may cause the mesencephalic tremor, which will be evident in the arm by an uncertainty of movement somewhat resembling that of multiple sclerosis. These cases are less common than those originating in the centrum ovale, and tend to lack the power of manifestation of emotional expression, rather than to show the inapposite outbreaks characteristic of the former lesions.

The probable explanation of this difference is that, as Pagano believes, the reactions of emotivity are determined by the corpus striatum or other basal ganglia, and pass through the rubrospinal and perhaps vestibulospinal tracts. A mesencephalic lesion, therefore, prevents the passage of ganglionic impulses; whereas a lesion in the centrum ovale merely cuts off their cortical inhibition; it hence prevents the regulation of their activities by the higher centers, and permits of the spasmodic laugh and cry so characteristic of the upper type of pseudobulbar palsy. Some clinicians, notably Pierre Marie, have believed that a unilateral lesion could produce this syndrome, but their conclusions depend upon incomplete post-mortem examination; for Compte has shown that a complete series of brain sections always reveals bilateral lesions. It is possible, however, that a mere apraxia, affecting the face, mouth, tongue, palate, etc., may have simulated a true palsy; and in that case the lesion need have been only unilateral, though some of the cases adduced have shown right-sided lesions, whereas apraxia is the result of lesions of the left hemisphere except in the left-handed. Others have maintained that lesions of the putamen were the true cause; and that these organs were really subsidiary centers for associating the special acts of articulation and swallowing, and that their destruction must entail pseudobulbar palsy. This contention seems to be disproved by two cases which Déjerine observed, in which there was found destruction of the outer portion of both lenticular nuclei, in each case without any pseudobulbar symptoms during life.

Fatal Poisoning by Quinine.

While symptoms of an excessive use of quinine, in the form of tinnitus, dizziness, deafness, skin eruptions, fever, and mild psychoses are comparatively frequent occurrences, instances of fatal poisoning by the drug are decidely rare. A case reported by Baermann in the *Münchener medizinische Wochenschrift* for November 9, 1909, in which the idiosyncrasy to the drug was so marked that two doses of seven and a half grains each caused death, is of interest as a medical curiosity. The patient was a Chinaman living in Sumatra who was suffering from tertian malaria. The first dose of a half gram of quinine sulphate in solution caused a disappearance of parasites from the blood. The second dose was vomited at once. A half hour after the third dose, given on the second day, the patient broke out into a profuse sweat, collapsed, and had severe epistaxis, controlled only by tampons. First unconscious, he was later mentally confused. Three hours after the onset he passed a half liter of fresh blood *per rectum*, had hematemesis, and slight hemoptysis. With a second intestinal hemorrhage the patient died. The autopsy, made shortly after death, showed purpuric swellings covering almost the entire body. In the parietal peritoneum, mesentery, omentum, and intestines were fresh hemorrhages. The pleural and pericardial cavities contained blood, and collections were found throughout the entire alimentary tract, both within the lumen and intramuscularly. Sanguineous deposits were discovered in the tissue of the liver, spleen, pancreas, and kidneys. Cerebral and meningeal hemorrhages were noted. Beyond these widespread local hemorrhages in practically every organ of the body there were no pathological changes seen. Especially poisonous properties or contaminations of the drug could be excluded, as many other patients were being supplied from the same bottle without deleterious results. The only conclusion to be drawn seemed to be that the patient died as the result of an extraordinary susceptibility to quinine.

News of the Week.

The National American Red Cross Association held its fifth annual convention in Washington December 6, 1909. President Taft presided and presented to Lloyd C. Griscom, former Ambassador from the United States to Italy, a gold medal from the Red Cross, a silver medal to Miss Katherine B. Davis and one of the same metal to Samuel L. Parrish. All these medals were given for zeal shown in the Italian earthquake days. The association voted also to give gold medals to W. Bayard Cutting and Lieutenant-Commander E. R. Belknap, U. S. N., for handling the Red Cross affairs at Messina. There were few changes in the executive officers. President Taft was again elected *President*, and Robert W. De Forest *Vice-President*. Charles D. Norton, First Assistant Secretary of the Treasury, was made *Treasurer* instead of Beekman Winthrop, and Charles L. Magee was made *Secretary*. Lloyd W. Bowers, Solicitor-General of the United States, was made *Chancellor*.

The Nobel Prize Awards recently announced in Christiania include Professor Emil Theodor Kocher of Berne, as recipient of the prize for medicine.

Berlin Vacation Courses.—The Berlin Docents Union announces that the next series of vacation courses in medicine will begin on February 28, 1910, and will last until March 26. The prospectus of lectures and other information may be obtained by applying to Herr Melzer, Ziegelstrasse 10-11 (Langenbeck Haus), Berlin.

Condemnation of the Roosevelt Endurance Test.—Surgeon General Torney, U. S. A., in his annual report criticises the endurance tests of army officers instituted by President Roosevelt. He advocates in the place of one annual test the systematic physical exercise of all officers. To make this possible every staff and line officer doing office work should be supplied with a good riding horse and one orderly, as is done in Europe. He also advises that the test ride be modified for officers serving in the tropics and for those over 62 years of age. In several cases the single violent test for elderly officers not in condition has caused physical injury.

Professor Jacques Loeb of the University of California has been offered the chair of experimental biology in the University of Budapest.

Spinal Anesthesia.—Since his arrival in New York Dr. Jonnesco, the Roumanian surgeon, has had several opportunities to demonstrate his method of spinal anesthesia, described in a recent issue of the MEDICAL RECORD. Among the institutions in which the operations were performed were the Hospital for Ruptured and Crippled and the New York Post-Graduate Hospital. It is reported that that the results of the trials have not been so uniformly brilliant as to arouse any wild enthusiasm.

Playground for the Foundling Asylum.—Announcement has just been made of the gift by Mr. Charles M. Schwab to the Sisters of Charity of St. Vincent de Paul for the use by the New York Foundling Asylum of one of the most beautiful and well-equipped playgrounds in the neighborhood of New York City. The tract of land is on Staten Island one-half mile from Huguenot, on the shore of Raritan Bay. The playground will be known as Richmond Beach Park. It has a water frontage of 1,700 feet, and from the beach the ground rises sharply to a considerable height. A pavilion has been constructed to accommodate 1,000 children, and large bathing houses have been made. The tract contains a large fresh water lake. The grounds have been beautifully laid out, with macadamized roads and a complete system of drainage.

New Polyclinic Hospital.—Plans have been completed for the new building for the New York Polyclinic Hospital to be built on West Fiftieth street. Work will be begun in May and the building is to be ready for occupancy by the summer of 1911.

Gift to Jefferson Medical College.—The valuable laboratory apparatus of the late Professor Henry C. Chapman, professor of the institutes of medicine and of medical jurisprudence in Jefferson Medical College has been presented to the college by his widow.

Charitable Bequests.—By the will of the late Mrs. Catharine Boyle of Philadelphia the sum of $5,000 is left to St. Mary's Hospital.

Coeducation Abolished.—It is announced that in the future no more women will be admitted to the South Carolina Medical School. Those now in attendance will be allowed to continue to graduation, when coeducation will cease.

Ulster County Tuberculosis Hospital.—The Board of Supervisors of Ulster County (N. Y.) have taken advantage of the Hamilton-Whitney bill to establish a hospital for the cure of tuberculosis. The plan is to take over the day and night camp for consumptives, established last summer by the local committee on tuberculosis of the State Charities Aid Association, and convert it into a permanent hospital.

Dr. John M. Swan has been elected associate professor of clinical medicine in the Medico-Chirurgical College of Philadelphia.

Tropical Medicine.—The New York Post-Graduate Medical School is establishing in its new buildings a full equipment of wards and laboratories for the teaching of tropical medicine. The department is being conducted under the cooperation of the U. S. Army, Navy, and Public Health services, who detail officers from their respective medical corps to assist in the conduct of the laboratory and clinical courses.

Guild of St. Luke.—A number of physicians met at Cathedral College, New York, on Wednesday evening of last week and organized a society, under the above title, to be in affiliation with similar societies already existing in France, England, and other countries. The object of the society is the study of the ethical, moral, and historical problems connected with the practice of medicine. The following officers were elected: Dr. Charles E. Nammack, *President;* Drs. Thomas Addis Emmet and José M. Ferrer, *Vice-Presidents;* Drs. Thomas F. Reilly and James J. Walsh, *Secretaries.*

Fairs in Aid of Hospitals.—A bazaar was held on Tuesday of this week at the Plaza Hotel for the benefit of the Babies' Day Hospital. During the latter half of the week a fair was held at the Waldorf-Astoria Hotel in aid of the Lebanon Hospital.

The Harvey Society.—The fourth lecture of the Harvey Society will be delivered by Professor Carl G. Huber of the University of Michigan, on Saturday, December 18, 1909, at 8:30 P.M., at the New York Academy of Medicine. Subject: "Renal Structure."

Medical Society of the County of Kings.—The Section on Pediatrics, at its 100th regular meeting, elected officers for the ensuing year as follows: *Chairman,* Dr. Walter D. Ludlum; *Vice-Chairman,* Dr. Sigmund Beck; *Secretary* and *Treasurer,* Dr. Alexander Spingarn.

The Vernon County (Mo.) Medical Society, at a meeting held December 2, 1909, elected the following officers: *President,* Dr. Lemore, of Nevada; *Vice-President,* Dr. O. P. Farrington, of Moundville; *Secretary and Treasurer,* Dr. V. O. Williams.

Obituary Notes.—Dr. ALFRED D. KAHN of Chicago, Ill., died December 2, 1909, aged 40 years. He was a graduate of the Rush Medical College in 1898, and was an instructor in that institution and on the staff of the Michael Reese Hospital. He was also a member of the Board of Education of Chicago. He was a member of the Chicago Medical Society, the Illinois State Medical Society, and the American Medical Association.

Dr. WILLIAM H. SHEETS of Jeffersonville, Ind., died at his home December 1, 1909, aged 78 years. After being admitted to the Methodist University Dr. Sheets took up the study of medicine and graduated from the Cincinnati College of Medicine and Surgery in 1862. He was at one time secretary of the Board of Health and was a member of the Clark County Medical Society and the Indiana State Medical Association.

Dr. G. P. HYNDMAN of Minot, N. D., died No-

vember 26, 1909, aged 35 years. He was a graduate of the Detroit Medical College in 1898.

Dr. Thomas B. Hicks of New Haven, Ill., died December 2, 1909, aged 68 years. He was a graduate of the Cleveland Medical College in 1872.

Dr. Andrew C. Mailer of Depere, Wis., died December 3, 1909, aged 56 years. He was a graduate of the Rush Medical College in 1878, and of the Bellevue Hospital Medical College in 1882. Dr. Mailer was a member of the Brown County Medical Society, the States Medical Society of Wisconsin, and the American Medical Association. He was mayor of his town from 1892-1894, and State Senator from 1896-1902.

Dr. Donald Churchill of Providence, R. I., died November 28, 1909, as the result of blood poisoning, aged 39 years. He was a graduate of Harvard University in 1893, and the Harvard Medical School in 1899. He was on the surgical staff of the Rhode Island Hospital and a member of the American Medical Association, the Massachusetts Medical Society, the Rhode Island Medical Society, the Providence Medical Association, the Clinical Club, and the Rhode Island Hospital Club.

Dr. Stephen D. Harrel of Lamar, S. C., died November 30, 1909, aged 48 years. He was a graduate of the Medical College of the State of South Carolina in 1890.

Dr. Lewis Edgar Klinefelter of Rockford, Ia., died at his home November 26, 1909. He was a graduate of the College of Physicians and Surgeons of Chicago and a member of the Floyd County Medical Society and the Iowa State Medical Society.

Dr. Elizabeth G. Monville died at Philadelphia on December 5 at the age of 33 years. She was graduated from the Woman's Medical College of Pennsylvania in the class of 1909.

Dr. Frank Rieser died at Reading, Pa., on December 5, at the age of 79 years. He was graduated from the Pennsylvania Medical College in the class of 1852. He practised his profession in Chester for ten years, and then went to Reading, retiring three years ago.

Dr. Benedict Dallas Bucher died at Lebanon, Pa., on December 8, at the age of 58 years. He was graduated from Jefferson Medical College in the class of 1871.

Dr. Frank E. Risley of Brooklyn, N. Y., died at his home December 10, 1909, aged 55 years. Dr. Risley was a graduate of the New York Homeopathic Medical College, and was an attending physician of the Cumberland and Prospect Heights hospitals.

Dr. Isabella M. Wilson of Middletown, N. Y., died at her home November 30, 1909, aged 59 years. She was a graduate of the New York Medical College and Hospital for Women in 1894, and for several years practised in New York City.

Dr. George S. Aldrich of Ludlow, Mass., died at his home November 21, 1909, aged 27 years. He was a graduate of the Tufts Medical College in 1907 and afterwards interne in the Cambridge Hospital.

Dr. Hiram H. Wright of Detroit, Mich., died at his residence November 24, 1909, as the result of typhoid fever, aged 46 years. Dr. Wright was a graduate of the University of Toronto, and held the degree of the Royal College of Physicians of London. He was a member of the Wayne County Medical Society, the Michigan State Medical Association, and the American Medical Association.

Obituary.

FERDINAND C. VALENTINE, M. D.,

NEW YORK.

Dr. Ferdinand C. Valentine died at his country home in Belle Harbor, L. I., on Monday of this week, of arteriosclerosis and dilatation of the heart. He had been suffering for some time and had been in Europe since August, part of the time at Nauheim, seeking relief; he returned only a few days before his death. He was born in 1851 and was graduated from the Missouri Medical College, St. Louis, in the class of 1876. Early in his professional career he went to Central America and was at one time Surgeon-General of the army of Honduras. Later he was in London for a time, and then settled in New York, where he devoted himself especially to genitourinary practice. He was a fellow of the New York Academy of Medicine, a member of the New York County and State Medical Societies, of the American Medical Association, and the Medical and Pharmaceutical Faculties of Guatemala, Honduras, and San Salvador; corresponding member of the Société Française d'Urologie, and of the Deutsche Gesellschaft für Urologie; honorary member of the Société d'Urologie Belge, and ex-president of the American Urological Association.

Dr. Valentine was a man of rare and attractive personality and of a broad culture, a linguist of talent, and a writer of clear idiomatic English. At one time indeed he was tempted to devote his life to literature, but concluded in the end to remain in the practice of medicine. He was devoted to his profession, which he regarded as a sacred calling, one to be practised for the good of his fellow man, and to be studied as the greatest of sciences. And he had the joy that comes as a reward of honest work as well as the satisfaction which the true physician feels in relieving suffering.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

TUBERCULOSIS EXHIBITION—LEADLESS GLAZING—GENERAL MEDICAL COUNCIL—CANCER INOCULATION—COLITIS, HEMORRHAGE AND APPENDICOSTOMY—X-RAYS IN DIAGNOSIS—OBITUARY.

London, November 26, 1909.

A tuberculosis exhibition has been opened in the Western District of London, organized by the National Association for the Prevention of Consumption. It is somewhat on the lines of the work done by the association in Ireland, but on a more extended scale. The Chelsea Town Hall has been taken for the purpose, and has been well fitted up for the display. On the walls are graphic pictures, showing, among other things, the benefits of sleeping in well-ventilated rooms and the need of dusting all rooms properly. Models of back-to-back houses which have been demolished; photographs of "cozy, stuffy" rooms in which some ignorant people delight, contrasting with well-ventilated ones; models, too, of sanatoria, an open-air church, garden shelters made from old church pews, of hospital wards, and other instructive exhibits.

The opening ceremony (on Tuesday) was performed by Lord Cheylesmore, who said that as chairman of Brompton Hospital he was interested in everything connected with the treatment and prevention of consumption. The exhibition at the Eastern District of the metropolis had been visited by 50,000 people, and he thought such exhibitions did an enormous amount of good, teaching people that the disease was infectious and to a certain extent it could be prevented. It was twenty-five years since he was elected on the board of

the Brompton Hospital, and during those years the whole treatment of the disease had been revolutionized. The object in those early days was to keep every room and corner in the building at 63°, winter and summer. To-day the hospital was the most breezy and draughty place he ever entered. Every window was open night and day, and he was afraid to state the temperature in the early morning lately. His Lordship then explained the system of "graduated work" at the Frimley Sanatorium, and went on to say that the best results had followed the "contact system" by which the Medical Officer of Health was notified when a consumptive was admitted to the hospital, and so had the opportunity of visiting the patient's home and seeing whether others in his family showed any signs of the disease. If this plan were followed throughout the Kingdom it would do much to prevent the spread of the disease. Lord Cheylesmore then put in a plea for the soldier. He had himself served in the Guards for forty-four years. In the early days the disease was rife and attributed to the night air when on sentry-go. But that was outdoor treatment. He thought now the disease was due to the barracks, which had not been brought up to date, and the War Office might do much by increasing the cubic air space. He was on a committee for the relief of veterans, and the other day had to visit several workhouses, which were all much better than barracks. He thought a grateful country should do something more for consumptive soldiers and suggested that a sanatorium might be built for them.

Another exhibition of medical interest is also being held, viz., one of Leadless Glaze, the object being to convince the public of the evils of employing lead on account of the injury to the workers and that there is no longer any necessity to use lead in the process. Specimens of table and toilet ware of the finest kinds—some costly, others quite inexpensive—are on view in great variety. Ornamental pottery and porcelaine, artistic tiles and household and sanitary ware of all kinds can be compared. One stall, that of the ladies' organizing committee, contains only pieces which they guarantee have been constantly used in their own households for definite periods. This stall seems a great attraction, so much good may result.

Sir Donald Macalister opened the winter session of the General Medical Council on Tuesday with a presidential address. It was not a more lively performance than usual and seems, like the rest of the proceedings, to excite no interest. He mentioned that an additional representative of the registered practitioners has been approved, so that at the next election they can have four members instead of three. As the fact has been known for months, it is devoid of interest, as, for the most part, are all the doings of the council, for it cannot be denied that this body has been a great disappointment to all medical reformers. The winter meeting is chiefly devoted to the investigation of alleged offenses. The penal committee first considers these with the advice of the solicitor, and in any which they report a *prima facie* case the council inquires into it, the accused person being heard by himself or his legal adviser.

The report of the education committee was presented. It recommends the division of the curriculum into two parts of two and one-half years each. It has been found that the curriculum is so overcrowded that only about 13 per cent. of the students can qualify in the five years. Further discussion gave rise to various suggestions and is not yet concluded.

On Monday evening, *i.e.* the evening before the opening of the session, the three direct representatives attended a meeting of the London branch of the British Medical Association and gave what they called an account of their doings to "their constituents." This is quite a new departure, and only proves once more the accusation that the British Medical Association has always aimed at controlling the elections and even the representatives. It has largely succeeded in engineering the matter to the great annoyance of that large section of the profession which sees through the doings of the clique and regards them as a scandal and a disgrace, but will not rouse itself to put an end to them.

In the Pathological Section (Royal Society of Medicine) Dr. M. Haaland had a paper on inoculation of cancer in which he directed attention and the ease with which spontaneously occurring carcinoma could be grafted upon the same animal as against its inoculation in other animals, either in health or affected with the spontaneous disease. This suggested that better results might be obtained by transplantations from the same person than from the use of tissues from others. So there was great danger to the patient in operations, if cancer cells were disseminated in the wound, though there is not much danger of the transference of the disease from one person to another, which seems to show that the conditions of growth of sporadic tumors are specific to each.

Dr. J. A. Murray showed specimens from a cow affected with adenocarcinoma of liver, from which ingrowths passed into the portal vein. He could not accept the theory that the blood contained substances inimical to the growth of cancer cells. For an embolus to grow it must become vascularized from the wall of the vessel. If this failed the growth aborted. He showed a rat in which pulmonary carcinomata had followed intravenous injection of cancer.

Dr. B. J. R. Russell showed a specimen from a mouse in which carcinoma cells, experimentally grafted, established the growth of a sarcoma, the cells of the latter being furnished by the tissues of the animal.

In the Clinical Section, after the cases referred to in my last week's letter, Dr. Hale White read a paper for which he was jointly responsible with Mr. Lockhart Mummery and Dr. Bruce Porter. It was the story of a case of pneumococcal colitis with hyperpyrexia, in the course of which severe hemorrhage was treated by appendicostomy.

It is not often that colitis due to the pneumococcus is detected during life and the diagnosis confirmed by bacteriological examination. For this reason the case is interesting. It also illustrates the successful treatment of hyperpyrexia by cold sponging. Attention was drawn to the good effect that followed the running of cold water through the colon. Before the case was under their care cold enemata had been used without diminishing the bleeding. Hazeline was added to the injections for four days before operating, but without effect. After all other measures failed appendicostomy was done as a means of running cold water through the colon and the case showed the value of this plan in arresting the hemorrhage. Subcutaneous injections of oil were given as a means of nutrition.

Mr. Charles Symonds said he had seen the operation do harm, so it was necessary to consider how soon it should be resorted to.

Dr. White replied there could be no question of the great benefit in this case.

At the Hunterian Society on the 8th inst. Dr. A. C. Jordan gave an interesting address on the value and limits of *x*-ray diagnosis, illustrating his statements by some eighty slides. He maintained that in phthisis every case could be detected as soon as physical signs could be made out and that the extent and distribution of the disease could be ascertained. Further, he held that the disease might often be diagnosed by *x*-rays before any physical signs could be made out. The *x*-rays were also of great value in examining the gastro-intestinal tube. For this purpose carbonate of bismuth should be used suspended in milk or water with flour, sugar of milk, or other innocent substance. The subnitrate must not be used, as nitrous acid might be liberated, from which indeed fatal results had occurred in Germany. But from two to four ounces of carbonate could be safely employed. When the mixture was swallowed in esophageal stricture it was seen in bulk in the dilated part above and only a thin stream trickled through into the stomach. So when there was a pouch the screen showed the mixture flowing into the stomach, but leaving a portion in the pouch above. The shape of the stomach in health varied with its contents, as well as with the pressure upon it by the other viscera in different positions. When a patient with a dropped transverse colon contracted the abdominal muscles the colon would rise—sometimes to its normal level. It was suggested that such cases might be improved by massage, exercise, etc. When no rise of the colon appeared the stomach was usually dropped also. Manual pressure upon the abdomen might in such cases cause the rise. For such a case a well-fitting belt was suggested as likely to be beneficial. When the colon was greatly distended by gas it appeared as a clear band across the abdomen, which was a sort of dark ground. One of Dr. Jordan's slides showed this condition in a baby with congenital dilatation of the colon.

Dr. George Lichtenberg has died at the age of eighty-three at his country house in Norfolk, to which he retired several years ago. He graduated in 1851 at Göttenberg, became a Member of the London College

of Physicians in 1860, and in 1863 of the College of Surgeons. He was elected on the staff of the German Hospital here, and in due course became the senior surgeon. He enjoyed a consulting practice in the city, living in Finsbury Square for many years. He contributed some papers, mostly surgical, to the societies and journals.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

GENERAL RACHIANESTHESIA—ISOLATION OF TYPHOID PATIENTS —SURGICAL TREATMENT OF A NOT INFREQUENT CAUSE OF STERILITY—THYROID NEUROARTHRITISM AND ITS TREATMENT —INAUGURATION OF THE AMERICAN HOSPITAL—THE ULTRAMICROSCOPE AND CINEMATOGRAPHY.

PARIS, November 30, 1909.

PROFESSOR JONNESCO of Bucharest brings up again the method of general rachianesthesia which Bier of Berlin and Rehn of Frankfort condemned. The method of Jonnesco has two fundamental principles—puncture of the spinal canal in any location, and the addition of strychnine to the anesthetic. The latter may be one of the cocaine substitutes. Spinal puncture is not dangerous; it should be made usually between the twelfth dorsal and the first lumbar vertebræ. The neutral sulphate of strychnine added to the anesthetic solution preserves all its analgesic power, while removing its toxic action on the bulb. Thanks to this power it is that anesthesia is not dangerous. The solution employed should not be sterilized, for sterilization takes away part of its properties, and the preparation should as far as possible be made freshly. Jonnesco believes that rachianesthesia is absolutely safe. It never causes death nor gives rise to accidents of immediate importance or late seriousness. It appears to him infinitely superior to anesthesia by inhalation. Being produced by the surgeon himself, it does away with an assistant who is often unskilful and always irresponsible. He is persuaded that spinal anesthesia will be the anesthetic method of the future.

Vallin believes that typhoid fever is much more frequent in France than in the other northern and central countries of Europe. Isolation of typhoid patients has been practised for only a few years past; it should be carried out more frequently. Convalescents from typhoid fever having all the appearance of a complete return to health may for some weeks or months still be carriers of the germs in their intestines, the gall-bladder, or the urinary bladder. Before sending a patient back to the family life, especially returning him to the village life, he should be submitted to a medical examination, and we should instruct the carriers of germs that they may be a source of danger to their neighbors, just as much as the carriers of tuberculosis. Widal estimates that in every hospital service there should be several beds reserved for isolation of typhoid patients, for hospital contagion exists, although rarely; it is observed in the occupants of the next beds and among the nurses who care for typhoid patients; it is carried by the objects that have been used by the patients, and by the hands. Every person who has touched typhoid patients should undergo a careful disinfection of his hands, and every object which has been used by typhoid patients should be specially reserved for them. It should be noted that certain persons, during a longer or shorter time after typhoid fever, throw off in their feces typhoid bacilli which may propagate the disease anew. Unfortunately, at present we are hardly able to prevent the carriers of germs from doing harm to their surroundings. They may be cautioned to disinfect their stools, but such a method is difficult to practise for several months or years; for some it is impossible to accomplish isolation.

Pozzi showed that a very frequent cause of sterility in the female consists in a conical-shaped cervix, the narrowness of the os, and an exaggeration of the normal anterior curvature of the uterus. In such cases dysmenorrhea is the rule. Every menstrual period is a painful crisis; sterility is the rule on account of the narrowness of the external os, of the curvature of the canal, and the difficulty of drainage of the cervical mucus. The operation which is generally practised in these cases is gradual dilatation with a haminaria tent, or immediate dilatation with bougies, but its result is very transient. This is why Pozzi advocates an operation having a permanent effect, and one which he calls stomatoplasia with rupture of the commissures. He rapidly dilates the cervix by means of Hegar's bougies, and separates the two lips of the cervix by a double section of the commissures, so as to open it like a duck's beak. Suture is preceded by freshening of the bleeding parts, which amounts to a true submucous section of the cervix. Finally, he practises an immediate and entire occlusion of the operative wound so as to prevent stenosis and infection. Doleris considers Pozzi's operation as altogether excellent, and thinks that we should have recourse to it when simple, slow, progressive dilatation of the uterine cavity has not given good results.

Thyroid neuroarthritism and its treatment was considered by Leopold-Levy; it represents a common affection which causes a whole series of troubles and brings about bad function of the thyroid gland. The results of thyroid treatment of neuroarthritic cases are excellent; migraine, chronic rheumatism, gout, asthma, dermatoses, enteritis, and neurasthenia are all benefited by thyroid treatment. The diagnosis of neuroarthritism is made by the circumstances in which the various lesions develop, by the study of the temperament of the subject; thyroid instability gives rise to special syndomes. Treatment should make use of a preparation of the fresh glands obtained by cold desiccation in a vacuum; the doses should be proportioned to the condition of the patient. Certain adjuvant mediations are indicated practically in the form of classic drugs, iodine, arsenic, and phosphorus.

On October 28 there took place the inauguration of the American Hospital, situated at Neuilly, by his Excellency the Ambassador of the United States. The French Government was represented by M. Doumergue, Minister of Public Instruction. This hospital is essentially a charitable institution, due to the initiative of a certain number of Americans resident in Paris, who have grouped themselves together for the purpose of founding a charitable institution in conformity with the French laws of associations. This hospital will receive indigent and sick Americans; they will be cared for freely, but the fortunate may be received if they wish and be cared for with the most favorable surroundings. No fixed charge is made to the patients, but according to their means they may give a sum which will be used for the general expenses of the hospital. This is essentially an American institution, modeled after the great institutions of the United States. In spite of its small size, it is quite complete in its appointments and does credit to its founders.

Comandon has had the happy idea of applying the ultramicroscope to cinematography. At the Academy of Sciences Dastre gave his experiences, which have met with the greatest success. Up to this time it has been possible to study germs only in very small numbers and stained; to-day, with the ultramicroscope, we may seize them alive and the invisible world is cinematographed. Comandon has publicly shown, amid the applause of his audience, trypanosomes as the living agents of sleeping sickness, spirochetes of syphilis, with their quick and lively movements; finally, the normal and pathogenic parasites which constitute the intestinal flora.

[Dr. R. L. Watkins of this city described an apparatus of this kind in the *Scientific American* of July 31, 1897; the invention of M. Comandon is therefore not novel.—ED.]

Progress of Medical Science.

Boston Medical and Surgical Journal, December 2, 1909.

Interstitial Pregnancy.—F. W. Johnson reports the case of a woman who had borne one child seven months before she came under his observation. Three months later she had a normal menstrual period, followed by amenorrhea lasting three months. A bearing-down feeling with metrorrhagia ensued, but there were no uterine pains. Flowing had continued intermittently. The uterus was enlarged and solid tumors were felt on the anterior wall toward the right and also on the posterior. In the region of the left horn there was a tender and soft tumor. Violet coloring of the vaginal mucosa was marked. The uterus was curretted and some old clots with a substance resembling decidua were removed. The abdomen was opened and a large organ studded with fibroids and the tender uterine horn was visible. At a point beginning just inside the left tube for a small area the uterine wall was thinned out so that it was covered only by peritoneum. An incision was made through the thin portion along the fundus and through this opening a three to four months fetus with cord and placenta were shelled out. The fetus had evidently been dead but a short time. With the finger a hole was made connecting with the uterine cavity. The fetal cavity was closed with buried catgut sutures, the peritoneum being brought together over the incision. Fibroids were then removed. Discharged on the eighteenth day.

New York Medical Journal, December 4, 1909.

The Influence of Diet on Infant Mortality.—J. P. Crozer Griffith's paper is a plea for a more careful preparation of the infant's food. He considers that the ferments, alexins, antibodies, and other substances are in many respects different from those in cow's milk. It is possibly through their influence that an infant can be made to thrive if only it is given daily one or two feedings from the breast. Something imbibed in this way appears to make the cow's milk more readily absorbable by the digestive tract. Many of the maternal excuses for early weaning are purely fanciful, and no woman should wean her child except under the physician's direction. Especial care should be taken to prevent in bad weather the decomposition of food which has been properly prepared. Clean milk, free from dirt, is the first necessity. In regard to Pasteurization and sterilization of milk the author says that prolonged heating at a high temperature destroys many of the natural ferments and likewise alters the digestibility of the proteins by its action on the lime salts. Many of the ferments and other bodies are not affected by Pasteurization at proper temperature. From a purely clinical standpoint there is no doubt that milk of poor quality is much more harmful raw than sterilized. He himself has little fear of the bad results attributed to heating as compared with the danger of milk rich in bacteria, and believes that with all doubtful milk, and probably with all milk during the hottest weather, Pasteurization is to be recommended. The sale of commercially sterilized and Pasteurized milk is to be condemned. It has been shown that Pasteurized milk will develop dangerous bacteria more rapidly than will raw milk, the heat having destroyed the lactic acid germs, which, if left alive, check by their growth the development of the proteolytic varieties. Pasteurized milk is, then, valuable, but the necessity of care in its production and especially the care of the product afterward, is evident. The term "sterilized milk" and "Pasteurized milk" on the milk wagon merely give the mother a false sense of security, even supposing that the process has been honestly and properly carried out by the dealer. All sterilization and Pasteurization should be done at home.

The Immunizing Treatment of Hay Fever.—Dr. W. Scheppegrell comments on the practical failure of the vaunted serum treatment. He believes that the exciting factor in the disease is not the golden rod, but the rag weed. This plant has certain histological peculiarities which make it unusually likely to scatter its pollen throughout the air. This plant is not, however, responsible for all cases. The upper air tract should be put in a condition of anatomical integrity. This alone will cure 15 per cent. of the cases. The pollen of rag weed contains a pungent, aromatic compound which is irritating to the nasal mucosa. The author uses the pollen of the staminate flowers for inhalation by the patient. These inhalations are followed by mild typical symptoms. The preferable time for the inhalations is just before the usual time for the appearance of the patient's annual attack. Gradually the inhalations cause less and less reaction and the patient becomes immune for the time, but the treatment must be continued throughout the entire hay fever season of each year. There is no need to keep a patient within doors. He should by all means take his usual outdoor exercise, but be very careful to avoid rich and indigestible foods. To secure the pollen for use the author advises the wrapping of a couple of teaspoonfuls of the staminate flowers in a gauze bag and then tapping or rubbing this before the nares. Such a device can be used some ten times before losing its strength. It is better to use fresh flowers, but the author has found effectiveness in flowers two years old. They must be gathered before the first frost, for this disintegrates the pollen and destroys its effectiveness for the purpose desired.

Typhoid Fever from the Surgical Point of View.—A. E. Isaacs speaks of the various surgical aspects a typhoid case may assume in addition to the perforation of the bowel. We may have gangrene with sepsis, furunculosis, cellulitis, and erysipelas, fecal fistula, etc. Another and more serious class of suppurations that are likely to occur during the course of the disease is involvement of the internal organs and, unlike the superficial lesions, the source of the infection is from within, and may be carried to its place of lodgment in various ways, which will be considered under four headings: (1) By transportation by the blood current; (2) by extension through the lymphatic circulation; (3) by direct continuity, or by extension from one organ to another along the caliber of connecting tubes or ducts; and, (4) by changes in the blood and vessel walls permitting clotting and thrombosis, and parenchymatous changes in the organs, all due to the disorganizing effect of the toxemia on the cellular elements. Cholecystitis is a complication which calls for special mention, as it seems to take on a very virulent course in typhoid. It may occur in the third week or later. Gangrene and perforation may occur. Even with operation it has a mortality of 50 per cent. Without it the condition is fatal. Intestinal perforation is a comparatively frequent and most serious complication, and is the result of the intestinal ulcerations peculiar to the disease. It is most likely to happen in the third or fourth week, though it may occur earlier or later, especially in a relapse. It takes place, according to Harte and Ashhurst, in about 2.5 per cent. of cases, this figure being based on a total of nearly 3,000. According to the same authors the perforation is single in 85 per cent., and the location is in the ileum within 12 inches of the ileocecal juncture in 75 per cent., and over three feet away in only 2 per cent. of cases. At the Beth Israel Hospital for the three years to September 30, 1909, among a total of 217 typhoids, there were eight perforations, a proportion of 3.5 per cent., half again as high as the figures quoted. The most important element in the prognosis is the timeliness of the operation. If done within from six to eighteen hours of the time of perforation there is a reasonable hope for success. If the condition is unrecognized or neglected until the resulting peritonitis gains sufficient headway to add an additional septicemic element to the existing septicemia infection of the disease, the prognosis is necessarily influenced in proportion. Yet hopeless looking cases are so often successful that every patient ought to be given the benefit of the chance, be it ever so small, of relief by operation. Of the eight patients at the Beth Israel Hospital during the period stated, one died without operation, seven were operated upon, of whom five died, a mortality of 72 per cent.

Journal of the American Medical Association, December 4, 1909.

Occupations and Disease.—D. L. Edsall notes the inexactness of case records in regard to the antecedents and occupations of the patients. Mere general terms are too often employed. The occupation is put down simply as laborer, mechanic, etc. It would be folly, he thinks, for us to carry in our minds the details of all occupations and this is especially shown in the occupations predisposing to plumbism. Years ago Layet collected one hundred occupations in which there was danger of lead poisoning, the Edsall has been able to add considerably to this list. We can, however, he says, adopt some system of attempting to elicit the main facts and follow up particularly suggestive admissions. As an illustration of the details that may be brought out, he mentions the excessive liability of carriage painters over other painters to lead poisoning, and the fact mentioned to him by one of the Pennsylvania railroad surgeons, of the liability of locomotive engineers to the right-sided sciatica, caused by their sitting in a sideway position on the right-hand side of the cab in the springless locomotive. There are many important effects of heat also which have not been generally recognized on account of the too exclusive attention to heat-stroke and heat-prostration; there are many local effects also of strain occurring in special occupations and the same is true of the causes of heart affections and mercury poisoning, which is especially accompanied by nervousness and apprehensiveness. We have learned also, through a study of occupations, many other curious effects of poisons, as shown strikingly in the preference of lead to attack the upper extremities, and that of arsenic to attack the lower limbs, of methyl alcohol to attack almost alone the optic nerve. On the other hand we have striking evidence that serious neurotic states may follow on purely nervous and chiefly psychic influences—evidence furnished by telephone operators, for example, whose work is so full of strain that Wernicke said that every one of them who continues work for several years becomes hysterical. This is probably an extreme statement, but others who have studied the question agree that hysteria and neurasthenia are unduly common among such workers. There is an opportunity here also to advance our knowledge of cancer and we know already some facts on this point, among which he mentions the unusual amount of cancer among agricultural workers. The sociological and political bearings of the question are also noted and Edsall points out how legislation in regard to the prevention of disease may need to be varied in different countries. Thus in this country where certain

unhealthy occupations, such as matchmaking, etc., are carried on by large corporations and mainly by machinery where the operators are little exposed, are very different from those in Germany, where such work is still largely done in little home factories. The concentration of capital in this country has therefore in this, as in many other ways, made our conditions here superior to those abroad. He visited, for example, a certain paint factory and found that only one man was at all seriously exposed to lead among all the workers.

Cancer of the Uterus.—H. J. Boldt speaks of the necessity of an early diagnosis of uterine cancer and says that the palliative treatment of inoperable cancer becomes all the more important when we recall that by preventing the nutrition of the cancer cells we cause them to undergo retrograde metamorphosis and thus destroy their activity. It has been asserted by some that cancers can be cured in this way. The late Lawson Tait asserted that he had seen some spontaneous cures of cancer, and Boldt here gives some personal observations of his own which would appear to support this statement. It seems evident that small cancer remnants can be disposed of by the system. But he does not believe in radical surgery in such advanced cases as are usually called inoperable. He prefers to do a palliative operation with curette and cautery, and believes the results are just as satisfactory as to the longevity of the patient and far better as regards immediate mortality, for the curette and cautery operation should cause no deaths directly unless from the anesthetic. If the neoplasm, however, has progressed toward the bladder or the vagina, and is extensively infiltrated, it is inadvisable to use the cautery. He figures and describes a specially heavy curette and speculum surrounded by cold water devised by him to prevent burning of the vagina in these cases. Pieces of ice or ice shavings can be employed to cool off the cavity which is being charred and, with the cooling speculum, burns are entirely obviated. After the eschar has been thrown off it is well to use strong tincture of iodine in the cavity every second day until it is contracted. He thinks that acetone might be even better. He knows of no treatment which will control bleeding and offensive discharge so satisfactorily as will excavation and cautery. Other agents and methods are mentioned such as the chloride of zinc, pyoktanin, and carbide of calcium. The acetone treatment, recommended by Gellhorn of St. Louis, seems to be of value after cauterization has been completed. We can not always be certain of the nonexistence of cancer remnants in apparently cured cases, and this will explain recurrences after many years. In other cases of apparent cures we may question possibly the diagnosis.

The Palliative Treatment of Uterine Cancer.—W. B. Chase holds that the early radical measures have about reached their limit in the treatment of uterine cancer and that the palliative treatment is not receiving the attention it deserves. His statements have more reference to cancer of the cervix than cancer of the body, but the same principle applies to both. When the disease has reached the adjacent structures it may be advisable to limit the treatment to the superficial area of ulceration. After long personal observation and experience he is convinced that no palliative treatment is so effective as the thermocautery, which has the advantage of thoroughly closing the lymphatic vessels. Whether its superiority over caustics is due to the influence of heat on the diseased cells beyond the area of cell destruction is a matter of opinion, but he is inclined to think it probable. He specially emphasizes the fact that it is rare for the patient to suffer pain after the use of the thermocautery if the mucocutaneous surfaces are not injured. This requires tact and experience. He has usually found it easiest to protect the surfaces from injury by the use of strips of asbestos paper of proper size and shape. He alludes to Dr. John Byrne's method of the use of the galvanocautery, which he calls the correct one, and which consists in the gradual eating out of the diseased tissue of the uterus nearly to its peritoneal covering by the use of a platinum wire loop for the cautery and curetting away the burned tissue. Skill with this method consists in not going far beyond the area of involvement and having the cautery just hot enough to burn the structures but not to disintegrate them too rapidly. If proper heat is not maintained troublesome hemorrhage may follow. He has seen patients with cancer, far advanced, of the cervix and body showing signs of grave systemic infection, who lost their cachectic appearance after thermocautery operation. The greatest gentleness should be employed in all manipulation of the parts after operation and a bivalve speculum should not be used as a rule, as it is likely to infringe on the burnt area. Daily vaginal douches with permanganate of potassium or compound solution of cresol are the best antiseptics. In hopeless cases this local treatment of galvanocautery is essential for the patient's comfort, and the skilled hand of the attending physician is the most satisfactory in applying the dressing. The local use of cocaine, frequently repeated, is sometimes useful in relieving pain, or rectal suppositories of cocaine and hyoscyamus are advisable. Later, increasing doses of morphine may be used. He has not been so fortunate as Dr. Byrne in thus preventing the local recurrence of the disease, which may be due, he says, to his less skillful technique. There is no reason why in recurrent cases of thermocautery cannot be repeatedly used with benefit. He gives the history of four patients, two of whom after periods of from four to eight years, according to accepted standards, were cured, and the other two were greatly benefited and their lives prolonged for years with very little suffering—a result unobtainable, so far as he knows, by any other treatment. His experience with *x*-ray and radium treatment has not been sufficiently extensive to enable him to speak authoritatively as to their value, but, as far as his experience goes, he regards radium as far the more useful, since after its use granulating surfaces take on a more healthful activity than after the use of the *x*-ray.

Magnesium Sulphate Anesthesia.—S. Solis Cohen has noticed that the external applications of magnesium sulphate solution relieved certain deep-seated pains of arthritis, cutaneous inflammation, etc., he would not say in consequence of, but sequent to the application. In order to test whether or not this was a psychic phenomenon, other applications were made—simple saline solution, distilled water, magnesium chloride, sodium sulphate, etc. While any moist dressing alleviated the pain somewhat, none of them had the decided effect of magnesium sulphate. To determine whether or not any local anesthesia was produced, the tactile sense, pain sense, and thermal sense were tested in normal persons, in the patients relieved by magnesium sulphate, and in the patients not relieved by it. In no instance was any effect of any kind on the cutaneous sensations detected, whether the examinations were made within ten minutes or after from thirty minutes to an hour. He represents this merely as a curiosity of observation, but thinks it may be useful at times when one does not care to give morphine for deep-seated pains. The problem is complicated and the method of observation is inexact, so that he cannot say that there really was a positive action of magnesium sulphate in these cases. He deems the matter, however, worthy of further observation.

Vasectomy.—H. C. Sharp quotes the statistics of Indiana for the last eighteen years as evidence that it is race degeneration and not race suicide that should cause us to be apprehensive of the future. Certain States have passed laws for the purpose of restricting the marriage of degenerates, but the tendency of such laws is to restrict propagation only in the more moral and intelligent classes and to have no effect on the more dangerous degenerates. He therefore pleads for the defertilization of degenerates and says that since October, 1899, he has been performing an operation known as vasectomy, which consists of ligating and resecting a small portion of the vas deferens, which can be done in three minutes without an anesthetic and without interrupting the normal activities of the individual. He has had 456 cases, affording splendid opportunity for observation, and has seen no bad effects, though effectively sterilizing the individual. On the other hand it seems to improve the disposition and to increase the muscular power. He reports that he has had good results in cases of neurasthenia from this operation. It diverts the function of the sexual glands to their internal secretion. He describes his operation and says that it is being carried out effectively in the Indiana State Reformatory, and it is to be regretted, he thinks, that it is not also performed in the other State institutions.

The Lancet, November 27, 1909.

Some Complications and Dangers of Nasal Surgery.—H. B. Tawse refers to the great advances which have taken place in nasal surgery during the last two decades,

and points out some of the complications and dangers which, in view of the present extensive operations undertaken, were unknown years ago. He refers particularly to the middle turbinate bone and speaks at some length about its polypoid degeneration. This, with the frequent concomitant sinus suppuration and the evisceration of the ethmoid region, call for special carefulness. The special complications are hemorrhagic effusion into the eyelids and orbits, orbital abscess, necrosis of the frontal bone, necrosis of the superior maxilla, fracture, puncture and laceration of the cribriform plate, suppurative meningitis apart from injury, severe hemorrhage, and optic neuritis and blindness. The effusion into the eyelids, etc., is very common and of no threatening moment. In cases of polyps in old people with long standing sinus disease, the turbinal tissues are of a pale blue anemic color and the seat of extensive degeneration. The bone destruction is usually much greater than can be determined by speculum and probe. In cases of suppuration of the frontal sinus, it must be remembered that we are working separated from the brain by only a thin plate of bone, and that while fatal results are comparatively rare they are by no means unknown. Free drainage is the great desideratum. If the case goes on to an osteomyelitis a fatal result is inevitable. We should not be too zealous in those cases in which the pus escapes freely from the sinus and which show no impairment of the general health. Moreover, after some of these operations a long course of after-treatment is necessary, and we must be sure that the patient's confidence will stand this. Postoperative neuroses are quite common after these serious intranasal operations.

Severe Case of Exophthalmic Goiter in Which Treatment by the X-Rays and Sour Milk Appeared to Be Beneficial.—J. C. Newman's patient was a single woman of 31 years who presented the typical appearance of a case of Graves' disease. The most painful symptom was vomiting, of which she had several obstinate attacks. Various remedies were tried with reference to the relief of this symptom and to the cure of the general condition. None were of any aid, however, and the patient became nearly moribund, so greatly was she reduced. *X*-ray seances were given, each lasting about seven minutes, the sides of the thyroid being treated alternately at each sitting and the latter being repeated twice weekly. This treatment appeared to be beneficial. During the wasting the thyroid gland had shared in the process, but as the patient began to mend, it resumed its former size. Another attack of vomiting was followed by wasting, but as the patient recovered the gland did not enlarge again. The stomach again becoming upset, she was placed on milk soured by the lactic acid bacillus, and from this time she began to have relief from an obstinate diarrhea of some duration. At this time the diet consisted of little but milk, and her stomach was dilated and probably in a condition of atony. Under the conditions named her intestines may have received little else than sour milk and this after they had been pretty thoroughly flushed out. The conclusion that her improvement was due to the exclusion of intestinal toxins assisted by the reduction of activity of the thyroid gland under *x*-ray treatment seems to the author a legitimate one.

The Relation of Alcohol to Immunity.—F. R. Parkinson says, (1) That alcohol in small quantities has no action of phagocytic activity; (2) it has no action of phagocytic activity until it is present in 12.5 per cent. strength; (3) small quantities injected into rabitts may temporarily stimulate the production of antibodies; (4) a large dose of alcohol lowers the opsonic index for 24 hours; (5) continuous moderate doses cause a permanent lowering of the opsonic index; (6) the reacting mechanism to vaccines is much less effective in alcoholized rabbits than in normal rabbits. The difference is still more marked when living microorganisms are used.

Comparison Between the Antiseptic and Aseptic Methods of Operation, with Special Reference to the Occurrence of Suppuration.—H. S. Pendlebury and Ivor Back present a study of this question based upon the results obtained at St. George's Hospital during the years 1906 and 1908, respectively. They describe certain plans used at the institution in establishing the aseptic régime and give their comparisons based on the two methods in tabulated form, which cannot be reproduced here. In operations for hernia the septic percentage was lowered from 13.8 to 9.6 per cent.; in breast cases it rose from 8.7 to 12.2; on thyroid gland reduced from 7.7 to 6.2; in operations on the male genitals reduced from 14.3 to 6.5; in quiescent appendicitis reduced from 9.2 to 3.3 in all cases of appendicitis reduced from 13.5 to 9.4.

British Medical Journal, November 27, 1909.

Two Rapidly Fatal Cases of Pneumonia.—Cases are reported by W. T. Mills. The first was that of a man who was seen in public by the author at six o'clock one evening. He was called about two hours later, and found pneumonia at the left base. The man was gasping for breath, and could not lie down. In spite of injections of strychnine and digitalis and other remedial measures, he died in six hours. The other case was that of a farmer of 31 years, weighing over 230 pounds. Two days before he had been wet through. The next day he worked in a draft and the author was called to see him in the evening. A small patch of congestion was found at the base of the right lung and a diagnosis of pneumonia was made. The next morning the condition was more pronounced and he died in 35 hours. His face became quite black before death, and immediately after death blood flowed from the mouth. There was such a layer of fat over his body that no veins were visible in the arms, even after applying a tourniquet, for the author was prepared to bleed him if the blood would flow. The temporal artery was not opened, as it was considered that this procedure would not relieve the right side of the heart. Hypodermics of strychnine were given in this case also, but without avail.

Auricular Fibrillation; a Common Clinical Condition. T. Lewis says that it is well known that in late stages of mitral stenosis and in cases of general cardiovascular degeneration the pulse is frequently continuously and extremely irregular. It has been supposed that the rhythm of the heart producing it has had its origin in the node of Tawara. Facts at the author's disposal permit of the following conclusions: (1) That a rhythm arising in the neighborhood of this node occasions a totally different clinical picture. This conclusion is based upon a detailed examination, by recording apparatus, of a case of paroxysmal tachycardia in which it can be demonstrated that the auricle and ventricle contract together. (2) That the irregular pulse of mitral stenosis is due to fibrillation of the auricle. (*a*) The clinical irregularity presented by arterial and heart apex curves is unique. The rhythm is entirely disorderly and the sizes of the beats do not correspond to the pauses which precede them. Fibrillation of the auricle results in a similar action of the ventricle. (*b*) Electrocardiograms taken from patients exhibiting the irregularity show a number of irregular waves apart from the ventricular curves. They are found in no other disorder of the heart's action. They disappear when in a paroxysmal case the irregularity vanishes, and are therefore due to a temporary and disorderly action of some part of the heart wall. Cardiographic curves give no evidence of such a disordered action in the ventricle. Fibrillation of the auricle gives curves which are identical in every respect, and no such curves have been obtained by experimental means. Further, the waves on the experimental cardiograms can be shown to correspond to the fibrillary movements in the auricle by means of synchronous tracings. (*c*) The venous curves in the clinical irregularity are of the ventricular type. All the prominent curves occur during the ventricular systole, and there is no wave corresponding to a normal auricular contraction. The same statement applies to the venous curves in fibrillation of the auricle.

A Case of "Giant Feet."—The case is reported by H. Stevenson, whose patient is a boy of four years, apparently normal at birth, with the exception of toe deformity and some enlargement of the ball of the left foot. At the age of six months, when vaccinated, lumps appeared in the leg and groin. Gradually the enlargement spread upwards toward the axillæ and at the same time the arms grew thinner. At the present time the two inner toes of the right foot are normal in development. The three outer toes are very much enlarged and resemble small tubers. They are acutely dorsiflexed, and arise from a much thickened sole pad. The left foot is even more deformed, only the inner toe escaping and the characteristics described on the right side are more exaggerated. The left leg, thigh, groin and infrascapular regions are sites of large, fatty tumors, and there is also a large one on the right buttock. When the child stands there is well-marked lordosis, due apparently to the weight of the tumor in the groin, and possibly to some intraabdominal growths. The child is nevertheless able to run about and to indulge in the usual sports of childhood. The skin is everywhere normal in appearance, and a section from one of the tumors has the appearance of an ordinary lipoma

Berliner klinische Wochenschrift, November 15, 1909.

The Prophylaxis of Tuberculosis.—Czerny says that the most important point in the prophylaxis of tuberculosis is to teach the laity that it is contagious from man to

man. For this reason it is of the greatest importance that each patient with tuberculosis should be informed of the nature of his disease. The author attempts in every case of tuberculosis among children to determine the mode of infection, in order that repeated infections may be prevented. In many cases the infection is obtained from persons who were not aware that they had the disease. The necessity of frankness in diagnosis and statement is especially strong, as we know that it is a curable disease. The tuberculosis infection often masks itself under the guise of scrofula. People do not appreciate that gland and bone tuberculosis may be a source of consumption. While it is customary to examine every wet nurse for tuberculosis before hiring her, it must be remembered that children not nursing may also contract the disease by being tended and carried by infected nurses. He knows many cases of children from tuberculosis-free families who had caught the disease from nursemaids. The general oversight of a family to prevent the spread of tuberculosis, formerly possible as a function of the family physician, is becoming more difficult, as he is being replaced by the specialist.

Wassermann Reaction in Milk.—Oluf. Thomsen has made a study of the Wassermann reaction as produced by women's milk in a series of cases, and says that the milk of syphilitic women very often gives a positive Wassermann reaction, and this reaction, which is usually strong, occurs not infrequently in women in whose blood serum a positive reaction cannot be obtained. The reaction appears, apparently, with unchanged strength during the first two or three days of lactation; then, if the mother nurses, it suddenly diminishes and usually has disappeared within five to six days of the birth of the child. If the mother does not nurse, the reaction remains positive and unchanged in intensity for at least from 8 to 14 days, after which time it is usually impossible to obtain specimens for examination. During the last days of pregnancy the reaction is similar to that of the first days of the puerperium. The milk of nonsyphilitic women can also, though rarely, give a positive reaction during the first days of the puerperium, but this reaction is far weaker than in syphilitic women. What value a positive Wassermann reaction in the milk may have in diagnosis and prognosis is not proved by the present investigation, as more material is required for such conclusions. Positive reaction, however, occurred when using less than 0.1 c.c. of "serum" only in the presence of syphilis. Hypothetically there is an inference of the relation of the local Wassermann reaction, in the milk and cerebrospinal fluid to the generalized reaction, in the blood.

Münchener medizinische Wochenschrift, November 16, 1909.

Intravenous Anesthesia with Ether and Chloroform.—Burkhart, who recently published a paper advocating the intravenous injection of chloroform for general narcosis, reports his results with the use of ether intravenously in thirty-three cases and of a mixture of ether and chloroform in eight more. He first experimented with a 10 per cent. solution of ether in salt solution on animals, but found that this caused too deep narcosis and severe hemoglobinuria. A 5 per cent. solution, on the other hand, caused no untoward symptoms. This strength he therefore used on men. Careful asepsis was carried out; 50 c.c. of ether was added to a liter of saline and shaken until completely dissolved. The vein was laid bare and the distal end ligated. The solution was injected steadily until anesthesia was complete, then stopped until the patient began to show signs of coming out, when more was given, usually from 30 to 70 c.c. at a time. Patients of all ages were used. In 29 of the cases the reflexes were absent during the entire period of anesthesia; in 4 they were present during at least a part of the time. A previous injection of scopolamin-morphine is recommended. The amount of ether required to produce narcosis varied greatly; one 4½-year-old child required 85 c.c. of the solution; children under 15 usually took 200 to 250 c.c.; the largest amount required was 380 c.c. In women it varied from 200 to 600 c.c., and averaged 320 c.c. In men it varied from 200 to 800 c.c., and averaged 600 c.c. The narcosis came on as a rule in from 8 to 10 minutes. In no case was any alteration in the breathing noted; it remained slow and quiet. Cyanosis was not seen. Râles were heard in only a very few cases. Noticeable variations in the rate and quality of the pulse were not observed; the infusion seemed to improve it. Vomiting did not occur. After effects, as vomiting, headache, and nausea, were absent in thirty of the cases. In no case was any pathological urine finding seen; there was neither albuminuria nor hemoglobinuria. There were no thromboses or emboli. In only two instances did there occur a bronchitis. The ether-chloroform narcosis was carried out by attaching two tubes to the cannula, one to a 5 per cent. ether solution and the other to 0.5 per cent. chloroform. In these eight cases, too, there were no bad symptoms, except in the cases where 0.7 per cent. chloroform instead of 0.5 per cent. was used. In these there was a transient hemoglobinuria. The author concludes that intravenous ether narcoses, combined with scopolamin, at least among adults, is the least dangerous and most convenient of all general anesthetics. It will, however, be reserved for special cases. It is indicated only in such cases and under such conditions that the asepsis is sure. Under these conditions it is indicated (1) in patients with imperfect respiratory and circulatory organs, in the weakened and debilitated, for in the absence of the primary stimulation to the respiratory organs and the reflex insult to breathing and heart the blood pressure is not altered, and overdosage is scarcely possible; (2) in operations on the head and neck as convenient to the operator; (3) with patients who have an idiosyncrasy or severe personal objection to the inhalation of a narcotic.

Treatment of Fracture of Thigh in the Newborn.—Zancarini discusses the various methods of treating birth fractures of the thigh. He has obtained his best results from using the infant's body as a splint. The fractured thigh is flexed over the abdomen and thorax and the foot put over the shoulder by the side of the neck, and the clavicle acts to hold it in position. The limb is bound in position by a simple binder around the body, the chest having been padded with cotton. The bandage is removed daily to allow of massage. This position is a reversion to the fetal posture, and causes the child no pain. The deformity of the thigh is overcome, and the length of the limb is maintained. The method may be applied by any physician, and is not objected to by the family. Three cases are reported.

Deutsche medizinische Wochenschrift, November 18, 1909.

Nephritis and Inflammation of Parenchymatous Organs.—Ribbert concludes an article on this subject by saying that the inflammations of all parenchymatous organs are confined entirely to the interstitial connective tissue. There is no parenchymatous inflammation, for the parenchyma of the especial organ takes no part in the process; it shows degenerative changes only. The parenchyma is not an active participant in the inflammation, which does not attack the entire organ, but merely has its seat in it. The retrogressive changes of the parenchyma are, however, alone responsible for the symptoms. The original inflammation (interstitial) has either no action in causing sickness, or else only indirectly, in that it damages further the previously uninjured tissue.

Glycosuria in Women.—Henkel discusses the greater prevalence of diabetes among men than among women, and reports two cases of glycosuria occurring as the result of pelvic tumors. The lesson which he draws is that tumors in the female genital organs may cause glycosuria, which disappears immediately upon excision of the tumors. As the operative prognosis in true cases of diabetes is notoriously bad, it is desirable to recognize these cases of "intoxication diabetes," for in them all treatment and temporizing is without avail and wrong, since with the excision of the tumor the sugar disappears from the urine. Clinically of diagnostic value are the facts that in these cases the sugar content is small, the urine is not especially increased in quantity, and the great thirst is absent. Not much weight should be put upon the presence of acetone and diacetic acid, as these may be found in other pure gynecological conditions without diabetes.

Hebosteotomy and Extraperitoneal Cesarean Section.—Baisch says that the dangers of the operation of hebosteotomy, namely, sepsis, hemorrhage, and injury to the bladder, may be overcome by proper technique and careful attention to the indications for operation. Hebosteotomy is contraindicated when the woman is unquestionably infected. The best preventive to injury of the bladder is Döderlein's method. Hebosteotomy is to be advised against with a pelvis of less than 7 cm. conjugata vera (6½ cm. with a small child) and in primipara with infantile genitalia. For such cases the extraperitoneal cesarean section is the best and most fruitful operation. After the sawing of the pelvic bones, spontaneous delivery is not to be awaited invariably. With multipara with wide cervix there is usually no objection to an immediate delivery. Hebosteotomy must not be preceded by an effort at high forceps extraction or by a version. Hebosteotomy and extraperitoneal cesarean section are indicated in all the cases of noninfected women, when spontaneous delivery cannot be expected. Spontaneous births, widening of the pelvis, and cesarean section are taking the place of high forceps, prophylactic versions, and *accouchement forcé.*

Book Reviews.

Expansion of Races. By Charles Edward Woodruff, A.M., M.D., Member of the American Association for the Advancement of Science; Fellow of the Medical Association of the Greater City of New York; Member of the American Academy of Ophthalmology; Author of "The Effects of Tropical Light on White Men," and of "The Evolution of the Small Brain of Civilized Man." New York: Rebman Company, 1909.

This is a book to which it is impossible to do justice in the limits of a necessarily brief review, for there is hardly one of its 500 pages which does not contain some statement to arrest the attention of the reader. Whether he agrees with the author or the reverse, he can but admit the cogency of the reasoning and confess that here is a book worthy of serious study, written by a man who knows what he wants to say and who says it in a way that admits of no doubt of his meaning. That it will arouse antagonism is certain; that it will make converts is most probable; that it will be proved wrong remains to be seen. It is a book that will bring comfort to the pessimist and to the optimist, but whether it will inspire the man who is neither, but who is filled with a burning desire to uplift the race, is questionable. The pessimist will say, "I told you so; it's no use fighting against Nature's laws; evolution proceeds along fixed lines, governed by inexorable laws, and all of little man's efforts here and there may help the individual, but have no effect in the long run." The optimist will say, "It's all right; the human race is working out its own salvation; wars and pestilences may come, the individual here and there may be given an opportunity for betterment or may be crushed in the struggle, but the race is marching on." The socialist and the man who wants to raise the little brown brother to a level with himself, at least to make him the ruler in his own land, will find little encouragement here; the earth, Major Woodruff believes, is the white man's, and if he cannot people it all—Nature opposing her barrier of the actinic rays—he must govern it. Moreover, Major Woodruff contends, as was said two thousand years ago, the poor will always be, for poverty is the inevitable result of inequality in mental and physical makeup.

The main argument of the book is the fluidity of population which flows away from congested centers to more open spaces, the term congestion or overpopulation referring not to the absolute number of individuals in a given area, but to the number of individuals in relation to the food-producing or food-procuring capacity of the country. When the population has reached the limit of its ability to get food, either the surplus must move on or the population will remain stationary. War and pestilence work no permanent change in population, for the gaps they cause are soon filled by an increased birth rate; when the balance is restored, the birth rate falls again. The normal birth rate is that which maintains the population at its limit, or an average of two children growing to manhood to each family, to fill the gap made by the death of the parents. All the factors entering into the growth and decay of nations—poverty and wealth, politics and governments, "race suicide," war, disease, socialism and individualism—are discussed in an illuminating way and so as to make clear many of the great problems of history.

There is an almost brutal frankness in this book which gives the reader many shocks, but he is forced to admit in the end that facts are facts. As the author says in his Preface: "Throughout it has been the object to describe merely the facts and the laws governing them. There is no right or wrong in natural phenomena, and therefore no attempt has been made to hide the awful brutality, suffering, poverty, and immorality which have been part and parcel of man's evolution. . . . The facts are stated, and if we are shocked we must remember that it is natural that most of us must be crowded out of existence before reaching the Biblical age of threescore and ten. Ethics never bothers Nature, and we are governed by natural laws to an extent we have never realized." In a word, the book, to quote again from the Preface, "merely applies to man the natural laws which are known to govern the spread of all other species of plant or animal. It then explains the relationship of higher and lower races of man, and shows why we expanded across the Atlantic to America in the sixteenth and seventeenth centuries, and thence across the Pacific, and why the higher races must always control the tropics, though acclimatization and colonization are not possible." There is a great deal about the Philippines and the problems which their acquisition presents to this country, and evidently the author does not believe that we can ever let them go. Any one who has recently been in the Philippines and has seen the tremendous, Gibraltar-like defences which we are constructing there will be inclined to believe that the author is right, and that this country never will and never can lay down "the white man's burden" which it has, fortunately or unfortunately, taken up on the other side of the Pacific.

This is a great book, and one that will broaden the view of the reader, whether it commands his approval or not. It will give him food for thought and will cause him to view even the every-day occurrences of life and the news of the morning with an interest born of their unsuspected relation to the great problem of human destiny.

L'Hypophyse et la Medication Hypophysaire. Etude Experimentale et Clinique. Par M. le Docteur Arthur Delille, Ancien Interne des Hôpitaux de Paris, Ancien Moniteur de Tubage et de Trachéotomie, Membre Adjoint de la Société Anatomique, Lauréat de la Faculté de Médecine de Lille. (Trois Médailles d'Argent et un Prix Spécial.) Médailles de Bronze de l'Assistance Publique, Médaille d'Honneur des Épidémies. Paris: G. Steinheil, Editeur, 1909.

In this treatise the author has gone into an exhaustive study regarding the secretion of the pituitary gland, investigating its chemical and toxic qualities as well as its physiological action on the heart and blood-vessels, kidneys, smooth or striated muscle fibers, etc. He also takes up the association of this extract and those of the thyroid, suprarenal gland, and ovary, and the effect of hypophysectomy and the use of the extract following the lines of the studies in myxedema. The last part of the pamphlet deals with the pituitary extract upon the healthy man and upon invalids and a study of the lesions found in this interesting gland in various diseases. On the whole, it makes interesting observations on a subject as yet little understood.

General Medicine. Volume VI of the Practical Medicine Series. Edited by Frank Billings, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago; and J. H. Salisbury, M.D., Professor of Medicine, Illinois Post-Graduate Medical School. Series 1909. Chicago: The Year Book Publishers.

This is the second volume of the "Practical Medicine Series, 1909," that has been devoted to the consideration of general medicine. Among the subjects considered in this book are some of the acute infections, such as typhoid fever, malaria, cholera, and dysentery, the diseases of the alimentary tract, liver, pancreas, and peritoneum. This, with the contents of Volume I, covers the year's progress in general medicine.

Studies in Tuberculosis. By Henry Clarke, M.A., M.D. (Cantab.), Physician to the Liverpool Hospital for Consumption and Diseases of the Chest; Superintendent of the Research Laboratory of the Hospital; Councilor of the City of Liverpool. Liverpool: At the University Press; London: Archibald Constable & Co., Ltd., 1909.

The present essay, comprising a series of studies, is an elaboration of the author's thesis submitted for the Cambridge degree of Doctor of Medicine. The author has divided his subject into three sections: Diagnosis of consumption, prevention of tuberculosis, and treatment of tuberculosis. In the section on diagnosis the author very properly emphasizes the importance of a careful inquiry into the history and antecedents of the patient. He has adopted a very convenient scheme for history taking. In his consideration of the physical examination he has wisely avoided any discussion of detail, referring the reader to the many authorities for a review of that phase of the subject. There is brief consideration of the specific reactions used in the diagnosis of tuberculosis, including the various tuberculin tests and the opsonic index.

Section two, on the prevention of tuberculosis, comprises some very pertinent suggestions as to municipal and State control of the disease, and particularly on the possibility of eradicating tuberculosis among cattle as a preliminary measure to lessening the incidence of the disease among human beings.

The section on treatment is devoted almost entirely to a consideration of specific treatment by means of tuberculin vaccines. The author briefly considers a few of the many preparations of tuberculin, and more fully discusses the various methods of administration. It is evident that he prefers the German to the English method of dosage and interval. The text of this section is rather freely illustrated with some interesting opsonic index charts and tables showing the results of specific treatment in forty consecutive cases. The author has appended a full bibliography covering the subject matter of his essay.

Society Reports

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held November 5, 1909.

DR. ELSWORTH ELIOT, JR., IN THE CHAIR.

Blood Transfusion for Uncontrollable Bleeding in a Child with Hemophilia.—Dr. CHARLES GOODMAN presented this case. The patient was over two years old and was admitted to the Beth Israel Hospital twenty-four hours after having fallen on his face from a fire-escape to the landing below. There was a lacerated wound of the right cheek surrounded by a hematoma occupying the entire right side of the face, extending to the lower eyelid. The buccal mucous membrane was lacerated in several places, and the upper lip was completely severed. This had been sutured before his admission to the hospital. These wounds were oozing when he was brought to the hospital. The surface of the body was covered by ecchymotic spots. The child was very pale. During the first two days applications of adrenalin chloride, nitrate of silver, ice, and pressure with gauze pledgets were tried to check the bleeding; salts of calcium were also administered by mouth, saline solution was given by rectum, and saline hypodermoclysis and diphtheria antitoxin was given in two doses hypodermically, without result. Blood was vomited, and the child had several bloodstained movements. The transfusion of healthy blood was considered, and the mother volunteered to be the donor, but she was rejected because she was in her eighth month of pregnancy. A donor was finally obtained in a healthy young fellow, nineteen years old. At the time of transfusion the blood examination showed hemoglobin 12 per cent. and less than 1,000,000 erythrocytes. After ten minutes' transfusion there was gradual return of the pulse and beginning coloration of the lips and ears. The transfusion was continued for twenty-eight minutes; at the end of this time the pulse was regular, of good quality, and 140 in frequency. The ears, cheeks, and lips, previously waxy, had now become pink. The hemoglobin was 70 per cent. The child became restless and begged for nourishment. About an hour and a half after the transfusion there was a sudden rise of temperature to 106.4° F. and a pulse of 190. Without treatment the temperature and pulse subsided in twelve hours. An uneventful recovery followed. The points of interest noted were that the oozing from the wounds was not only interrupted by the transfusion, but absolutely checked by it. The ecchymotic spots which covered almost the entire body of the child gradually faded away, and no new spots reappeared. When discharged from the hospital eighteen days after admission he showed a red blood count of 3,400,000 and a hemoglobin percentage of 50. Three weeks later there were 5,000,000 erythrocytes, with a hemoglobin of 80 per cent. The diagnosis of hemophilia in this case was established by the history of obstinate bleeding following circumcision; extraordinary blood loss following trivial injuries; the tendency for the child to develop ecchymotic spots upon slightest contact with hard objects; the persistent oozing from the wounds and mucous membranes following the injuries which resisted almost every means of treatment.

Trephining for Perforating Wound of the Skull.—Dr. CHARLES GOODMAN presented a boy, nine years of age, who was struck on the head by a broken window frame which had fallen from the third floor. A diamond-shaped piece of glass struck the median line of the head at a point corresponding to the junction of the sagittal and coronal sutures. The house surgeon in attempting to remove the projecting piece of glass broke it off close to the skull. When Dr. Goodman saw him he could see the broken fragment of glass firmly wedged in the bone. With the trephine he removed a button of bone with the glass fragment. An examination of the specimen showed that the cranium was perforated, causing a depressed fracture of the inner table. The sharp spiculi of bone in the inner surface caused a very minute perforation of the superior longitudinal sinus. The bleeding was readily controlled. The specimen was rather unique: had he made use of any other method for its removal it would have probably resulted in a serious laceration of the sinus.

Dr. WILLIAM A. DOWNES reported the case of a girl, two years and eleven months of age, who had no history of tuberculosis, neoplasm, lues, nor hemophilia on either side of the family. There was one child older and one younger, neither of whom had shown the slightest tendency to bleed easily. When two years old it was noticed that the slightest bruise left an area of discoloration. She had nose bleeds, beginning sometimes when sleeping. Four months before seen she fell and received a lacerated wound of the scalp, which was sutured; that night the wound bled freely, and the hemorrhage was controlled only by deep sutures. The entire upper part of the face around the eyes became discolored. She had several severe attacks of epistaxis, which were controlled only after the loss of a large amount of blood. This patient was admitted to the House of Relief August 5 with epistaxis and weakness. On August 8 the blood count showed red cells, 2,300,000; white cells, 18,200; polynuclears, 44 per cent.; small mononuclears, 40 per cent.; transitional and large mononuclears; hemoglobin, 30 per cent. On August 12 the patient was given 100 c.c. of artificial serum; this was followed by a severe chill and a temperature of 105.2°. The epistaxis, however, was checked. On August 14 the red cell count was 2,180,000, the white cell count was 16,500; the polynuclears, 26 per cent.; small mononuclears, 71 per cent.; transitionals, 2 per cent.; large mononuclears, 1 per cent.; hemoglobin, 25 per cent. There was no more epistaxis. The temperature ranged between 98° and 100°. The examination of the urine was negative. The patient was then transferred to the New York Hospital and then to the White Plains Convalescent Home. On October 2 she was brought back because of persistent epistaxis. The nares were packed with gauze saturated with adrenalin solution, but the bleeding was not controlled. On October 4 she was infused with 200 c.c. of artificial serum, and there was no further bleeding for thirty-two hours, when the bleeding again appeared, and it was thought that she would die in consequence. On October 5 a transfusion was made from the father as the donor. This was continued for fifty-five minutes. The child was then rosy and warm, the lips were red, the pulse 160 and of good quality. There was a slight epistaxis of dark red blood, which soon ceased. The hemoglobin percentage, taken every ten minutes, showed a steady rise from 14 per cent. to 68 per cent. The recovery of the patient was uneventful, and she was discharged on October 29 with a hemoglobin percentage of 89.

Isolated Dislocation of the Head of the Radius.—Dr. EUGENE HILLHOUSE POOL presented a boy who, seven weeks previous to admission, fell from the top of a range. For four weeks the arm hung at the side in the extended position. The awkwardness of his movements and the deformity caused the parents to seek medical advice. Examination showed the upper part of the left forearm to be much broader than the right. With the elbow extended, the outer margin of the left forearm just below the elbow showed a marked rounded swelling, the most prominent part corresponding to the site of the head of the radius. There was complete absence of carrying angle. Flexion was invariably accompanied by pronation

of the forearm, during which the elbow was abducted. Full pronation was possible, but supination was limited. The identity of the head of the radius was fully established by its rotation with the shaft of the radius in pronation and supination. The bony prominence was quite freely movable in an anteroposterior plane and also outwardly to a considerable extent. The shaft of the ulna and prominences of the elbow were normal. The displacement was readily corrected by placing the supinated forearm in full extension and adducting the forearm, at the same time directing inward pressure upon the head of the radius. To prevent recurrence of the dislocation, the most favorable position seemed to be extension and supination. All the movements of the arm were now normal. Outward dislocation of the head of the radius, the most infrequent, was usually associated with fracture of the ulna or radius. Of outward dislocations without fracture, there were very few recorded cases.

Extirpation of a Pharyngoesophageal Pressure Diverticulum.—Dr. De Witt Stetten presented a case which illustrated two important points, that not every spontaneous, organic esophageal stenosis, developing after middle life, was due to carcinoma, and that proper radiographic studies were positively indispensable in the diagnosis of disease of the esophagus. The patient was a man, sixty-eight years old, whose illness began over two years ago, when he noticed a gradually increasing difficulty in deglutition without pain, but with occasional regurgitation, and attacks of coughing and choking. The esophageal bougie was obstructed at about 16-19 cm. from the teeth. After considerable manipulation he finally was able to enter the stomach with a No. 32 Fr. At the second examination one week later the stenosis seemed to be tighter. A diagnosis of carcinoma of the esophagus at a not infrequent site was made; this diagnosis was agreed to by other surgeons, and a Witzel operation was performed, from which the patient made an uneventful recovery. During the following sixteen months the course of the disease was most gratifying and surprising. He gained eight pounds in weight, and had been able to partake of his regular meals. There was some improvement in his ability to swallow solids, while liquids had gradually been causing him more difficulty. A cough after eating and on lying down at night had been particularly annoying. He never succeeded in passing a larger number than 23 Fr. after the operation. There was no tumor in the neck. It was evident that the original diagnosis was incorrect, and the *x*-ray was used. One plate showed an accumulation of bismuth paste in a dilated esophagus above a stricture located at the level of the seventh cervical vertebra. A second plate gave an anteroposterior view and showed a perfectly circular accumulation of bismuth just above the suprasternal notch, slightly to the left of the median line. It was undoubtedly a typical pharyngoesophageal pressure diverticulum which, by compression and deviation of the gullet, had produced the stenosis. After a thorough course of oral hygiene and the exclusive use of the gastrostomy for feeding purposes for five days, it was felt that the upper part of the alimentary tract was in as aseptic a state as it was possible to procure, and a radical extirpation of the diverticulum was performed. His convalescence was uneventful. The wound healed primarily. On the eleventh day after the operation a No. 36 Fr. bougie was passed with ease, and the gastrostomy tube was removed. The gastric fistula closed spontaneously. The specimen was a small rounded sac about the size of a walnut and was lined with mucous membrane. The walls consisted mainly of a thickened, fibrous submucosa covered in parts with strands of muscular tissue. He believed that the preliminary gastrostomy reduced the risk of the operation. It permitted of preliminary emptying, resting, and cleansing the sac, of operating in a comparative aseptic field, and of subsequent feeding, answering very much the same purpose that a colostomy did in an excision of the rectum, and eliminating the danger of the operation, periesophageal phlegmon and posterior mediastinitis.

Intrathoracic Resection of Esophagus, with Esophagogastrostomy.—Dr. Willy Meyer presented this paper. He said that with the apparatus at hand to-day the esophagus could be safely attacked by the surgeon in its thoracic portion. In attacking cancer of the esophagus there were three methods. (1) Extirpate the growth, close both ends, and establish a gastric fistula. This meant that the patient should be fed through life with a stomach tube unless a second operation was performed, reestablishing direct communication between proximal end of the esophagus and the intestinal canal. (2) Open the thorax, and pull the stomach into the thoracic cavity, excise the growth, and do an esophgogastrostomy. This was the ideal method, for it enabled the patient to eat and drink. (3) Esophagojejunostomy. This method should be employed in those cases where the growth was situated so high that it was impossible to pull the stomach up sufficiently for direct anastomosis. Among the causes for the unsatisfactory results in this kind of work had been the fact that there was an absence of pleural covering of the lower third of the esophagus; there was also the lack of a useful method. Dr. Meyer said that he had worked out a method at the Rockefeller Institute for Medical Research during the course of last winter. The operation was done with needle and thread. For this operation on dogs he had substituted artificial means for anastomosis, as, for instance, a modified Murphy button. Of the animals Dr. Meyer had operated on, doing an esophagogastrostomy, the only one that had permanently recovered was the dog he presented. The operation on this animal was done on February 23. To-day the dog was in splendid condition. Dr. Meyer had done the typical operation in the lower third of the esophagus six times; three dogs made an operative recovery and had a well functionating anastomosis, which latter was secured by implanting the lower end of the proximal stump into the stomach. A positive universal differential pressure chamber was used in these operations. A description of the operation was illustrated by colored charts.

Primary Invagination of the Appendix Causing a Cecocolic Intussusception.—Dr. Hermann Fischer presented a patient, thirty-seven years of age. About two weeks before admission to the hospital she began to have pain in the epigastrium. In the course of a few days this pain became very intense and cramp like, and she vomited several times, food and bile. She often writhed in agony on the floor. At no time did the pain radiate to the shoulder, thigh, or bladder. It was at times relieved by pressure on the abdomen. Upon examination a swelling was discovered on either side of the inguinal region. It appeared to be a sausage shaped mass at the level of the umbilicus and it impressed one as being the transverse colon filled with feces. After thoroughly cleansing the bowel with cathartics and enemata this mass persisted. The diagnosis made was either intussusception of the colon or carcinoma. The patient suffered from partial obstruction of the intestine. The configuration of the mass was highly suggestive of intussusception, but there was no blood or mucus in the stools. At operation there was found an intussusception which reached almost to the splenic flexure. The appendix, which was very much distended and distinctly fluctuated, was partially invaginated into the cecum and held there by firm adhesions. On the assumption that he probably had to deal with a malignant growth, he resected the whole mass. The anastomosis

was effected by a lateral isoperistaltic iliocolostomy. The retrocolic space was drained. The patient made an uneventful recovery. An examination of the specimen showed that it consisted of a very much dilated invaginated portion of the appendix, which was considerably distended by a thick glairy mucus. This case represented an extremely rare condition, a cecocolic intussusception as the result of a mucocele of the appendix.

The Indications and the Time and Place for Amputations.—Dr. Jonathan M. Wainwright of Scranton, Penn., read this paper. He discussed the indications for amputations only for traumatisms as they occurred in civil practice, leaving out of consideration wounds by firearms and the treatment of pathological conditions. The modern treatment of open injuries had made a great change in the indications for amputations. At the present time one might fairly say that there was no single condition which absolutely demanded amputation. The old criteria such as complete circular division of the skin, injury to a large nerve or vascular trunk, or crushing of more than two inches of a large bone, should now never *per se* lead to an amputation. Those severe crushing injuries in which the vitality of the limb was hopeless were the only class of cases in which an immediate amputation was justified, and even with the hopeless crushing injuries, the practice should be different according to whether the crushed member was an arm or a leg. At times too much conservatism was employed in saving a very badly mangled leg, because a good artificial leg was often more serviceable and satisfactory than a very badly deformed natural extremity. In the arm the matter was quite different, especially if the crushing injury involved only the fingers and hand. In their service it had become quite rare to do a formal amputation of the fingers, hand, or forearm. The crushing injuries were carefully cleaned, loose threads of tissue were cut away, and loose fragments of bone might be removed, but the major portion of the wound was allowed to granulate. In this way parts of the hands or fingers could be preserved in a fairly useful condition, even though the process of granulation might take weeks or months. The only injuries of the arm in which immediate amputation was justifiable were those marked by severe crushes where there was no doubt whatever that the distal portion of the limb could not live. Even the severance of the axillary or femoral vessels or large comminution of bones did not demand immediate amputation. The first dressing should frequently be made under ether. The wound should be treated by thorough antiseptic methods, with free drainage, and the progress of the injured part should be carefully watched so that amputation need not be delayed for more than a few hours after it was evident that the injured part could not survive. Disaster would follow sometimes even with the most careful antiseptic treatment. He had seen gas bacillus infection carry off patients. A more difficult question which had to be decided from time to time was, if infection occurred should they amputate, and when and where? If the limb was still viable he believed efforts should be made to save it. The infection should be treated as in other cases by incision and free drainage. The death rate after secondary amputations was very high from sepsis, and they had found that in general lower mortality rates could be obtained by simply cutting away the limb at the point of injury and packing the stump wide open, with no attempt to bring the skin together. Free drainage was obtained in this way, and later, when infection had subsided or become chronic, a formal amputation could be done with much greater chance of recovery. The only question that should influence the time for amputation was that of shock. When shock was not to be feared he thought all surgeons were agreed that the injured limb should be amputated as soon as possible. If possible the surgeon's judgment as to the presence and degree of shock should be verified by blood pressure readings. An amputation at a given point in the arm would be accompanied by much less shock than an amputation at the corresponding point in the leg. In reference to shock the answer as to when to operate fell into three divisions. (1) Unless one had at hand materials for the modern treatment of shock and for nerve blocking, an immediate amputation should rarely be done; there should be delay for from twelve to twenty-four hours until these could be obtained. (2) In the absence of marked shock, immediate amputation could be done, provided the materials were at hand and the patient was in good condition. The advantages to the patient of immediate amputation were great both in regard to preventing the spread of sepsis and at once relieving him of the painful crushed limb. (3) When shock was already present, when the patient was first seen, experience seemed to indicate that it was always better to delay and allow partial recovery to take place. In some cases the expected improvement would not take place, and after twelve or twenty-four hours the patient was in a poorer condition than when first received. The fatal event in these cases would, however, probably be hastened by immediate amputation. These patients were now put to bed after the limb was cleansed and kept well under morphine. External heat was applied, water was given by the mouth, and enemas or intravenolis infusion, as might be indicated. The other extremities and the abdomen were bandaged. The so-called stimulants of a few years ago were rarely given. Concerning the place of amputation, as had been said, unusual latitude should be taken in an arm or hand, and in many injuries to the upper extremity it was better to allow nature to cover up the injured stump by granulation. In the lower extremity very satisfactory results had been obtained with partial amputations of the foot, especially those through the mediotarsal joint and those in which the os calcis was fixed to the sawed off end of the tibia. They had had a number of Chopart amputations who were doing rough work in the mines, with practically no inconvenience. He believed that one cause of trouble from partial amputations had arisen from the contraction of the tendo Achilles. This tendon should always be cut in these partial amputations of the foot. When it was necessary to do amputation above the ankle, satisfactory stumps could be obtained if at least eight inches of the tibia could be left. If the amount of tibia that could be left was much less than this, better results could be obtained by means of a knee amputation of the Gritti type. When an amputation had to be done above the knee it was very important to preserve every inch of the femur possible in order to obtain leverage for an artificial leg.

The Technique of Amputations, with Special Reference to Osteoplastic Methods.—Dr. Alexis V. Moschcowitz read this paper. (See page 1017.)

Results of Amputations in Sarcoma, Diabetic Gangrene, and Sepsis.—Dr. Burton J. Lee read this paper. Sarcomata.—This series included 21 cases, 13 males and 8 females, all save four being under thirty years of age. F. Murphy gave the immediate mortality for new growths of the lower extremity as between 15 and 16 per cent., with a total of 44 cases. Von Bergman gave the immediate mortality with interscapulothoracic amputations as 4 per cent. Jeanbrau gave 7.8 per cent. mortality for the same operation. Recurrences depended of course largely upon the type of sarcoma and the age of the patient. Bloodgood believed that tumors which were permanently cured by operation were of like pathology, while those which exhibited recurrences were pathologically different and would recur whatever operation was performed. Ten cases were available up to the present time for complete study.

and of these one died in a few hours, and another of puerperal sepsis at five months, two weeks after operation. Of the eight remaining cases, recurrences took place in five. Bloodgood believed that a conservative operation would leave as good results as amputations, while in tumors of marked malignancy, in spite of high amputation, patients succumbed. Babcock and Pfahler took the same view. They added that sarcomata of the very malignant type were most prone to disappear or retrogress, and believed that operative traumatism was the most powerful local traumatizing agent. They believed that a combination of judicious subscapular enucleation, massage, and prolonged Roentgenism, topical applications of methylene blue or pyck-tannin, administration of drugs and toxins offered results superior to those obtained by the most extensive and desperate surgical eradication. One seemed impelled to decide against amputation in sarcomata, save in those cases where the limb was rendered functionless from the presence of the new growth. The main hope seemed to lie in the laboratory study of the problem of new growths. Diabetic Gangrene.—There were 13 cases, 10 males and 3 females, with an average age of 53 years. Ten of the cases involved the lower extremity, while three involved the upper. The immediate mortality (within two days) was 15 per cent., two dying within three days. The presence of acetone bodies in the urine seemed to bear a direct relation to the immediate mortality. None of the 13 cases lived longer than nine weeks. Such a record was certainly discouraging. In this series the amount of glucose present in the urine seemed to bear little relation to the severity of the symptoms. Sepsis.—This group embraced 12 cases, all males, one-half the patients being under thirty-five years of age. In the immediate results one found a very unpleasant mortality of 80 per cent. This mortality would surely be reduced if earlier operations could have been performed. In many instances conservative operations were repeated several times before the ultimate amputation. The study of this series must impress one with the fact that amputation should not be deferred too long, for if one waited until the condition was almost hopeless amputation must avail but little. The results in the treatment of sepsis with vaccination with dead organisms did not offer much hope at present. With a rapid advance in the infection, uncontrolled by free incisions and ordinary conservative surgical measures, amputation should not be deferred.

SECTION ON PEDIATRICS.

Stated Meeting, Held November 11, 1909.

DR. ELI LONG IN THE CHAIR.

Cerebral Diplegia.—Dr. MATTHIAS NICOLL, JR., presented a boy, three years old, a mulatto, who was admitted to an institution when seven months of age. The first recorded history was in May, 1908, when he was eighteen months of age; then the statement was rendered, "subluxation of shoulder, anterior poliomyelitis, rechitis." The subluxation was marked and there was slight power in extension of the wrist and in supination. He had a marked rachitis and a lumbar kyphosis probably due to the latter condition. The history obtained from the outside nurse was that the child had an attack of whooping cough when about nine months old when it was noted that he did not move his arm. Both legs were also involved, although apparently at the present time gaining in motion. The reflexes were exaggerated. The child talked but little and his intelligence was limited.

Dr. NICOLL also presented a girl, six years old, who had been admitted to the hospital when three weeks of age. Her birth history was not known. The paralysis was first noticed by the wet nurse when the child was eight months of age; the child was then returned to the hospital and had been under observation since. Until the past year she had not made any attempts to stand even with support. Her intelligence had developed slowly but steadily and was now of a fair order. Both patella reflexes were exaggerated. Her method of walking was demonstrated.

Dr. WILLIAM P. NORTHRUP said that he had lectured for three years on the second case presented by Dr. Nicoll. During that time he had not been able to help her very much. He was glad to note some improvement in her condition now. He concurred in the diagnosis made, but could see no future for the child.

Dr. REGINALD H. SAYRE said that in a good many of these spastic cases it seemed to him improvement would follow stretching the legs and keeping them stretched for a good part of the day, so as to overstretch the contracted muscles in order that the anterior skin group and the extensors of the thigh could act without undue opposition. Systematically teaching such patients how to balance and stand resulted favorably. He had seen many patients make good progress; they could get around without assistance, without handling anything, walking without artificial support. He believed that such children could be greatly benefited by stretching these contracted muscles and teaching them to coordinate their movements. Mrs. Seguin of Orange got marvelous improvements in cases with spastic conditions. In this case the calf muscles were so contracted the patient could not put the heel to the floor. Dr. Sayre thought by stretching these muscles the heel could be placed upon the floor and the patient enabled to hold her balance better than she now did. In the present case tenotomy probably would not be necessary. The coordination of movements was to be taught by exercises very similar to those used by Frenkel in cases of locomotor ataxia.

A Case of Extensive Paralysis Due to Anterior Poliomyelitis.—Dr. OSCAR M. SCHLOSS presented this patient for Dr. Roland G. Freeman. This was a case of anterior poliomyelitis with extensive paralysis which involved the thoracic respiratory muscles. The onset of the disease nine weeks ago was sudden with fever, convulsions, vomiting, and diarrhea; these symptoms lasted three days. Then the mother noticed that the child was unable to hold up its head, that all four extremities were paralyzed and that the respirations were rapid. When admitted to the clinic the child could move the hands and feet, but otherwise the extremities were powerless. The respirations were entirely diaphragmatic, and the anterior neck muscles were paralyzed. None of the reflexes could be obtained in the arms. Sensation seemed to be intact. During the three weeks the child had been under observation there had been a noticeable improvement.

Cases of Paralysis of the Abdominal Muscles.—Dr. PEASE presented three such cases for Dr. Henry Dwight Chapin. The paralysis resulted from anterior poliomyelitis.

Dr. WILLIAM P. NORTHRUP said that he had probably seen four or five cases of complete paralysis of the thoracic muscles, the work of respiration being done by the diaphragm. Dr. Northrup presented some photographs taken of three cases of paralysis of the abdominal muscles due to poliomyelitis.

Dr. HENRY W. FRAUENTHAL presented seven photographs of children with hernia or bulging through the abdominal wall, similar to the cases shown by Dr. Northrup. He presented a case similar to Dr. Chapin's with paralysis and atrophy of the thoracic muscles. This patient had all the muscles of the extremities and trunk involved. The diaphragm was still involved. Under massage, high frequency, and sinusoidal electricity he finally regained perfect use of his legs and left arm. The right arm was still involved. The pectoralis major and minor muscles, together with the

other muscles of respiration, have not as yet responded to the treatment; hence, the appearance of the chest and his abdominal breathing.

The New Treatment of Spastic Paralysis by Resection of the Posterior Spinal Nerve Roots.—Dr. L. Pierce Clark read this paper. He said there was a two-fold motor disturbance in the extremities as a result of damage or destruction of the anterior pyramidal tracts, namely, contraction and weakness of various muscles. The character and completeness of the injury to the pyramidal tracts gave the peculiar type of contraction and paresis of the different muscles, in the several types of spasticities. When the pathway of excitability of muscles from the cortex by way of the pyramidal tracts was destroyed or severely damaged, the irritability of the muscles from the periphery, as the result of sensory impressions, was not only preserved, but was more or less heightened. The pyramidal path also inhibited the lower spinal reflex and in the lessened control permitted an insubordinate activity of the lower spinal centers. The objective evidence of the enhanced reflex irritability in the lower arc was shown in the spastic syndrome of increased knee jerk, ankle clonus, Babinski reflex, etc. As a rule the greater the absence of voluntary motion, the greater the reflex activity. Aside from the involuntary associated movements in the diplegics, they had a more or less late, but permanent, spastic muscular contracture which did not disappear under ether narcosis. These contractures prevented motor functions by offering more or less resistance to extension. The inhibiting function of the pyramidal tracts was independent throughout of the function producing spasticity. When the seat of entry of the posterior or sensory roots were diseased, as in tabes, the reflexes were abolished. Many surgical procedures had been undertaken to restore the normal balance in the spinal reflex arc in diplegia. The posterior sensory roots were the points of attack if one sought the sensory side of the arc. The best point of attack on these sensory nerves was in the spinal canal, dorsal to their ganglion. Dr. Taylor, therefore, operated at this point. Dr. Clark presented two cases. The first was a boy eleven years old whose history was negative except a cerebral diplegia secondary to meningoencephalitis induced by a very severe attack of malignant scarlet fever when he was eleven months old. His paraplegic syndrome was typical. He was able to walk by taking very short steps with arms extended. Various orthopedic measures had failed to help him. The dorsal roots of the left side were resected; they were the last dorsal and five lumbar. Dr. Taylor performed the operation August 23, 1909. One week after there was found to be a greatly reduced spasticity in the whole left leg, there was a great reduction in the reflexes, and there was an absence of ankle clonus and an imperfect production of the Babinski. The patient now stood and walked alone. The second case was an eighteen year old boy who had suffered from left hemiplegia from birth. The typical infantile syndrome developed. The whole left upper extremity was in a "birdwing" contracture and spastic. Three days ago Dr. Taylor resected the dorsal nerve roots from the fourth cervical to the second dorsal inclusive. The arm now was entirely free from spasticity. Tenotomy, physical training, and orthopedic appliances would be employed.

The Surgical Technique.—Dr. Alfred S. Taylor said that the technique in resection of the posterior spinal nerve roots differed somewhat from that of an ordinary laminectomy; in the latter they removed the spinous processes and more or less of the laminæ of both sides. Dr. Taylor thought that if he could get sufficient room through a unilateral exposure, he would not only come directly down upon the nerve roots but could leave the spines intact. The operation consisted in making a longitudinal incision just to one side of the spinous processes, separating the muscles from the spinous processes, retracting them outward to the articular proceses; then, by means of a Doyen saw, he cut through the laminæ at the base of the spinous processes, and also near the articular processes. One might get from one-quarter to one-half an inch of room by cutting outward toward the articular processes. After making a double line of sections, the parts could be lifted and removed. The dura thus exposed was slit and the spinal cord fully exposed. The lower cord could be turned 90° without injury to the lumbar enlargement. He believed this method was adaptable for exposing tumors of the spinal cord. After an ordinary laminectomy there resulted a marked deformity of the back, and a part of the cord was not protected by bone. Dr. Taylor presented a patient upon whom he had performed a limited resection. There was no loss of function in the spine. He also presented cases suitable for operation, one being a case of infantile cerebral diplegia and one an epileptic.

Dr. Charles Ogilvy said that when he saw the patient presented by Dr. Taylor some time ago he had been unable to walk without a shuffling gait and had great difficulty in raising the feet from the floor. The spasticity was then more decidedly marked than it was at present. Dr. Taylor certainly made a very beautiful exposure of the cord, and the hemorrhage was much less than was encountered in doing an ordinary bilateral laminectomy.

Dr. Joseph Fraenkel said that in order to understand the rationale of this mode of treatment of spastic paralyses, it would be necessary to say a few words about the diagnostic and prognostic interpretations of the reflexes. Ten years ago Dr. Fraenkel made a study of the relationship of the tonus of the tendons to the reflex phenomena by means of an apparatus devised by Dr. Moskens of Utrecht. (See Medical Record, December 12, 1903.) Among the conclusions reached in this study, the one having particular reference to the subject in question read: "That disease of the pyramidal tracts causes hypertonia and increase of reflexes. The tendon jerks under such conditions are increased unless additional disease of the ascending tracts, anterior horns, or some part of the peripheral neurons neutralizes this influence." The loss of motor function in spastic conditions was in direct proportion to the reflex spasticity. It appeared then rational to add sensory disease wherever the loss of motor function was considerable. From this theoretical consideration he hestitated to take the practical step because there was uncertainty as to the outcome and difficulty in finding a quantitative gauge. Dr. Beer, at Dr. Fraenkel's suggestion, tried the influence of stovain injections into the nerve or cerebrospinal fluid. The immediate results obtained were quite convincing in the shape of marked return of motion, disappearance of spasms, ankle clonus, and Babinski sign. These beneficial results lasted, of course, as long as the influence of the stovainization and with the disappearance of the anesthesia thus produced, the spastic phenomena became reestablished. He said he was glad to hear that the experiments on the living, and the work done by Foerster, gave further corroboration of the correctness of this therapeutic measure. It would be necessary, however, to be very careful in the selection of cases adapted for this mode of interference. First of all, it appeared that cases of extreme spastic contractures would derive benefit from posterior nerve cutting by having their inordinately stiff, useless extremities changed into more or less flaccid ones. Cases with subcortical sensory implication should be excluded on account of the irritative motor phenomena (chorea, athetosis, etc.) arising from such lesions and the liability of their becoming aggravated by additional sensory disease. Concerning the operative technique he emphasized the fact, that the severance had to be made so that the intervertebral ganglion was left in connection with the peripheral stump, in order to avoid distrophic consequences.

Dr. Virgil P. Gibney said all were willing to wait and see what results were obtained; at present they promised to be favorable. He had never seen a case of spasticity overcome, although he had noted improvement in some cases. He had divided the hamstring muscles, the tendo Achillis, the adductors of the thighs, and had even removed the tensor vagina femoris *en masse* to get rid of the spasticity; the correction lasted for months, sometimes even for years, but it would return and he became very skeptical about ever being able to abolish it finally.

Dr. Edward D. Fisher said that the operation was one that was likely to produce a temporary paralysis, but even that might be better than the spasticity, especially in the more severe cases. The operation cut off the sensory impulses passing to the brain. This was a proper physiological basis for the operation. Two things had been accomplished, muscular flaccidity and the removal of irritating impulses to the brain. The contractures were caused by sensory impulses passing to the brain and then passing down the cord as motor impulses, and again caused by impulses from the brain itself primarily. The value of the operation, therefore, was a double one. It first reduced the spasticity and might also improve the cortical condition, not by regenerating the cells, but by removing the source of irritation and giving the cells a rest. It might thus have an influence in reducing the tendency to epileptic seizures. In observing the boy Dr. Taylor presented, he noticed the reflexes were returning. It was possible all the sensory fibers did not decussate in the spinal cord. The question of the removal of sensory irritation had been taken up by other methods and with the same results. It made no difference whether it was by cutting the posterior spinal nerve roots, or by destroying the nerve itself, or impairing its function. In these cases he thought the operation justifiable and that there was hope for it in the future. The selection of appropriate cases was very important. Those in which there was the least mental improvement would prove the most successful.

Dr. T. Halsted Myers said that these cases divided themselves into classes according to degree, and some cases could be improved by educational methods and braces. In the severer contractures one must decide whether there was a permanent structural muscular change, or whether the deformity was due to the spastic condition itself. If there were structural changes in the muscles, he thought an operation was indicated and should be the first step taken, making full division of the tendons and muscles. If sufficient improvement did not result the operation described by Dr. Taylor might help.

Dr. Samuel Lloyd said he was very much interested in the work previously done along the line of section of the posterior nerve roots. In this work there was to be considered the question of regeneration, and just how much this would bring back the spastic condition of the patient at a later date. The operation might give a cortical rest and, in that way, it might cause an improvement in the spasticity. They should, however, wait and learn what the conditions were. The question of regeneration of the posterior spinal nerve roots and destruction of the cord, which many had in mind, was a very interesting one. It had been suggested by Dr. Dana, and tried by Dr. Abbe and others; in fact, the hope had been raised that by using the posterior spinal nerve roots impulses might be carried to the destroyed segment of the cord, and in that way impulses might be gotten to the lower cord. In the cases experimented on, however, they had gotten no such results. In the operation it was seldom they met with a hemorrhage that was at all embarrassing. Removing a full lamina gave a field of approach to the spinal cord and enabled one at once to get at the posterior spinal nerve roots without difficulty and without rotating the cord 90°. It was true that the upper part of the cord was not so movable as the lower portion. If the spinous processes were cut through at their bases, the deformity was not great, the laminæ were replaced in time by bony regeneration, so that the spine was not weakened and there was no danger from trauma.

Dr. L. Pierce Clark, in closing the discussion, said that one should remember that the resection of the dorsal nerve roots was done dorsally to the sensory nerve ganglion and that this point of resection insured absolutely no regeneration of the nerve or return of the former spastic element. Furthermore, the ganglion being upon the peripheral portion equally insured against the supervention of trophic changes in the peripheral structures. The work was to continue on a large series of cases and scientific reports would be issued from time to time.

Dr. Alfred S. Taylor, in closing his part of the discussion, expressed his appreciation of the discussion which had suggested much of value for future work. Concerning the technique, he wished again to call attention to the fact that Tietze had complained of the unsatisfactory approach to the posterior roots by means of the usual bilateral laminectomy; whereas his own (Taylor's) method brought the operator directly down upon the roots sought, and the roots of the opposite side could be divided if necessary through the same incision. Replying to the remarks in favor of bilateral laminectomy, he stated that the method which gave the most convenient exposure with the least loss of bony structure was certainly to be preferred, and that unilateral laminectomy fulfilled these conditions.

GENITOURINARY SECTION.

Stated Meeting, Held April 21, 1909

Dr. Martin W. Ware, Chairman.

Symposium: Treatment of Gonorrhea in the Out-Patient Departments of New York City.—Dr. James R. Hayden said that the method of treatment employed at the Vanderbilt Clinic for specific urethritis was based upon the pathology of the disease, or the manner in which the gonococci invaded the tissues after their implantation upon the mucous membrane of the fossa navicularis. The disease was divided into four stages, as follows: First, the serous or prepurulent stage, in which the patient had a slight serous discharge and in which the gonococci were free and superficially seated upon the mucous membrane of the fossa navicularis. Second, the stage of acute suppuration, in which the discharge was purulent and the gonococci having penetrated the cement substance between the epithelial cells, were deeply seated. Third, the stage of decline in which the discharge and acute inflammatory symptoms were markedly decreased and, fourth, the chronic stage in which the discharge was slight and the urine was clear and contained flakes. The treatment of gonorrhea depended entirely upon the stage of the disease in which the patient was seen. If he came during the first or serous stage which was rarely the case, then abortive treatment with silver nitrate might be employed. This, in the speaker's opinion was the only period in which the gonococci could be destroyed on account of their superficial situation. In the second or acute inflammatory stage the gonococci were too deeply seated to be acted upon by irrigations or injections of any kind, and their employment at this time simply washed off the mucous membrane and added a traumatic inflammation to the already intensely congested and swollen canal. In this stage, therefore no local treatment was ever employed. The patient was told to keep as quiet as possible especially during the first few days and to drink a glass of still water every hour which flushed out the urethra in a normal manner from above downward. An alkaline mixture was ordered to render the urine bland. The bowels were kept open by cathartic pills and the testes worn in a suspensory bandage.

The diet was light and non-irritating but nutritious and alcoholics, charged waters, coffee, chocolate, and cocoa were prohibited. The penis was immersed in a hot lead solution three times a day and the patient given a printed list of rules and carefully instructed as to his mode of life diet medication etc. The penis was so dressed with gauze as to allow free drainage of the discharge. This stage lasted from seven to fourteen days, during which time the penile and urethral inflammation was treated like inflammations elsewhere in the body. In the third, or stage of decline, the alkaline mixture was replaced by the antiblennorrhagics which were most useful at this time, but which should never be given during the acute inflammatory stage. The patient was now told to use hand injections of dilute lead water at first, and later, mild solutions of zinc, alum, and, finally, permanganate of potash. After a few days of the above hand injections, the anterior urethra was irrigated by means of a small rubber catheter and hand syringe, with potassium permanganate, and finally with silver nitrate, which latter caused an absorption of the submucous exudate and a restoration of the damaged mucosa. In the fourth, or chronic stage, the antiblennorrhagics and irrigations were stopped, and the patient given instillations of silver nitrate with a small soft rubber catheter and instillation syringe. Full-sized sounds and the endoscope were employed when necessary. Specially constructed dilators were never used. When acute posterior urethritis developed, as it frequently did, all local treatment was stopped, as were also the antiblennorrhagics. The patient was kept very quiet, or, if possible, put to bed and given an alkaline mixture with uva ursi and triticum repens. Hot rectal irrigations of normal salt solution and the hot sitz bath gave much relief. When the acute symptoms had subsided, the patient was allowed to be up and about, and the bladder and urethra were irrigated with a soft catheter and hand syringe, using mild solutions of zinc, alum, potassium permanganate, and, finally, silver nitrate. The speaker was convinced that by treating gonorrhea according to its stages, and not in a haphazard and irrational way by the gonococcocides, his patients were cured just as rapidly and more permanently, and the urethra and its contiguous glandular structures, especially the prostate, was left in a more normal condition, the practical results of which meant fewer cases of chronic urethritis and stricture of the urethra.

Dr. Frederic Bierhoff, discussing the treatment of gonorrhea in his class at the dispensary of the German Hospital, said it had always been his aim to make an accurate diagnosis of the conditions presented as a basis for intelligent treatment. With that object in view, a microscopic examination was made in each case presenting even a trace of discharge, in order to determine the presence or absence of gonococci. If they were found at the first examination, the further measures were proceeded with; if not, the patient was put upon the alcohol test, with the use, by the patient himself, of an injection of a disinfecting solution, such as bichloride, 1-20,000. If no gonococci appeared, then an irritating anterior irrigation of nitrate of silver solution, 1-5,000, was employed. Should no gonococci appear even now, microscopic examinations were still made at intervals, for it had been repeatedly found that, particularly in cases in which the balsams had been employed internally, or astringents locally, during the acute stage, the microroganism might appear after repeated tests. Should gonococci be found, the treatment should be begun at once. Any delay simply invited the extension of the disease to the deeper tissues, or to the adjacent organs. By employing the gonococcoide drugs only during the infectious stages of the disease, we rapidly disinfected the canal, lessened the tendency for the disease to extend, and, he felt convinced, lessened the complications. He had never been able to satisfy himself that the balsams or alkalis were needed, or that they were of any definite value in the cure of a gonorrheal process. If the treatment directed against the gonococcus was begun early, the pain, ardor urinæ, etc., rapidly disappeared, and chordee was almost unknown. Of the newer gonococcocides he had discarded all that had any decided astringent action. If the process did not quickly subside under the use of organic silver irrigations and injections, he made use of the Kollmann anterior irrigating dilator, advancing the degree of dilatation slowly. If the gonococci still persisted under this treatment, the urethra was examined through the endoscope, and the infected glands and lacunæ were either slit up or destroyed by electrolysis, acording to their size.

Dr. George K. Swinburne of the Good Samaritan Dispensary said that every man learned to treat his cases of gonorrhea in his own way. He had long since given up the use of astringents and the balsams. The main factor in the treatment was the utmost gentleness, especially in the earlier stages of the disease, and the chief desideratum was to obtain a cure in the shortest possible time and with the least possible damage to the tissues. He believed that the best method of treatment, especially in dispensary work, was the use of the silver salts at any stage at which the patient presented himself. The discharge itself did not constitute the disease; it was nature's method of curing the disease. As a matter of fact, the use of all these salts was followed by a certain amount of secretion of a mucoid character, which was apparently beneficial to the patient. The injection of the silver salts allayed the inflammation and added to the comfort of the patient. He did not consider them responsible for the various complications which might occur; these he had seen follow every method of treatment. In a case of gonorrheal prostatitis he had seen the symptoms rapidly improve under the use of Roger's serum.

Dr. Benjamin S. Barringer of the dispensary of the New York Polyclinic said that in acute gonorrhea, whether anterior, or anterior and posterior, if the symptoms were very acute, with tenesmus and burning, the patient was instructed to drink large quantities of water, and was ordered a non-irritating and non-alcoholic diet. As a rule, he was also given an emulsion of the oil of gaultheria, and if that did not control the burning, etc., a prescription of tincture of hyoscyamus and potassium citrate was added. A routine examination for gonococci was not made unless some special feature of the case indicated it. Injections, as a rule, were not given in the early stages. When the early acute stage had subsided, if the patient was fairly intelligent, he was given an injection to use at home. In the sub-acute stage, when the gonorrhea was anterior (to which region it was rarely limited in dispensary patients), the hand injections were continued, using at first protargol; then, if necessary, potassium permanganate or the astringents. If the gonorrhea was anterior and posterior, a rubber catheter was used to inject fluids into the bladder. Chronic urethritis was treated by both instillation and bladder injections. Complications were treated as they arose and according to the indications.

Dr. Francis C. Edgerton of the Cornell University Dispensary said that in the treatment of gonorrheal urethritis at the clinic with which he was connected there were four points upon which he wished to lay great stress: 1. The necessity of dilute urine. 2. The great damage done by over-distention of an acutely inflamed urethra. 3. The early recognition of a posterior urethritis. 4. The necessity of regular attendance. There was nothing better to dilute the urine than plain water, providing it was taken in sufficient quantities. To avoid over-distention of the urethra all injections into the anterior urethra were given with a syringe which contained but one dram, and only one-half of its contents was injected. When it was neces-

sary for a patient to use a hand injection, he was given a dram syringe and instructed never to use it more than half full. The speaker said he believed the posterior urethra was involved in the greater number of cases of gonorrheal urethritis that had lasted ten days, where the first urine was still very cloudy, due to pus, although the second urine might be clear, and we had practically no subjective symptoms. All uncomplicated cases of anterior urethritis were treated immediately by injections of an organic silver salt. In the acute cases a 5 to 10 per cent. solution was used, but after two or three days, when the acute symptoms had subsided, a weak solution of from ¼ to 2 per cent. was more satisfactory. During the acute stage the patient was not allowed a hand injection. In a very acute posterior urethritis, with tenesmus or frequency, rest was imperative, and a mild sedative was given internally. No local treatment was used until the acute symptoms subsided. He believed that a beginning posterior urethritis could many times be aborted by instilling from 10 to 20 drops of a 10 per cent. solution of a silver salt into the posterior urethra. He emphasized the importance of making a fresh solution of the silver salts; otherwise it irritated the urethra and did more harm than good. The treatment of chronic gonorrheal urethritis involved not only the treatment of the urethritis itself, but of all the complications of gonorrhea.

Dr. Alfred T. Osgood, representing a part of the dispensary service at Bellevue Hospital, said his effort was to combine the palliative treatment of gonorrhea with energetic local treatment. Internally, sandalwood oil was given and copious water drinking was advised, combined with as much rest as possible. As a gonococcocide, organic silver compounds were preferred, and given both by injection and irrigation. The treatment was kept up as long as the gonococci could be demonstrated in the discharge. Astringents were not given as a routine measure, but when one was indicated zinc sulphate was preferred. The abortive treatment was practically never resorted to. The posterior urethra itself was not treated by any local applications, dependence on a cure being placed on more conservative methods, *i.e.* rest, low diet, plenty of water, and sandalwood oil. In the chronic form an effort was made to medicate the infected area directly through the endoscopic tube.

Dr. Arthur H. Cilley, speaking for a part of the dispensary service at the Postgraduate Hospital, said that in his class he saw very few cases of gonorrhea in the early stage of the disease. Usually, the infection was well advanced to the second stage described by Dr. Hayden. As a rule, during this stage no active treatment was undertaken. The patients were first given the salicylate of soda, followed by sandalwood oil or the balsam of copaiba. In some cases a hand injection of a silver salt was given during the early stage of the trouble, but as a general rule no attempt was made to check the discharge immediately, partly because these dispensary patients could not be trusted. It was usually easy to check the discharge fairly promptly, but it was very apt to return, and in the meantime many of this class of patients would not hesitate to have intercourse and infect some one else. When the posterior urethra was involved, an attempt was made to get at the exact state of affairs by a rectal examination. Gonorrheal rheumatism he was inclined to attribute to involvement of the seminal vesicles, and the treatment consisted of mild strapping. In concluding his remarks, Dr. Cilley referred to the fact that the night dispensary classes were usually so overcrowded that the treatment could not be carried out as thoroughly as might otherwise be done.

Dr. Victor C. Pedersen of the New York and Hudson Street Hospitals emphasized the importance of properly instructing the patient. At the House of Relief, where about 8,000 of these cases were seen yearly, the new patients were in a room by themselves, and were given personal advice by the Chief of Clinic. Printed leaflets were given each patient. The good effect of such a course had already been noted. Patients sought relief earlier, they were more apt to remain until they were thoroughly cured, and, as a consequence, tight strictures, for example, were becoming more rare. Speaking of the infection itself, Dr. Pedersen said that Rogers and Torrey had recognized different strains of gonococci, the virulence of which varied widely. Hence until we learned to recognize virulence early, treatment would vary greatly. In the treatment of a gonorrheal patient the dressing was very important. Instead of the use of absorbent cotton, which kept back the discharge and was probably a potent factor in the causation of complications, the speaker favored the use of a piece of gauze six or seven inches square, with a hole cut in the center, through which the glans penis was passed. The gauze was then loosely gathered about the organ. Rest in bed was the ideal treatment, but it was usually beyond the reach of a dispensary patient. Free water drinking should be advised, and as an alkali he preferred the bicarbonate of sodium. Hand injections were used, as a rule, only after the subacute stage had begun. The vaccine and serum treatment of gonorrhea was still in its infancy, and doubtless promised a great deal in the future for the cure and, perhaps, prevention of the disease.

Dr. Martin W. Ware, representing a part of the dispensary service at Mt. Sinai Hospital, said the recognition of the gonococci as the causative factor was the paramount feature of this entire subject. As soon as the case was recognized as one of *bona-fide* gonorrhea, injections of silver were begun, and the prolonged application of the drug, as enunciated by Neisser, was advocated. To effect this the lips of the meatus were sealed with a small clip, and the injection was kept in the urethra for fifteen minutes. A fresh solution was prepared daily. The fact should be borne in mind that many dispensary patients were badly nourished. A complicating epididymitis was treated by Bier's hyperemic method. When the follicles were invaded, as determined by endoscopy, applications of silver nitrate or iodine were made, and in suitable cases dilators were used. If home treatment was necessary, the patients received careful instruction. The sandalwood preparations were never used. In spite of every available method of treatment, there were certain cases of gonorrhea that apparently could not be cured, and he had in mind one case in which the discharge had persisted for eighteen months, in spite of the use of serums, vaccine, and everything else.

Dr. H. Goldenberg emphasized the three following points: 1. To make the diagnosis by microscopic examination. 2. To localize the disease, whether anterior, anterior and posterior, with or without involvement of the prostate or seminal vesicles. 3. In the treatment to use gonococcicides at an early stage. Taking up the various statements of the speakers, he regarded Dr. Hayden's division of his cases into four stages as too schematic. The principal consideration was the question, were gonococci present or not, the stage of the disease being of secondary importance. Like Dr. Hayden, he favored gentle methods of treatment, but not in the form of astringents in the beginning, which practice he condemned. There was a medium between the "rough" and the too conservative methods. In his experience, complications, such as epididymitis, were more frequent if internal medication only was employed in the beginning, and with the early use of the astringents the disease ran a much more protracted course. In general, he agreed with Dr. Bierhoff's views. The statement of Dr. Barringer that most of his patients had anterior and posterior gonorrhea made the speaker believe that this was due to the fact that the active treatment was too long deferred

in his cases. With Dr. Edgerton, he took issue regarding his statement as to the capacity of the anterior urethra, since in his experience it was two or three times as large as stated. Replying to Dr. Cilley's statement that the night classes at the Postgraduate Dispensary were overcrowded, he advised the adoption of a rule to limit the number of patients who were admitted.

Dr. James Pedersen said the treatment of gonorrhea should be, in his opinion, a composite treatment, *i.e.* an adaptation of one or more of the different methods that had been referred to by the various speakers to the particular case in hand. Personally, he divided the course of the disease broadly into the acute, subacute, and chronic stages. In the acute stage he advocated one or another of the silver albuminoid compounds by the hand-injection method with a two-dram syringe, the patient being carefully instructed how to use it. The injections were continued for many days after the gonococci had disappeared from the discharge. In the subacute stage he favored very mild astringents, and in the chronic stage nitrate of silver, with or without dilatation, according to the conditions present. He was strongly opposed to irrigations in the acute stage. Acute posterior urethritis he let alone unless the patient was suffering severe tenesmus, in which case he instilled a mild solution of albuminoid silver. In his experience, patients were rarely seen early enough to make it possible to abort the disease; he preferred the term "inhibition." This was accomplished by the various silver albuminoid compounds, through their prompt destruction of the gonococcus.

Dr. Robert H. Greene said that, strangely enough, he agreed with almost all the preceding speakers. In the past one hundred years medicine had made its greatest advances along preventive lines, and he considered the idea of prevention as applied to the treatment of gonorrhea more valuable than direct local treatment of the disease itself. The main object we should have in view was to protect the prostate, the posterior urethra, and the bladder. The after result of chronic inflammation of the deep urethra, prostate, and bladder were enlargement of the prostate in the aged, tumor formations in the bladder, and in quite a large proportion of the cases malignant growths as an end result. In one particular he wished to disagree very emphatically with the remarks of the preceding speakers. While none of them had made a positive statement to that effect, the impression gathered from listening to the papers was that posterior urethritis was a somewhat unusual complication of gonorrhea, when, as a matter of fact, posterior urethritis was present probably in the majority, if not all, cases of gonorrhea that came under treatment. In a series of 116 cases examined by him a few years since for the purpose of determining the extent of the inflammation, the posterior urethra was found involved in from 40 to 50 per cent. His observations since had been such as to teach him to believe that the proportion was much higher than this, and that probably in all cases of gonorrhea the posterior urethra was more or less involved. The two-glass test so frequently mentioned as of diagnostic aid was extremely misleading. If there was only a small amount of urine in the bladder, and the patient was allowed to urinate in two glasses, the first glass would be cloudy and the second glass would be clear, whether the posterior urethra was involved or not. He thought it very much better carefully to wash out the anterior urethra as far as the bulbomembranous juncture, and then instruct the patient to urinate in three glasses. Any products of inflammation then found in any of the glasses would be evidence that the inflammation had extended beyond the anterior urethra. As a general rule, he thought we were apt to overtreat our gonorrheal patients in the early stages of the disease, and to discharge them too soon.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Colorado State Board of Medical Examiners.

October 5, 1909.

ANATOMY.

1. Describe the clavicle, naming the muscles and ligaments attached to it.
2. Name the muscles attached to the tibia.
3. Describe the hip joint.
4. Give the boundaries and contents of the popliteal space.
5. Give the origin, insertion, and nerve supply of the following muscles: Sartorius, triceps (in arm), gastrocnemius, pectoral muscles.
6. Give the relations of the heart to the chest wall, and name the valves of the heart.
7. Describe the brachial plexus.
8. Describe the diaphragm; mention its attachments and openings and tell what they transmit.
9. Give the relations of the prostate gland.
10. Name the structures seen in a cross-section of the thigh at its middle.

PHYSIOLOGY.

1. Give a physical description of the blood, together with its functions.
2. Give (*a*) origin, function, number per c.m.m. of red blood corpuscles, (*b*) origin, classification, function, and number per c.m.m. white blood corpuscles.
3. Give the forces which cause the blood to circulate in its vessels.
4. Give a physical description of lymph, together with its functions.
5. Define respiration, its function, and tell how performed.
6. Name the digestive ferments, tell the origin and function of each.
7. Name the organs of elimination and tell the function of each.
8. Give the function of (*a*) the liver, (*b*) spleen, (*c*) thyroid gland.
9. Give the distribution and functions of the first five cranial nerves.
10. Give a short description of the vasomotor nervous system, with its functions.

CHEMISTRY.

1. What is the chemistry of Fehling's test for glycosuria?
2. Give a test for chlorides in water.
3. Name the principal chemical constituents and their average percentage in the stomach three hours after a meal of mixed food.
4. What is the significance of nitrites in drinking water?
5. Name the principal chemical constituents, and their average percentage, of normal urine.
6. What chemical reaction takes place when solutions of ammonia and acetic acid are mixed?
7. What is the chemical composition of the various renal calculi?
8. What is percentage of albumin in normal blood serum?
9. Name tests for albumin in urine other than nitric acid and the application of heat.
10. What is a base? an acid? an alkali? an acohol? an ether?

TOXICOLOGY.

1. Define toxicology.
2. Give symptoms of an overdose of chloroform, and treatment.
3. Give post-mortem appearance in a case of death from chloroform.
4. Give symptoms of poisoning by oxalic acid, and treatment.
5. Post-mortem appearance in death from an overdose of oxalic acid.
6. Give symptoms of poisoning by acetate of lead, and treatment.
7. Post-mortem appearance in death from acetate of lead.
8. Give signs of death by drowning.
9. Give symptoms of one asphyxiated by vapor from burning charcoal.
10. Post-mortem appearance of one asphyxiated by charcoal vapors.

SYMPTOMATOLOGY

1. What is pseudoleucemia and what are its principal symptoms and prognosis?
2. Differentiate bronchopneumonia from acute lobar pneumonia and capillary bronchitis.
3. What is exophthalmic goiter? Give its principal symptoms.
4. Give the etiology, symptomatology, and prognosis of tabes dorsalis.
5. What conditions commonly cause icterus?
6. What are the general classes of diabetes and how is each diagnosed?
7. Define variola; describe the stages of this disease.
8. Name the exanthematous diseases of children and give the symptoms and differential diagnosis of each.
9. Name the different forms of nephritis; give the symptoms and differential diagnosis of each.
10. Discuss the diagnosis of the following case: The patient is a married woman, age 34, large and fat in person. She has had two children and three miscarriages, the last six weeks ago. Otherwise she says her health has always been good until within three or four months; has been in the habit of drinking beer freely, but has not been intemperate. For two weeks there has been pronounced jaundice, anorexia, and bilious vomiting soon after eating; dizziness, flatulence, occasional diarrhea, with pain at epigastrium; slight edema of feet and ankles. These symptoms have been increasing. There has been no headache and no hemorrhages or chills. The tongue was clean, the pulse 80, temperature 97.8°. The heart and lungs were normal. The liver was much enlarged and smooth. The spleen was felt below the ribs. There was no ascites. The urine had a sp. gr. of 1017, was of a deep yellow color, and contained a trace of albumen and much bile; sediment normal. The blood was negative.

PATHOLOGY.

1. Name the system diseases of the afferent or sensory nervous system.
2. How is malaria propagated?
3. Enumerate the causes of sudden death in children.
4. What is the pathology of diabetes?
5. Describe the bacillus of diphtheria.
6. What are the causes of fatty liver?
7. Describe the blood in leucemia.
8. Discuss the relationship between arterial disease and chronic nephritis.
9. What are the microscopic findings of simple chronic gastritis?
10. Define: Vaccine, opsonin, bacterin, agglutinin, lysin.

OBSTETRICS.

1. Give the various diameters of the inlet and outlet of the pelvis.
2. Give a good description of the anatomy of the uterus.
3. What are the different stages of labor? Describe each.
4. Give the various diameters of the fetal head.
5. Describe the sutures, fontanelles, and protuberances of the fetal head.
6. What is the mechanism of delivery in the R. O. P. position?
7. What are the indications and contraindications for the use of the obstetric forceps?
8. Give the indications for the induction of premature labor and describe the best method.
9. What is post-partum hemorrhage? How prevented?
10. What is puerperal sepsis? Give treatment.

SURGERY.

1. Give the symptoms and prognosis of fracture of the olecranon process of the ulna.
2. Give the causes of non-union of fractures.
3. Give the causes and symptoms of compression of the brain.
4. Describe the different forms of dislocation of the shoulder-joint, and state which is the most frequent.
5. Give the symptoms and diagnosis of tuberculosis of the knee-joint.
6. Give the symptoms and diagnosis of hydrocele.
7. Give symptoms and diagnosis of stone in the common duct.
8. Give some of the causes of vesical hemorrhage.
9. Describe acute osteomyelitis.
10. What are the early symptoms of carcinoma of the breast?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS

COLORADO STATE BOARD OF MEDICAL EXAMINERS.

October 5, 1909.

ANATOMY.

1. The *clavicle* forms the anterior part of the shoulder girdle; it articulates internally with the first part of the sternum, and externally with the acromion process of the scapula. It is broad and flattened at its outer end, and thick and rounded at the inner end. It consists of a double curve, the outer part is concave forward, the inner part convex forward. The bone has two surfaces, superior and inferior; and two borders, anterior and posterior. On the under surface are the conoid tubercle, a groove for the subclavius, a rough impression for the rhomboid ligament. *Muscles attached to it* are: Deltoid, trapezius, pectoralis major, subclavius, sternomastoid, and sternohyoid. *Ligaments attached to it* are: Interclavicular, rhomboid, conoid, trapezoid, and capsular (of sternoclavicular and acromioclavicular articulations).

2. *Muscles attached to the tibia* are: Semimembranosus, semitendinosus, biceps, gracilis, sartorius, tibialis anticus, extensor longus digitorum, tibialis posticus, soleus, popliteus, flexor longus digitorum, quadriceps extensor.

3. The *hip-joint* is an enarthrodial joint, formed by the head of the femur and the acetabulum. The articular surfaces are covered with cartilage. Near the center of the head of the femur is attached the ligamentum teres. The *ligaments* are: (1) The capsular, which embraces the margin of the acetabulum above, and the neck of the femur below. (2) The ileofemoral or Y ligament,, which passes obliquely across the front of the joint, and is attached above to the anterior inferior spine of the ileum, and below to the anterior intertrochanteric line. (3) The ligamentum teres. (4) The cotyloid ligament, which deepens the acetabulum, and bridges over the cotyloid notch, being there called (5) the transverse ligament. The joint has a very extensive synovial membrane. It is capable of the following movements: Flexion, extension, abduction, adduction, circumduction, and rotation.

4. THE POPLITEAL SPACE is *bounded: Above, and externally* by the Biceps; *above, and internally* by the Semimembranosus and Semitendinosus; *below, and externally* by the Plantaris and external head of the Gastrocnemius; *below, and internally* by the inner head of the Gastrocnemius.

Contents: Popliteal vessels with branches, external saphenous vein, external and internal popliteal nerves, small sciatic nerve, lymphatic glands, and loose areolar tissue.

5. SARTORIUS. *Origin:* Anterior superior spine of ilium, and part of notch below. *Insertion:* Inner side of tibia near tubercle. *Nerve supply:* Middle cutaneous, or branch from anterior crural.

TRICEPS: The long, or middle, head arises from a depression on the axillary border of the scapula immediately below the glenoid cavity; the external head from the root of the great tuberosity on the posterior surface of the humerus, and the upper part of the musculospiral groove; the internal head from the posterior surface of shaft of humerus, below musculospiral groove, and the internal and external muscular septa. It is inserted into the back part of the upper surface of the olecranon process of the ulna. *Nerve supply:* Musculospiral.

GASTROCNEMIUS: The inner head arises from a depression on the upper and back part of the inner condyle of the femur and the adjacent part of the femur; the outer head from an impression on the external surface of the outer condyle, and from the posterior surface of the femur immediately above the condyle. It unites with the tendon of the soleus to form the tendo Achillis, which is inserted into the lower part of the posterior surface of the os calcis. *Nerve supply:* Internal popliteal.

PECTORALIS MAJOR. *Origin:* Anterior surface of inner half of clavicle, anterior surface of sternum, from the cartilages of the second to sixth ribs, and from the aponeurosis of the external oblique of the abdomen. *Insertion:* Into the outer bicipital ridge of the humerus. *Nerve supply:* External and internal anterior thoracic.

PECTORALIS MINOR. *Origin:* From third and fourth and fifth ribs, just external to the cartilages, and from aponeurosis over intercostal muscles. *Insertion:* Into coracoid process of scapula. *Nerve supply:* Internal anterior thoracic.

6. A line from the lower border of the second left costal cartilage (one inch from sternum) to upper border of third right costal cartilage represents the *base line;* the

right side will be a line drawn from right side of upper limit to seventh right chondrosternal articulation; the *lower limit* is a line from this last point to the apex (in fifth intercostal space, three and one-half inches from midline); the *left side,* from left end of upper border to left of apex. The valves are: Aortic, mitral, tricuspid, pulmonary (and Eustachian and coronary).

7. The *brachial plexus* is formed by the union and subsequent division of the anterior divisions of the fifth, sixth, seventh, and eighth cervical and the first dorsal nerves. The union of the fifth and sixth makes the upper trunk; the seventh forms the middle trunk, and the eighth cervical and first dorsal make the lower trunk. Each of these trunks is divided into an anterior and a posterior branch. The anterior branches, from the upper and middle trunks, make the upper or outer cord of the plexus; the anterior branch of the lower trunk becomes the lower or inner cord; the three posterior branches unite to form the posterior or middle cord. The plexus lies between the Scalenus anticus and medius. The *branches* are: (1) Above the clavicle; communicating, muscular, posterior thoracic, and suprascapular. (2) *From outer cord:* External anterior thoracic, musculocutaneous, and outer head of median. (3) *From inner cord:* Internal anterior thoracic, lesser internal cutaneous, ulnar, and inner head of median. (4) *From posterior cord:* Subscapular, circumflex, and musculospiral.

8. The *diaphragm* is a musculofibrous septum which divides the thoracic from the abdominal cavity; it is fan-shaped; the broad, eliptical portion is horizontal, and the crura are vertical. It is attached to the ensiform, to the internal surfaces of the lower six costal cartilages, to bodies and intervertebral substances of first, second, and third lumbar vertebræ. Its *openings* are: (1) The aortic, transmitting the aorta, vena azygos major, and the thoracic duct; (2) the esophageal, transmitting the esophagus, pneumogastric nerves, and some small esophageal arteries; (3) the opening for the vena cava, transmitting the inferior vena cava, and small branches of the right phrenic nerve; (4) the right crural, transmitting the right splanchnic nerves; (5) the left crural, transmitting the left splanchnic nerves and the vena azygos minor.

9. Relations of prostate. *Anteriorly:* Symphysis pubis, anterior ligaments of bladder, branches of dorsal vein of penis. *Posteriorly:* Rectum. *Laterally:* Levator ani. *Base:* Surrounds neck of bladder, seminal vesicles, and vasa deferentia. The *apex* rests on triangular ligament.

10. At middle of thigh would be cut: Skin; fascia; muscles, adductor longus, sartorius, gracilis, rectus femoris, adductor brevis, adductor magnus, semimembranosus, semitendinosus, vastus internus, crureus, vastus externus, biceps; vessels: profunda, femoral, external circumflex, internal saphenous vein; nerves: external cutaneous, superficial obturator, anterior crural, sciatic, small sciatic; bone: femur.

PHYSIOLOGY.

1. *Physical properties of blood:* Fluid, somewhat viscid, red, specific gravity from 1055 to 1062, alkaline reaction, saltish taste, characteristic odor, variable temperature (average about 100° F.). *Functions:* For red and white corpuscles, see Question 2.

Plasm conveys nutriment to the tissue; it holds in solution the carbon dioxide and water which it receives from the tissues, and takes them to be eliminated by the lungs, kidneys, and skin; it also holds in solution urea and other nitrogenous substances that are taken to and excreted by the liver or kidneys.

2. (*a*) Red Corpuscles. *Origin:* From red marrow of bones (and during fetal life from spleen, liver, and connective tissue cells). *Function:* To carry oxygen from the lungs to the tissues. *Number:* About 4,500,000 to 5,000,000 per cubic millimeter.

(*b*) White Corpuscles. *Origin:* From spleen, lymphatic glands, and lymphoid tissue. *Classification:* (1) Small mononuclears; (2) large mononuclears; (3) transitionals; (4) polynuclears; (5) eosinophiles; and (6) mast cells. *Function:* (1) To serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma. *Number:* Normally between 7,000 and 10,000 or 12,000 in each cubic millimeter of blood.

3. *The forces concerned in the circulation of the blood* are: The force and frequency of the contractions of the heart, the elasticity and tone of the arterial walls, the resistance in the capillaries and tissues, the valves in the veins, the contraction of the muscles, the aspiration of the thorax.

4. Lymph is a colorless, albuminous fluid, alkaline in reaction, specific gravity of about 1015. *Function:* (1) It conveys nutriment to all cells not directly reached by the blood; (2) in the intestines, it absorbs nutrient material (chiefly fat) and pours it into the blood stream for distribution; (3) it takes certain waste matters to the blood to be later eliminated by the lungs, kidneys, and skin.

5. *Respiration* is the act by which air is taken into and expelled from the lungs. *Function:* (1) To introduce oxygen into the system; (2) to excrete carbon dioxide. It is performed by inspiration and expiration.

6.

DIGESTIVE FERMENTS	ORIGIN	FUNCTION
Ptyalin.	Saliva.	Changes starches into dextrin and sugar.
Pepsin.	Gastric juice.	Changes proteids into proteoses and peptones in an acid medium.
Trypsin.	Pancreatic juice.	Changes proteids into proteoses and peptones, and afterward decomposes them into leucin and tyrosin; in an alkaline medium.
Amylopsin.		Converts starches into maltose.
Steapsin.		Emulsifies and saponifies fats.
Invertin.	Intestinal juice.	Converts maltose into glucose.

7. *The organs of elimination* are: (1) *Skin,* for sweat (urea, water, salts); (2) *lungs* (for carbon dioxide, water); (3) *kidneys,* for urine (water, urea, salts), and (4) *intestines* (feces).

8. (*a*) *The functions of the liver* are: (1) The secretion of bile; (2) the formation of glycogen; (3) the formation of urea and uric acid; (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

(*b*) *The function of the spleen:* The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blood corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin.

(*c*) *The function of the thyroid* is not definitely settled; (1) it has some trophic function, regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the sexual functions; (2) it is supposed to antagonize toxic substances, and (3) it produces an internal secretion.

9. I. Olfactory. *Distributed* to the Schneiderian membrane of nose. *Function,* sense of smell.

II. Optic. *Distributed* to retina. *Function,* sense of sight.

III. Motor oculi. *Distributed to:* Superior rectus, inferior rectus, internal rectus, inferior oblique, and levator palpebrarum muscles. *Function,* motor to these muscles.

IV. Trochlear. *Distributed* to superior oblique muscle. *Function,* motor to this muscle.

V. Trifacial. *First, or ophthalmic branch,* supplies sensation to conjunctiva and skin of upper eyelid, cornea, skin of forehead and nose, lachrymal gland, and skin of nose. *Second, or superior maxillary branch,* supplies sensation to skin and conjunctiva of lower eyelid, nose, cheek, upper lip, upper teeth, and palate. *Third, or inferior maxillary branch,* supplies sensation to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, and skin of lower part of face. This branch, in addition, supplies motion to the muscles of mastication (Masseter, temporal, external, and internal pterygoids), and the mylohyoid and anterior belly of the digastric.

10. *The vasomotor nervous system* consists of a center in the medulla, subsidiary centers in the spinal cord and vasomotor nerves. The nerves are: (1) Vasodilator (which increase the caliber of the arterioles), and (2) vasoconstrictors (which diminish the caliber of the arterioles). *Functions:* (1) To dilate arterioles; (2) to constrict arterioles; (3) to maintain tonicity of blood vessels; (4) to maintain peripheral resistance; (5) to regulate the amount of blood supplied to a part.

CHEMISTRY.

1. The glucose in the urine reduces the cupric sulphate of Fehling's solution to copper oxide.

2. Add a small amount of solution of nitrate of silver; in the presence of chlorides there will be a white precipitate insoluble in dilute HNO_3, but soluble in dilute NH_3.

3. Hydrochloric acid, pepsin, proteoses, peptones, etc. The relative and absolute amounts will necessarily vary according to the kind and quantity of food ingested.

4. Nitrites in drinking water denote contamination by sewage.

5. *Normal urine* consists of: Water, 95 per cent.; solids, 5 per cent. The latter are: Urea, 2.8 per cent.; uric acid, 0.06 per cent.; hippuric acid, 0.03 per cent.; creatinin, 0.06 per cent.; extractives, 0.8 per cent.; sodium chloride, 0.8 per cent.; phosphates, 0.2 per cent.; sulphates, 0.1 per cent.; oxides of calcium, magnesium, sodium, and potassium, 0.1 per cent.

6. Ammonium acetate is formed.

7. Calculi are composed of: (1) Most frequently, uric acid, sodium or ammonium urate, calcium oxalate, calcium phosphate, and ammonio-magnesium phosphate. (2) More rarely, cystin, xanthin, potassium or magnesium or calcium urate, and calcium carbonate.

8. About 8 per cent.

9. Trichloracetic acid, salicyl-sulphonic acid, picric acid, potassium ferrocyanide, Spiegler's test, Tanret's test, Jolle's reagent.

10. *A base* is a ternary compound capable of entering into double decomposition with an acid and producing a salt and water.

An acid is a compound of an electro-negative element or radicle with hydrogen, part or all of which hydrogen it can part with in exchange for an electro-positive element without the formation of a base.

An alkali is a substance which is basic in character, alkaline in reaction, is caustic in action, and can saponify fats.

An alcohol is the hydroxide of a hydrocarbon radicle.

An ether is the oxide of a hydrocarbon radicle.

TOXICOLOGY.

1. *Toxicology* is that branch of medical science which appertains to poisons; it includes their character, origin, actions, symptoms produced, antidotes, treatment, and detection.

2. Overdose of chloroform. *Symptoms:* I. Flushed face, contracted pupils, rapid and full pulse. II. Slow respiration, lowered temperature, dilated pupils, relaxed muscles, slow and full pulse. III. Irregular pulse, superficial respiration, dilated pupils, blue skin and lips, stertorous breathing, skin cool and covered with perspiration. *Treatment:* If the chloroform has been swallowed: Wash out the stomach, keep the patient warm, give hypodermic of strychnine. If during inhalation, stop further administration, start artificial respiration, give oxygen, and faradic current.

3. *Post-mortem appearances:* Cerebral and meningeal vessels are engorged; the lungs, liver, and kidneys are congested; the blood is dark and fluid; if the chloroform has been swallowed, the mucous membrane of mouth, stomach, and intestines is inflamed. The odor of chloroform may be present.

4. *Symptoms of poisoning by oxalic acid:* "The sour taste of the acid is rapidly followed by a burning pain, increasing in intensity, in the mouth, throat, and stomach, and persistent vomiting of a dark, 'coffee-ground' material. The pulse becomes small and imperceptible, and the patient dies in collapse, preceded frequently by convulsions, within half an hour. If the case be prolonged, swallowing becomes very difficult and painful; there are numbness and tingling of the skin; twitchings of the facial muscles; convulsions, frequently tetanic; delirium, and lumbar pain. Death occurs in some cases within three to ten minutes, sometimes almost immediately, and in some cases it is delayed for several days."

Treatment: "Magnesia (magnesia usta) or slaked lime suspended in a small quantity of water, or mucilaginous liquid, should be given *as soon as possible*. If vomiting do not occur, and if the symptoms of corrosion be not marked, an emetic. The stomach pump should *not* be used, nor should the alkaline carbonates be depended upon as antidotes."

5. *Post-mortem appearances:* The mucous membrane of mouth, esophagus, and stomach is whitish, easily detached, and looks as if it had been scalded; the muscular coat is red and thick; the stomach contains a pultaceous material, acid, and like "coffee ground" vomitus; the kidneys may show crystals of calcium oxalate; the urine may contain oxalates.

6. The *symptoms of acute lead poisoning* are: "Metallic taste; dryness of the throat; thirst; severe colicky abdominal pains, referred particularly to the umbilical region, and relieved by pressure; pulse very feeble and slow; great prostration; constipation; urine scanty and red; violent cramps; paralysis of the lower extremities; convulsions, and tetanic spasms."

The *treatment* consists in administering "magnesium sulphate, which brings about the formation of the insoluble lead sulphate, while the purgative action of the magnesia is also useful. It should be preceded by an emetic, or by the use of the stomach tube."

7. *Post-mortem appearances:* Not always characteristic; mucous membrane of stomach may be red or gray; there is a blue line on the gums; the colon may be constricted.

8. *Signs of death by drowning:* Froth at nostrils and mouth; pallor and goose skin; maceration of epidermis of palms of hands and soles of feet; sand or mud may be under the nails or in the hands; water and foreign matter are generally in the stomach and also in bronchi; lungs are swollen and emphysematous; the right side of the heart is engorged and the left side is empty; the liver is engorged.

9. *Symptoms of asphyxiation by charcoal vapor:* Headache, drowsiness, vertigo, tinnitus aurium, vomiting, dyspnea, pain and oppression in chest, irregular heart, stertorous breathing.

10. *Post-mortem appearances:* The blood is of a bright red color and the skin shows bright reddish spots on face, chest, and abdomen; the brain is congested; all the internal organs are colored by the bright red blood.

SYMPTOMATOLOGY.

1. *Pseudoleukemia* is a disease characterized by hyperplasia of the lymphatic glands and progressive anemia; there is no great excess of white corpuscles. It is also known as Hodgkin's disease. *Symptoms:* Glands of neck, axilla, and groin are enlarged; anemia is present; the swellings are painless and do not, as a rule, suppurate; dyspnea may ensue; spleen and thyroid are apt to become enlarged; palpitation, shortness of breath, and hemic murmurs may be found. *Prognosis* is unfavorable; recovery is rare; cases may last from six months to three or four years.

2. Bronchopneumonia and capillary bronchitis are the same.

LOBAR PNEUMONIA	BRONCHOPNEUMONIA
Generally a primary disease.	Generally secondary (to bronchitis or an infectious disease).
Age has little influence.	Generally found in very young or very old.
Sudden onset.	Gradual onset.
Fever is high and regular	Fever is not so high, and is irregular.
Ends by crisis between sixth and tenth day.	Ends by lysis, at no particular date.
Generally only one lung affected.	Generally both lungs affected.
The physical signs are distinct, and there is a large area of consolidation.	Physical signs indistinct, and the evidences of consolidation are indefinite.
Sputum is rusty.	Sputum is rather streaked with blood.

3. *Exophthalmic goiter* is a disease characterized by: Exophthalmos, enlarged thyroid, tachycardia, and tremors. The *principal symptoms* are the four just mentioned, with sometimes anemia, fever, emaciation, diarrhea, pigmentation, and profuse perspiration.

4. TABES DORSALIS. *Etiology:* Tabes dorsalis is a disease of adult life; is more common in men than in women; is more common in cities than in the country; syphilis is believed to be the most frequent direct cause; alcoholism, injury, exposure to cold and wet, have all been urged as causes, but they are not now assigned so important a place as etiological factors as was formerly the case.

Symptoms: Loss of coordination; characteristic and unsteady gait; tendency to stagger when standing up with feet together and eyes closed; sharp and paroxysmal pain, called *crises;* girdle sensation; loss of knee-jerk and other reflexes; Argyll-Robertson pupil.

Prognosis: The disease is probably never cured; it may be arrested, and some of the symptoms may be ameliorated. It may last from four to twenty years.

5. *Icterus may be caused by:* Catarrh of the duodenum and common bile duct, pancreatic disease, gallstones, cirrhosis of the liver, obstruction of the bile ducts, septicemia.

acute yellow atrophy of the liver, tumors of liver, pancreas, stomach, or kidney, certain infections and poisons.

6. Diabetes mellitus and diabetes insipidus.

In *diabetes mellitus* the urine has a high specific gravity and contains glucose; complications are many and frequent.

In *diabetes insipidus* the urine has a low specific gravity and does not contain glucose; complications are rare.

7. *Variola* is an acute infectious and contagious disease, of unknown origin, and characterized by rapid onset and fever, pains in head and back, and a rash which appears on the third or fourth day and passes through the stages of macule, papule, vesicle, and pustule.

For description of the stages of the disease, see French's "Practice of Medicine" (1907), pages 301 *et seq.*, or Osler's "Practice of Medicine" (1909), pages 115 *et seq.*

8. The *exanthematous diseases of children* are: Variola, varicella, scarlet fever, measles, and German measles.

Variola: The eruption usually appears first on the forehead and wrists, and on the third or four day; it is first macular, then papular, then vesicular, and, finally, pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin. *Varicella:* The eruption usually appears first on the trunk, is evident on the first day, comes in successive crops, is not shotty, and disappears on stretching the skin; the spots are unilocular, and collapse on being punctured. *Scarlet fever:* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; deesquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type; the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent. *Measles:* Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small, dark red papules with crescentic borders, beginning on face and rapidly spreading over the entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present. *German measles:* Period of incubation, ten to seventeen days. Stage of invasion, one day. Eruption appears on first day, is most intense on second day, consists of red papules, often fades from face before it is seen on the limbs. The pulse is not much accelerated, all the symptoms are slight. Desquamation is very slight. There may be slight sore throat and swollen cervical glands. Koplik's spots are absent.

9. The *different forms of nephritis* are: (1) Acute parenchymatous; (2) chronic parenchymatous; (3) chronic interstitial. The following table is from Gould & Pyle's Cyclopedia:

ACUTE PARENCHYMATOUS NEPHRITIS	CHRONIC PARENCHYMATOUS NEPHRITIS	CHRONIC INTERSTITIAL NEPHRITIS
1. Most common in children, from exposure or infectious fevers.	1. Later life; often the consequence of acute attack.	1. Late life; often results from alcoholism, gout, lead poisoning.
2. Edema of lower eyelids; then of upper extremities, trunk, and, lastly, lower extremities.	2. In early stage same as acute form; later, dropsy may diminish.	2. Dropsy slight or entirely absent.
3. Urine scanty, dark or smoky color, high specific gravity, 1025 or over.	3. Urine normal or increased amount; specific gravity may fall to 1010; urine pale.	3. Urine greatly increased; specific gravity low, 1005; urine pale in color.
4. Large amount of albumin.	4. Late in attack, greatly diminished; occasionally absent.	4. Albumin greatly diminished, often absent.
5. Variety of casts, such as hyaline, blood, epithelial, and waxy casts, also free red blood globules, and epithelial cells.	5. Large and small granular casts; compound granule cells, and fatty epithelium.	5. Hyaline or finely granular casts, occasionally dark in color; infrequently blood casts and oil droplets.
6. Urea diminished.	6. Urea diminished.	6. Urea diminished.
7. Recoveries frequent.	7. Recoveries rare.	7. Indefinite duration, but never cured.

10. "Gallstone in the common duct is possible, but unlikely, owing to the presence of splenic tumor, the lack of any intermission in the symptoms, and the absence of pain, fever, or chills. Catarrhal jaundice cannot be excluded, though it rarely leads to much enlargement of the liver or spleen. The points against cancer are the absence of pain, cachexia, or irregularities on the liver surface. Syphilis might produce all these symptoms, and can be positively excluded only by the therapeutic test. Cirrhosis, or the combination of cirrhosis and fatty infiltration, is the most likely diagnosis. This accounts better than any other hypothesis for the splenic enlargement, the large, smooth liver, and the jaundice. The gastric symptoms would then result from passive congestion of the stomach. The course of the case confirmed the diagnosis of cirrhosis."—(Cabot's *Case Teaching in Medicine,* from which the question is taken.)

PATHOLOGY.

1. Locomotor ataxia; general paralysis of the insane; herpes zoster.

2. Malaria is propagated by the bite of a mosquito (anopheles), which harbors the plasmodium malariæ.

3. *Causes of sudden death in children:* Asphyxia, malformations, status lymphaticus, atelectasis, marasmus, internal hemorrrhages, convulsions, and heart failure after diphtheria.

4. For *pathology of diabetes,* see French's "Practice of Medicine" (1907), pages 935 *et seq.;* or Osler's "Practice of Medicine" (1909), pages 412 *et seq.*

5. The *characteristics of the bacillus of diphtheria:* The bacilli are from 2 to 6 mikrons in length and from 0.2 to 1.0 mikron in breadth; are slightly curved, and often have clubbed and rounded ends; occur either singly or in pairs, or in irregular groups, but do not form chains; they have no flagella, are non-motile, and aërobic; they are noted for their pleomorphism; they do not stain uniformly, but stain well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue.

6. The *causes of fatty liver* are: Anemia, phthisis, cachetic conditions, obesity, phosphorus poisoning, pulmonary diseases, infectious diseases (as yellow fever, pyemia).

7. In *leukemia* the *blood* is light in color, specific gravity is lowered, coagulation is slow, the white corpuscles are much increased in number (there may be from 150,000 to 500,000 per c. mm., or even more); myelocytes are present in large numbers in the splenomedullary type; red cells may be moderately diminished, and some may be nucleated.

8. Chronic nephritis is often secondary to arteriosclerosis; in other cases the arteries are sclerotic even if there is no causal relation between the two conditions; sometimes it is hard to say which condition was primary. In many cases one or more of the coats of the arteries are thickened; this thickening is not evenly distributed, and is apt to be most marked in the renal vessels. Aneurysm, atheromatous or hyaline changes are often present in the blood-vessels in nephritis.

9. In *simple chronic gastritis,* the cells of the glands are eroded, or atrophied, or show cloudy swelling; round cell infiltration is present in the tubules; the glands are dilated and filled with an exudate and desquamated cells; new connective tissue forms between the glands.

10. *Vaccine* is an attenuated virus which, when introduced into the body of an animal, enables it to withstand the development of an infectious disease. *Opsonin* is that quality of a serum which makes a microorganism more susceptible to phagocytosis. *Bacterin* "is a preparation of killed bacteria suspended in normal solution which is injected for the purpose of raising the opsonic index of patients suffering from infection by that organism. *Agglutinin* is something in the blood serum of an animal affected with a bacterial disease which is capable of causing the clumping of the bacteria which caused the disease. *Lysins* are bacterial products which are capable of destroying alexins, and so promote the growth of the bacteria.

OBSTETRICS.

1. The pelvic diameters:

	Anterio-posterior.	Oblique.	Transverse.
Inlet	4 inches.	4½ inches.	5 inches.
Outlet	5 inches.	4½ inches.	4 inches.

2. In the nulliparous adult the uterus is about three inches long, about two inches wide at the upper part, and about one inch thick. The uterus lies between the rectum behind and the bladder in front; it is below the abdominal cavity and above the vagina. Its position is one of slight anteflexion, with its long axis at right angles to the long axis of the vagina. The anterior surface of its body rests on the bladder, and the cervix points backward toward the coccyx. The uterus is not fixed, but moves freely within certain limits. It is held in place by ligaments—broad ligaments, round ligaments, vesicouterine, and rectouterine.

The arteries are the uterine and ovarian; the nerves are from the uterovaginal plexus, the hypogastric plexus, and the vesical plexus.

3. Labor is divided into three stages: The *first stage* begins with the commencement of labor and ends with the complete dilatation of the os uteri. The *second stage* begins with the complete dilatation of the os uteri and ends with the birth of the child. The *third stage* immediately follows the second, and ends with the expulsion of the placenta and the beginning contraction of the uterus.

For description of each, see Williams' "Obstetrics" (1909), pages 226 *et seq.*; or Hirst's "Obstetrics" (1909), pages 317 *et seq.*

4. The fetal head has the following diameters: Occipitofrontal, occipitomental, bitemporal, biparietal, suboccipitobregmatic, trachelobregmatic, and mentobregmatic. Of these, the occipitofrontal is 4½ inches, the occipitomental is 5½ inches, and all the others are approximately 3½ inches.

5. See Williams' "Obstetrics" (1909), page 152.

6. See Williams' "Obstetrics" (1909), pages 267 *et seq.*; or Hirst's "Obstetrics" (1909), page 404.

7. *Indications for the use of forceps* are: (1) *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. (2) *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. (3) *Passenger at fault:* A. Dystocia due to (*a*) occipito-posterior; (*b*) mentoanterior face; (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). (4) *Accidental complications:* Hemorrhage; prolapse funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both.

Contraindications for the use of the forceps are: Mechanical obstruction of any nature in the parturient canal; incomplete dilatation of the os; non-rupture of membranes; non-engagement of the presenting part; the fact that the fetal head is either too large or too small; distended bladder or rectum.

8. Conditions that justify the induction of premature labor: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of a fetus toward the end of pregnancy; (6) the presence of a hydatidiform mole; (7) habitually large fetal head.

The methods that may be employed are: Partial dilatation of the cervix and the introduction within the cervix (and vagina) of a tamponade of sterile gauze; (2) dilatation of the cervix; (3) puncturing the membranes; (4) introduction of a soft rubber bougie into the uterus; (5) intrauterine injection of glycerin, water, or some other fluid. For description of method, see Williams' "Obstetrics" (1909), pages 381 *et seq.*; or Hirst's "Obstetrics" (1909), page 799.

9. Postpartum hemorrhage is hemorrhage from the parturient canal occurring after the birth of the child; it may occur immediately after the birth of the child, or at any time within several hours.

Prevention: Exert gentle pressure on the fundus of the uterus during birth of fetus and secundines; prevent too rapid delivery; after birth of head, give a dram of fluid extract of ergot; after complete delivery, give vaginal douche of creolin and water, and apply a uterine pad (externally) and abdominal binder; the patient should be kept quiet, both mentally and physically.

10. *Puerperal sepsis* is a condition beginning within a week after labor, generally about the third or fourth day, and characterized by fever, inflammation of one or more of the reproductive organs, and general septic infection. For treatment, see Williams' "Obstetrics" (1909), pages 883, *et seq.*; or Hirst's "Obstetrics" (1909), pages 732, 737, *et seq.*

SURGERY.

1. *Symptoms of fracture of the olecranon process of the ulna* are: The upper fragment is drawn upward; swelling; the forearm is partly flexed and cannot be extended readily; flexion of elbow increases the distance between the fragments; crepitation is present. The *prognosis* is fair, fibrous union is common, and ankylosis, or joint stiffness may occur.

2. *Causes of non-union of fractures:* Ill health, want of approximation of the ends of the bone, want of blood supply in the bone, defective innervation of the bone, disease of the bone, lack of rest, and immobility.

3. *Causes of compression of brain:* Hemorrhages, abscess, tumor, depressed fractures, edema, new growths of bone. *Symptoms:* Unconsciousness, slow and stertorous breathing, full and slow pulse, later becoming rapid, temperature raised, pupils unequal and fixed, hemiplegia, sphincters paralyzed, reflexes increased on paralyzed side.

4. The *various dislocations of the shoulder-joint* are: (1) Subcoracoid—forward, inward, and downward. (2) Subglenoid—downward, forward, and inward. (3) Subspinous—backward, inward, and downward. (4) Subclavicular—forward, inward, and upward.

The *special diagnostic signs* are:

(1) *Subcoracoid:* The head of the humerus is felt below the outer end of the clavicle; there is little or no shortening of the limb; the elbow is directed outward and backward.

(2) *Subglenoid:* The head of the humerus can be felt in the axilla; the arm is decidedly lengthened; the elbow is flexed, and there are signs of pressure on vessels and nerves.

(3) *Subspinous:* The head of the humerus is felt below the acromion process and behind; the arm is rotated inward and the elbow is displaced outward.

(4) *Subclavicular:* The head of the humerus is felt below the clavicle; the elbow is far from the side, and the limb may be shortened.

The most frequent of these dislocations of the shoulder joint is the subcoracoid.

5. In *tuberculosis of the knee-joint* there are: Swelling at sides of and above patella; joint is semiflexed; skin is edematous; there is a doughy feel round patella; foot is everted, muscles of thigh and calf are wasted; pain is variable; tibia displaced outward and backward, is flexed and externally rotated; the limb shortened; abscesses may form.

6. *Hydrocele* is diagnosed by its *translucency*. Further, it is a tumor which grows from below upward, is tense and fluctuating, is generally situated in front of the testicle, and gives no impulse on coughing.

7. *Stone in the common duct* is characterized by: Jaundice, colic, clay-colored stools, collapse, nausea, vomiting; the liver is enlarged and tender, and the gall-bladder is shrunken.

8. *Causes of vesical hemorrhage:* Traumatism, stone, inflammation, tumors, tuberculosis, and filaria.

9. *Acute osteomyelitis* is inflammation of the bone and marrow; the term is often used now for inflammation of the bone. It is *caused* by infection, the bacteria gaining entrance either through a wound or by extension from neighboring tissues, or they may be brought by the blood. *Pathological changes:* "The area of the medulla affected becomes hyperemic; exudation occurs in the cancellous spaces, Haversian canals, and under the periosteum. Pus soon forms in these three situations. If the disease begins in the superficial part of the bone the pus may only be subperiosteal, the deeper part of the bone escaping, though large areas of the superficial portion may die from the combined action of (1) stripping up of the periosteum by the pus; (2) strangulation of the vessels in the bone by the pressure of the exudation, and (3) the toxic action of the bacterial products. . . . When the disease begins in the deeper layers of the bone the pus may reach the periosteum, or extend along the medullary cavity, so that the veins become filled with septic thrombus, which may be disintegrated and carried off as septic emboli (pyemia). There is profound toxemia, and necrosis of the whole diaphysis may occur. . . . If the infection is mild, a chronic abscess may be formed in the cancellous tissue. The usual course of an acute case, if a patient survives, is that there is some necrosis of the shaft of the bone. The abscess bursts externally, and there are numerous openings in the skin leading through openings (cloacæ) in the periosteum and involucrum down to the sequestrum. The sequestrum becomes loose in six weeks to six months. *Symptoms:* Sudden onset; pain, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; septicemia or pyemia may be present. It is to be *diagnosed* from three conditions: (1) *Rheumatism*, in which more than one joint is affected and the tenderness is *in* the joint, and not *near* it. (2) *Tubular arthritis*, in which the onset is slow and the trouble starts in the epiphysis rather than in the diaphysis. (3) *Cellulitis*, in which the bone and periosteum are not affected, and in which there is always a wound.

10. *Early symptoms of carcinoma of breast:* Hard nodule, painless, fixed to gland, slowly but steadily increases in size; later it becomes harder and is fixed to skin; the skin is dimpled and may ulcerate; the nipple may be retracted; pain is present, and the breast cannot be freely moved.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H Sanders, Montgomery.	Montgomery	Jan. 11
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 3
Arkansas	F. T. Murphy, Brinkley	Little Rock	May 10
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April 5
Colorado	S. D. Van Meter, 1723 Fremont Street, Denver	Denver	Jan. 4
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Mar. 8
Delaware	J. H. Wilson, Dover	Dover	June 21
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Jan. 11
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	April 4
Georgia	E. R. Anthony, Griffin	Atlanta	April —
Idaho*	W. F. Howard, Pocatello		April 5
Illinois	J. A Egan, Springfield	Chicago	Jan. —
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 11
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	F. P. Hatfield, Olathe	Topeka	Feb. 8
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 17
Maine	F. W Searle, Portland	Portland	Mar. 8
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 7
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Mar. 8
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 14
Minnesota	W. S. Fullerton, St. Paul	St. Paul	May 10
Mississippi	S. H. McLean, Jackson	Jackson	May 10
Missouri	J. A. B. Adcock, Warrensburg	Jefferson City	
Montana*	Wm. C. Riddell, Helena	Helena	April 5
Nebraska	C. A. Carr, Lincoln	Lincoln	Feb. 2
Nevada	S. L. Lee, Carson City	Carson City	May 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 4
New Jersey	H. G. Norton, Trenton	Trenton	June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jan. 10
New York	C.F.Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb. 1
N. Carolina	B K Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 4
Ohio	Geo. H. Matson, Columbus	Columbus	June 14
Oklahoma*	F. P. Davis, Enid	Guthrie	Jan. 11
Oregon	B. E. Miller, Portland	Portland	Jan. 4
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	June —
Rhode Island*	G T. Swarts, Providence	Providence	Jan. 6
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	Jan. 12
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Austin	June 28
Utah	P. W. Fisher, Salt Lake City	Salt Lake City	Jan. 3
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 11
Virginia	R. S. Martin, Stuart	Lynchburg	June —
Washington*	T. C. McFadden, Seattle	Spokane	Jan. 4
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	April 12
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 11
Wyoming	S. B. Miller, Laramie	Cheyenne	Feb. 16

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Arkansas.—The new law regulating the practice of medicine in this State makes provision for reciprocity.

Mississippi.—Out of eighty-one applicants at the recent examination, only 21 were licensed to practice medicine.

Pennsylvania.—In the last examination there were 354 candidates; of these only 20 failed, or 5.6 per cent. As a rule there are about 14 per cent. of failures in the June examinations.

Technique of the Conservative Cesarean Section.—J. A. Doleris advocates absolute asepsis in all obstetric operations, just as we use it in gynecology. The genitalia as far up as can be reached into the cervix should be made antiseptic by the use of pure tincture of iodine. This is especially important in carrying out the conservative cesarean section. The time for the operation should be selected beforehand, at about the expected end of pregnancy, and the details of the operation carried out at leisure. The author uses surgical disinfection of the genitals and the operative zone, a short incision without exteriorization of the uterus, manual compression of the pedicles, ergot hypodermic injections for hemorrhage, suture with choromatized gut, vaginouteral drainage with gauze, and abdominoperitoneal drainage. His statistics of eleven cesarean sections done during the past year show eleven living infants, and only one death among the mothers. This death was in a case which had been in labor for 55 hours, with dilated cervix and amniotic fluid draining away. She died of sepsis and adynamia.—*La Gynécologie.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of December 11, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	564	177
Diphtheria	366	45
Measles	385	9
Scarlet Fever	337	14
Smallpox	—	—
Varicella	111	—
Typhoid Fever	59	11
Whooping Cough	120	5
Cerebrospinal Meningitis	1	4
Malarial Fever	—	—
Totals	1,943	265

Bacteriological Examination of the Normal Lochia.—Ercole Cova has made a bacteriological examination of the lochia in twenty cases of normal puerperal women, all cases that had any rise of temperature being excluded. He found that the cavity of the uterus is absolutely sterile, while the germs are habitually found in the vagina. For the first twenty-four hours the lochia are perfectly sterile. After that time germs may appear in it, probably coming from some that were concealed in the crypts and sulci of the mucous membrane. There are more germs found in the vulva than in the vagina, some of them coming from within, some from without. The vaginal flora consist of various forms of cocci, especially diplococci, and are simply saprophytic and not virulent. The colon bacillus is easily demonstrated, and may enter the vagina.—*Folia Gynæcologica.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended December 3, 1909:

		Cases	Deaths
SMALLPOX—UNITED STATES			
Alabama, Birmingham	Nov. 13–20	1	..
Montgomery	Nov. 13–20	12	..
District of Columbia, Washington	Nov. 13–20	1	..
Florida, Jacksonville	Nov. 13–20	1	..
Georgia, Macon	Nov. 15–28	5	..
Indiana, Muncie	Nov. 13–20	2	..
Kansas, Kansas City	Nov. 13–20	3	..
North Dakota, Grand Forks County	Sept. 1–30	2	..
Utah	Oct. 1–31	117	In 8 coun's
Washington Spokane	Nov. 6–13	1	..
Wisconsin, La Crosse	Nov. 13–20	1	..
SMALLPOX—INSULAR			
Philippine Islands, Manila	Oct. 9–23	2	..
SMALLPOX—FOREIGN			
Brazil, Bahia	Oct. 15–22	15	10
Para	Oct. 23–30	1	1
Pernambuco	Sept. 1–15	..	20
China, Amoy	Oct. 9–16	..	1
Egypt, Suez	Oct. 14–Nov. 4	1	2
India, Madras	Oct. 9–15	..	1
Italy, general	Nov. 1–14	..	82
Naples	Nov 7–14	20	7
Mexico, Mexico City	Oct. 2–9	..	4
	Oct. 16–23	..	2
Monterey	Oct. 14–21	..	1
Persia, Guilan, province	Oct. 4	..	Present
Mazanderan	Oct. 4	..	Present
Russia, Libau	Nov. 1–7	2	1
Riga	Aug. 1–31	18	12
	Sept. 1–30	11	3
Spain, Almeria	Oct. 1–31	..	3
Madrid	Oct. 1–31	..	103
YELLOW FEVER			
Brazil, Bahia	Oct. 15–22	1	1
Manaos	Oct. 16–23	..	1
Para	Oct. 23–Nov. 6	8	7
Ecuador, Guayaquil	Oct. 9–23	..	6
Venezuela, La Guaira	Oct. 27–Nov. 6	5	2 in vicin'y
CHOLERA—INSULAR			
Philippine Islands, Manila	Oct. 9–16	15	12
	Oct. 16–23	18	18
Provinces	Oct. 9–16	308	240
	Oct. 16–23	256	202
CHOLERA—FOREIGN			
China, Amoy	Oct. 8–23	..	49
Germany, Andreischken	Nov. 7–13	2	..
Heydekrug, district	Nov. 18	1	.
India, Bombay	Oct. 12–19	..	4
Madras	Oct. 9–15	..	1
Japan, Kobe	Oct. 30–Nov. 6	1	1
Moji	Oct. 6–13	2	2
Wakamatsu	Oct. 23–30	2	2
PLAGUE			
Brazil, Bahia	Oct. 14–22	10	6
Pernambuco	Sept. 1–15	..	1
China, Amoy	Oct. 9–23	..	77

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Original Articles.

RESULTS ACHIEVED BY THE MOVEMENT FOR SANITARY AND MORAL PROPHYLAXIS—OUTLOOK FOR THE FUTURE.*

BY PRINCE A. MORROW, M.D.

NEW YORK.

IN a paper before this society two years ago, I presented a résumé of the results accomplished by the movement for sanitary and moral prophylaxis in this country. In entering upon the duties of this office for a third presidential term, the occasion seems fitting for a review of the results achieved by this work during the past two years. Such a retrospect, it is believed, will be found to afford substantial evidences of real progress, and may serve as a stimulus for more active efforts in the future. Moreover, this experimental work furnishes a valuable basis for the study of the most practical lines along which this work may be effectively directed.

First, as to the growth of this movement. The most obvious evidence of this growth is the multiplication of societies which have undertaken this work in different parts of this country. From a handful of half-hearted men who met in this hall some four and a half years ago to discuss the wisdom and expediency of forming a society for the study and prevention of a class of diseases growing out of the social evil, the parent society has steadily grown in numbers, strength, and influence, and the movement has spread to many other states and cities. Branch societies, or societies with similar aims and purposes, have been organized in Philadelphia, Baltimore, Chicago, Milwaukee, Indiana, St. Louis, Denver, Portland, Spokane, California, West Virginia, Jacksonville, and the City of Mexico. Societies are in process of formation in Georgia, Connecticut, Texas, New Jersey, and other states.

Some four weeks ago I addressed a letter to the secretaries of these several societies asking for details of their organization and a résumé of their work. I propose to lay before you this evening a brief report embodying the results of these inquiries. The secretaries of the Pennsylvania Society and the Maryland Society have kindly consented to report the work of their respective societies.

The keynote of this movement was sounded as a campaign of education, and while these various organizations have acted independently, the work of all has been chiefly directed along educational lines and is to a certain extent homogeneous.

As this movement was inaugurated by the formation of the American Society of Sanitary and Moral Prophylaxis in this city, February, 1905, it is proper that this report should begin with a summary of its work.

The educational work of this society has been attempted in three directions: 1. By public meetings and conferences. 2. By the circulation of educational literature and pamphlets. 3. By lectures.

This society, I believe, was the first organization to hold meetings in this hall for the discussion of medical topics to which the public was invited. It certainly has the credit of lifting the taboo from a class of diseases, the discussion of which had always been behind closed doors. It had the courage to bring the discussion of these diseases into the open, to pronounce their names before a public audience, and to place them on the same plane of publicity as other infectious diseases dangerous to the public health. The papers and discussions at these meetings appear in the published transactions of the society. In addition to the first pamphlet issued by the society, 5000 copies of which were distributed, several thousand copies of reprints from *Charities and Commons*, a symposium on the treatment of venereal diseases, and more recently, a symposium on blindness of the newborn, it has issued five educational pamphlets: (1) "The Young Man's Problem," (2) "Education in the Physiology and Hygiene of Sex for Teachers." (3) "The Relations of Social Diseases with Marriage," (4) "The Boy Problem," (5) "How My Uncle, the Doctor, Instructed Me in Matters of Sex," intended for parents who feel themselves incompetent to instruct their children.

The fact that there was a demand for a third edition of Pamphlet No. 1 (the eighteenth thousand) within two years; for a second edition of No. 3 (the twelfth thousand) within a year, and that this demand comes from parents and educators, shows a remarkable receptivity on the part of the public for sound and scientific sex instruction. It is believed that the character of the educational literature of this society, which is everywhere spoken of as sane, dignified, and at the same time clean and free from mawkish sentiment, has contributed to establish the high repute in which this society's work is held.

In addition, numerous addresses before state medical associations, state conferences of charities, federations of women's clubs, sociological, and other associations, which have been widely circulated through the journals in which they were published, have contributed largely to the creation of a sentiment in favor of this work on the part of both the medical profession and the public.

When the lecture work of the society was inaugurated three years ago it was difficult to secure audiences or opportunities. The Committee on Lectures knocked at many doors which refused to open. During the first year only twenty-five lectures were

*Read at a meeting of the American Society of Sanitary and Moral Prophylaxis, October 14, 1909.

given. Within the last two years, since the value and importance of this work has been more generally recognized, over two hundred lectures have been given, and numerous requests for lectures could not be granted owing to the lack of necessary funds. I have here something over a hundred letters, most of them from the principals of the associations, schools, or groups in which the lectures were given, testifying to the favorable impression they made and the high appreciation with which they were regarded, and in many cases asking that they be repeated.

Lectures have been given in high schools, colleges, Young Men's Christian Associations, the settlements, the industrial alliance, boys' clubs, young women's clubs, employees' associations, and before various social groups. One of the most valuable fields of lecture work comes through the Public Education Association connected with the public schools. "These lectures before parents," writes the Executive Committee of this association, "were very helpful and showed plainly that they answered a great need. If people realized how much good could be done in this way they would be willing to contribute funds to make it possible to have a series of such lectures in every school in this city." Certain phases of this society's work will be again alluded to.

The Chicago Society, organized in October, 1906, has been most active and energetic in the preparation and circulation of leaflets which are distributed gratuitously or at a nominal price. Two years ago this society reported that 5000 copies of an educational pamphlet had been published, and ninety thousand copies of a leaflet entitled "Sexual Hygiene," for young men, had been circulated. Since then, two official circulars, one on family protection and another on community protection, have been issued. "Over 400,000 copies of these circulars have been distributed, and it is thought they will soon reach the half million mark. The circulation of these leaflets has brought the society into communication with over 600 universities, Young Men's Christian Associations, business houses, railway associations, etc. Perhaps the most important work of the society in the past year has been done through its president, Professor Charles R. Henderson, who as a member of the American Society for the Scientific Study of Education, devoted the National Year Book for 1908 to the subject of education with reference to sex. The organization has given but few lectures. This work, however, has been taken up by the Chicago Women's Clubs and handled mostly by different women physicians. Possibly two hundred of such lectures have been given. In addition, a large number of lectures, especially to young men, have been given by Dr. W. S. Hall, of the Northwestern University Medical School. This society is also cooperating with the Illinois Vigilance Association, organized to fight the white slave traffic."

The Milwaukee Society was organized in 1906. Since its organization upwards of thirty lectures and talks before various organizations have been given to students, young men's bible classes, civic societies, schoolmaster's clubs, school-board committees, women's clubs, etc. "It is estimated that these lectures have reached five or six thousand different individuals. From every direction words of commendation have come. Openmindedness has been met almost without exception. We are looking forward to lectures in various parts of the city under the auspices of the City Board of Health. We have distributed a large amount of literature, especially that published by the Chicago Society."

The Indiana Society was organized in June, 1907. The first work of the association was to put forth a general educational pamphlet. "The work of publishing and distributing pamphlets was taken up by the State Board of Health. Thirty thousand have been distributed, and 25,000 more have just been printed. The lecture work of this society has been done chiefly by Professors Woods of the Medical Department of the Indiana University, who has given over fifty lectures in the past two years. Many lectures have been given by other members of the society; fifteen by Dr. Hurty, secretary of the State Board of Health, in different parts of the State. The influence of ministers and teachers has been sought, and a hearty response always secured. After a conference with the school commissioners and the superintendent of the public schools, circular letters were sent to parents of boys in the schools in regard to the advisability of instituting sex education in the schools. It is worthy of note that the replies received, about fifty per cent., were unanimous in favor of this instruction."

The St. Louis Society was organized January 25, 1909. "An address given by request before the St. Louis Medical Society was published in pamphlet form, 5000 copies of which were printed and copies sent to 1600 members of the Civic League, 400 members of the Women's Club, and to other influential organizations. The educational literature of the American Society has also been largely distributed, also several hundred copies of an address on the "Relations of Social Diseases and the Family." Arrangements are being made for lectures before church clubs, philanthropic and reform associations, pedagogical societies, department stores, labor unions, etc. The president of the Central Trades and Labor Council has written that his people are willing to cooperate in any way. We have met with nothing but encouragement, and cooperation has usually been assured as soon as asked. Our membership is steadily increasing, and we are now arranging a series of meetings in conjunction with various societies, clubs, and associations."

The Portland Society was organized December 10, 1907. The work has been principally directed to the circulation of literature bearing on sexual hygiene and personal and social purity among young people. A committee was appointed to prepare suitable literature. "Copies of the literature of the New York Society are on my desk and have been of great value in this work. It is the intent of this organization to do its work largely through pamphlets to mothers, fathers, and children. We believe that the home is the best place to give instruction in matters of sex."

The Spokane Society was organized October 23, 1908. The society has held six public meetings at various points in the city, at which addresses were given by Dr. Lyman Sperry and other distinguished speakers. "The year's work has been one essentially of duty and preparation. The executive committee, which meets twice a month, or oftener, has decided that its best and most far-reaching work must be the educating of young people in the community, and that the society should not go over the heads of the parents, but should take them into its confidence and urge upon them their duty in this respect. We have also sought to extend our educative work

among the young men of this community, anticipating a similar work among the young women. The committee has also given considerable time and study to the discussion of the subject of prostitution in our city, and while some light has been shed, this big perplexing question remains unsolved, etc. The society has published nine circulars, 43,000 of which have been distributed, and larger editions are now being printed. It is proposed to send certain of these circulars to all the men listed in the City Directory, and others to all the women listed."

The California Society, which has adopted the title of "The California State Association for the Study and Prevention of Syphilis and Gonorrhea," was organized April 19, 1909. It is worthy of note that the first pamphlet issued was published in the Official Bulletin of the State Board of Health. The president, Dr. Greene, has given many lectures throughout the state to professional and lay bodies. The work thus far has been devoted chiefly to the enlarging and perfecting of the organization.

No details have been received from the Denver, West Virginia, and Jacksonville Societies. The Mexican Society of Sanitary and Moral Prophylaxis was organized in 1908, under the auspices of the Academy of Medicine of Mexico. It publishes a bulletin of its transactions. There have been many interesting details omitted from these reports necessitated by the lack of time at my disposal for their enumeration.

Before proceeding to consideration of the ways and means by which the work of sanitary and moral prophylaxis can be most effectively carried on, I may be permitted to refer to the work done in other countries. It is to be understood that the movement in this country is but a part of a general movement which it is hoped will eventually be world-wide in its scope. Societies have been formed in France, Germany, Holland, and other European countries, and in the Argentine Republic of South America. Through the courtesy of Dr. Blaschko, the eminent secretary of the German Society for the Prevention of Venereal Diseases, organized in 1902, I am furnished with a report of its work during the past seven years. This society numbers nearly 5000 members, and has 20 local branches in different cities of Germany.

"The German Society for the Prevention of Venereal Diseases was founded on October 19, 1902, by medical and lay men, drawn from all circles of society. Its members now number nearly 5,000, including men of science, merchants, public officials, artists, and artisans, and even women, all classes of society being represented.

"So far as practical results are concerned the society may mention the following: The cancellation of discriminations against venereal persons formerly contained in the sick insurance law is due in the main to the intermediation of the German Society; in many towns the inadequate provision of beds for venereal patients has been arranged for through the direct and indirect instigation of the society by the creation of special departments under the superintendence of medical specialists; the departments themselves, formerly the stepchild of hospital administrations, are now equipped with all the auxiliaries of modern technique for the treatment of disease; the harshness and restrictions, oftentimes of a degrading kind, to which formerly venereal patients were exposed in hospitals, have now been everywhere removed. The opposition of the populace to their treatment in these departments has disappeared. At the universities chairs have been established for the teaching of venereology, while the latter itself has been raised to a subject of examination in the Medical State Examinations. At the instigation of our society a ministerial decree has been issued to have students of other faculties pass through a course of lectures on sexual hygiene in each semester; in most of the Federal States there are now courses on sex pedagogy for advanced high school students, following a resolution adopted at our Mannheim Congress. As these students are discharged from school, they are enlightened through medical lectures as to the nature and perils of venereal diseases; on certain evenings there are lectures for parents enabling the latter to deal competently with the sexual problem in the education of their children. In Prussia a ministerial decree has recently placed the sanitary police superveillance of prostitutes upon an entirely new basis which was likewise suggested by the work of our society.

"A monthly periodical is sent free to all members; there is a committee at work which, in conjunction with eminent specialists abroad, publishes a *Journal for the Prevention of Venereal Diseases* (*Zeitschrift für Bekämpfung der Geschlechtskrankheiten*, Joh. Ambr. Barth, Leipsic, publisher), which contains elaborate articles of a scientific character, and at the same time offers an opportunity for a thorough and detailed discussion of the questions at issue. Furthermore, the society has issued leaflets for both sexes intended to enlighten the public on the dangers of venereal diseases, and which are being distributed among the adolescent part of the populace. Five million copies of these leaflets have already been distributed, and the society has defrayed the expense of 4,000,000 of these. The society has also issued a series of popular pamphlets at moderate prices; traveling speakers go from town to town to address the public; and in order to educate it on the injuries and deformities which may be caused by venereal diseases, the society has made up a collection of plaster casts, pictures, and tables, which is being exhibited in the various towns and explained in lectures by physicians as to their importance and meaning.

"A special field of the society's work consists in making inquiries on various questions connected with the dissemination of sexual diseases, such as the conditions of living of prostitutes, inducing sexual excesses by the use of intoxicants, the prevalence of venereal disease in certain groups of the populace, sources of infection, etc. The material obtained by these inquiries is being published in the scientific organ of the society and will serve as an important basis for legal reforms.

"Taking everything into consideration, it may truly be said that the seven years' work of the German Society for the Suppression of Venereal Diseases has been very extensive, successful, and beneficient.

"Of no less importance than these direct practical results is *the absolutely unanimous approval of our aims on the part of the general public and the practically total change of front of periodicals* and the *daily press* in relation to the aspirations inaugurated by us; whereas formerly they were either completely ignored or obscurely hinted at, there is now, especially in the foremost publications of the land, an open, frank, and oftentimes highly intelligent exposition of the difficulties of the problems involved, the discussion of which the German Society has made its object and in the solution of which it is endeavoring to participate."

I have emphasized this paragraph, as it brings us face to face with the chief obstacle encountered in this work. The real difficulty is that we have been unable to reach the great mass of the public to any effective extent. The public press and periodicals which serve for the enlightenment of the masses, and which have rendered such signal service in the campaign against tuberculosis and other infectious diseases through the popularization of hygienic knowledge, are absolutely barred to the mention even of the diseases we wish to prevent. I believe that with publicity for a fulcrum we have in our facts a sufficiently strong lever to move the world of public opinion.

From personal conferences with the editors of a number of popular magazines in this city it may be stated that the question of presenting to their readers certain facts relating to the economic significance of social diseases, their danger to the public health, and their peril to the family and society is being seriously considered. Indeed, positive assurances have been given by the editor of perhaps the most influential and widely circulated of these magazines that this would be done so soon as a practical working scheme can be devised. Once the crust of conventional prejudice is broken by a courageous leader there is no doubt that other progressive periodicals will fall into line.

As regards other available openings for this educational work, we have found in the physical training department of the Young Men's Christian Association, with which a sort of affiliation has been established, a most cordial cooperation, both in our lecture work and the distribution of literature. At a recent meeting of the New York Association of Teachers of Biology it was resolved by this body to unite with the American Society of Sanitary and Moral prophylaxis, in a request to the Board of Superintendents to provide a course on sex instruction for all first-year pupils in the city high schools and to study and apply methods for teaching sex education along biological lines. Where there has been no official affiliation with the Women's Christian Temperance Union, the superintendent of its purity department has been most indefatigable in her efforts to advance the cause of sex education through the purchase and distribution of the educational literature of this society. A cordial, though less active, cooperation has been given by the National Purity Alliances and Federations. Among numerous bodies which have proved valuable allies may be mentioned the American Federation of Women Nurses, State Conferences of Charities, Federations of Women's Clubs, etc. The recently organized Public Health Education Committee of the American Medical Association will also, it is believed, render effective aid in this work. I might refer to many other organizations, such as labor unions, and labor associations, etc., which may be utilized in the expansion of this educative work.

In dealing with other phases of this prophylatic work it has been the policy of the society to secure when possible the cooperation of existing organizations which are working in the interests of the social welfare. As an illustration: at a recent meeting when the general subject for discussion was "The Affluents of Prostitution," papers were read on "The White Slave Traffic" by the president of the National Vigilance Committee; on "The Evil Influences of Dance Halls, etc.," by the chairman of the Committee on the Amusements and Vacation Resources of Working Girls; on "Demoralizing Theatrical Plays," by the president of the Society for the Prevention of Crime; on "Raines' Law Hotels," by the secretary of the Committee of Fourteen, with a discussion by representatives of various other organizations in this city.

While the regulation of prostitution, including the sanitary surveillance of prostitutes, is excluded from this society's scheme of prophylaxis, it is actively engaged in the more fundamental work of studying and endeavoring to correct the underlying conditions and causes of which prostitution is the product. Especially is it combating the twin forces of ignorance and social impurity which are the basic cause of that vast mass of disease and misery we are endeavoring to prevent. Its aim is not to make prostitution safe, but to prevent the making of prostitutes.

In a recent work on the Social Evil written from the standpoint of the reglementarists, the advantages and necessity even of the sanitary surveillance of prostitutes are strongly urged, while the protests of the abolitionists against certain odious features of this system, such as the arbitrary arrests and forcible examination of women of suspected virtue found on the streets, are dismissed as absurd. The dominant sentiment of the book is expressed in the concluding paragraph: "Less indulgence for the professionals of debauch; more protection for *les honnetes gens.*" The force of this appeal is weakened when it is reflected that the "honest men" can easily protect themselves by not voluntarily exposing themselves in sexual debauch. The sentiment of this society may be voiced: "More protection for young women who are too often made professionals through seduction, fraud, or force; less indulgence for the men who in robbing them of their virtue infect them with disease."

Brief reference may be made to another phase of this society's work, namely, prophylaxis by treatment. The work of the committee on treatment has been limited to the study of the existing conditions, and the exposure of defects in the present organization of our hospital system, which makes the most inadequate provision for the treatment of venereal patients, especially when the disease is in the acute contagious stage, and curative treatment is most needed. These and other glaring defects were brought to the attention of the Mayor's Commission on Public Hospitals last year, and as a result of these representations we are now assured that plans have been prepared for the construction of a large special hospital with ample provision for the accommodation of this class of cases.

There are one or two measures bearing upon the further development of this work to which I will allude in closing. One is the formation of a national organization; the other, the establishment of a bulletin or journal which shall serve as the official organ of all the societies. Tentative efforts were made two years ago to carry out these suggestions, but the conditions did not then seem favorable. A national organization, which would effect the solidarity of the different societies, working under a common name and with a common object in view, could not fail to give to this movement increased strength and a more commanding influence. In addition, it would insure concerted action and more effective work along definitely determined lines. In this federation of societies each would preserve its autonomy and independence as a local organization. The establishment of a bulletin or

journal which would serve as a medium of communication between the different societies for the publication of papers and proceedings of general and local interest, as well as for the propagandism of our ideas among the medical profession and the public, would give a powerful impetus to this movement. In the circular letters above referred to, an expression of opinion was asked from each society as to the advisability and feasibility of these proposed measures. There was a general approval of both propositions.

Another matter which appears to me of importance is a census of the venereal morbidity and mortality in this country, especially in the larger cities. As is well known, there is no official registration of venereal diseases, and the morbidity from this cause is an unknown and unknowable quantity. It is believed that the morbidity from this class of infections exceeds that of all other acute infectious diseases combined. If we had accurate statistics of the extent to which these diseases prevail in our civil population, as we have in our army and navy service, such data, showing their danger to the public health, their significance as a peril to the family and the race, to say nothing of their economic aspects, the enormous cost to the state and community in supporting the great army of defectives which fill our asylums and public institutions, would form the basis of an effective appeal to the public for support and cooperation in this preventive work.

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FREUD'S CONCEPTION OF THE PSYCHONEUROSES.*

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The psychoneuroses, the step-children of medicine, have of late received more attention in the literature than before. Both here and abroad it has been realized that there is a large group of diseases, the so-called borderline cases in mental diseases, the understanding and treatment of which have been sadly neglected, and it is gratifying to know that at least some steps have been taken to meet these deficiencies. The wave of psychotherapy which has swept the continent has also made its presence felt in this country through the numerous discussions in both lay and professional journals. Abroad its adherents claim brilliant results; one need only review the numerous writings of the Nancy and other schools to be convinced that psychotherapy is no empty term, but an actual branch of medicine, and that in the psychoneuroses it is the only effective remedial agent.

Yet, whereas all schools agree that the psychoneuroses should be treated by psychotherapy, they all disagree as to the nature of the psychoneuroses. One need only scan through the recent works on hysteria to see what diverse views are expressed by the different investigators on the subject. These diversities, in my opinion, are due to the fact that most of the investigators in question have ignored one very important factor, namely, individual psychology. Without individual psychology the riddle of the neuroses, like the riddle of the psychoses, must remain unsolved.

Among the different views expressed on the neuroses those of Freud stand out most conspicuously. No recent theories either in medicine or psychology have evoked so many controversies and discussions. After years of careful and painstaking labor Freud evolved not only a system of psychotherapy but a new psychology. Unlike all other investigators, he discarded all generalities and confined himself to the individual. The individual factors which had escaped the notice of other investigators he found to be of the utmost importance in the psychogenetic development of personality.

As early as in 1895 Breuer and Freud published the "Studien über Hysterie." They found that hysterical symptoms like neuralgias, paralyses, epileptiform attacks, etc., could be traced to actual psychic traumata which the patient could not consciously recall, but which could be readily demonstrated when the patient was put in the hypnotic state. In other words, they found that the hysterical manifestations were not accidental but had a definite cause. The connection between cause and effect was often quite obvious; thus, "A very sick child falls asleep, and the mother exerts all her will power to make no noise to awaken it, but just because she resolved to do so, she emits a clicking sound with her tongue (hysterical counter-will), which was repeated on another occasion when she wished to be absolutely quiet. This developed into a regular tic which persisted for years."[1] In some cases the connection is not so simple, there being only a symbolic relation between the cause and the hysterical phenomena; thus, psychic pain may cause a neuralgia, and moral disgust may cause vomiting. Breuer and Freud then concluded that these psychic traumata, or the memory of the same, act like foreign bodies in consciousness, and even long after their occurrence continue to influence like new causative factors; in other words, "The hysteric suffers mostly from reminiscences."[2] This was proven by the fact that the individual hysterical symptoms disappeared without returning if one succeeded in thoroughly awakening the memories of the causal process with its accompanying affect, and if the patient circumstantially discussed the process giving free play to the effect. The reason for the strangulation of the emotion was because at the time of its occurrence it could not be adequately worked off. We all know that it is not always possible to give vent to our feelings, and that an insult retaliated leaves quite a different impression than one that has to be swallowed.

The treatment called "catharsis" consisted in reconducting the sum of excitement from its false paths to the original conscious idea, and then working it off by means of intellectual labor and speech. The patient was hypnotized and questioned about the origin of the symptoms, and while recalling the original injuries, either in hypnosis or the normal state, the hemmed-in emotions were discharged and the symptom disappeared. This is the so-called "abreagirung"—abreaction—which means to work off something by living through it again.

This is a rather brief review of the conceptions originally expressed by Breuer and Freud. It is from these principles that Freud developed his present conceptions of the psychoneuroses and his revolutionary psychology.

When Freud continued to practice the cathartic treatment he was confronted with one special dif-

*Read before the Section on Neurology and Psychiatry of the New York Academy of Medicine, October 11, 1909.

ficulty. He found that not all persons were hypnotizable, and as hypnosis was absolutely essential for the broadening of the patient's consciousness, many patients had to be given up as they could not be hypnotized. He even went so far as to take one of these patients to Nancy, to Bernheim, but after applying all his skill, Bernheim had to admit that he, too, could not hypnotize the patient. This, and a number of other reasons caused Freud to avoid hypnotism, and to adopt a new procedure which he calls the psychoanalytic method.[3] On asking the patients in the waking state whether they remembered the first motive for the symptom in question, some knew nothing, while others recalled something rather vaguely. Freud then applied the same method which Bernheim used in awakening the manifestly forgotten impressions produced during somnambulism. He found that by urging and assuring the patients that they did remember, and telling them that all they had to do was to concentrate their attention, and repeat the thoughts which would occur to them, they finally recalled the pathogenic ideas without hypnotism. But as this urging necessitated much exertion on his part, and showed him that he had to overcome great resistances in the patient, he formulated the following theory: "Through my psychic work I had to overcome a psychic force in the patient which opposed the pathogenic idea from becoming conscious."[4] The resistance was due to the fact that the ideas which had to be disinterred were all of a painful nature, adapted to provoke the affects of shame, reproach, mental pain, and the feeling of injury—they were altogether of that kind which one would not like to experience, and prefers to forget.

This gave rise to Freud's idea of repression (Verdrängung); the pathogenic idea being of a painful nature is incompatible with the ego, and is therefore treated by it as *non arrivé*. The patient wishes to know nothing about it, he wishes to forget it. But as this repression, or forgetting never succeeds completely, the pathogenic idea continues to strive to come to the surface, and is constantly inhibited by the psychic censor. This struggle of the two opposing forces results in a compromise. Each foregoes a part of the original demand, thus meeting the other half way, and the result of this mutual accommodation is then transformed into a hysterical symptom by the process of conversion. In this manner the ego frees itself from opposition, the original painful idea or unattainable wish is forgotten, and instead it becomes burdened with a memory symbol which remains in consciousness as an unadjusted motor or sensory innervation. We thus see that the main character of hysteria is not the splitting of consciousness, as asserted by Janet and his school, but the ability of converting the sum of strangulated excitement, either totally or partially, into that motor or sensory innervation which is more or less connected with the traumatic event. This is the psychological mechanism of hysteria.

There are, however, predisposed persons in whom there is no adaptation for conversion. Here, if an unbearable idea enters consciousness it meets with the same contrary forces as those mentioned above, the affect becomes detached from the idea, but instead of being converted into the physical it remains in the psychic sphere. The weakened unbearable idea remains apart from all association in consciousness, but its detached affect or the sum of excitement, allies itself to another indifferent idea,[5] which on account of this "false" connection becomes an obsession; or the unbearable idea is so changed that the patient does not recognize it. He no longer thinks of the painful or disagreeable, but instead he is troubled by an obsession, the absurdity of which he realizes, but from which he cannot rid himself. The advantage thus gained by the ego in the transposition or dislocation of the affect is not as great as in the hysterical conversion of psychic excitement into somatic innervation. The affect remains unchanged and undiminished, but the unbearable idea is suppressed from memory.

The same mechanism holds true for the origin of the phobias, and both come under the heading of compulsion neurosis (Zwangsneurose). It was also found that the unbearable ideas underlying the compulsion neurosis (obsessions and phobias) have their origin in the sexual life. In the words of Freud, "The obsession represents a compensation or substitute for the unbearable sexual idea, and takes its place in consciousness."[6]

Both hysteria and compulsion neurosis belong to the defense neuropsychoses; their symptoms originate through the psychic mechanism of defense, that is, through the attempt to repress a painful idea which was incompatible with the ego of the patient. In both neuroses the idea is robbed of its affect, and excluded from associative elaboration, but remains in consciousness.

There is still another far more forceful and more successful form of defense, wherein the ego misplaces the incompatible idea with its emotion, and acts as though the painful idea had never come to pass. When this occurs the person merges into a psychosis which may be called "hallucinatory confusion." To illustrate this form of defense I will cite a case which through the kindness of Dr. M. S. Gregory, I saw at the psychopathic pavilion of Bellevue Hospital. It concerns a young married man about 30, a New Yorker, who being out of work tried his fortune as a farm hand up the State. Things did not go as smoothly as he expected, and one day the farmer gave him a very severe thrashing, and chased him off the farm without paying him his salary. He sought redress, but could get none, so that he had to walk to New York City penniless. When he returned home he made a number of attempts to obtain justice for himself, but was told that he could do nothing. He kept on brooding over it for some time, when one day he suddenly became excited and confused. He became boisterous, cursing the farmer, and accompanied his utterances by violently kicking and punching the bedstead and the pillows. He imagined that he was punching the farmer. He was so excited and confused that his wife sent for the police, who took him to the psychopathic pavilion of Bellevue Hospital.

Here the idea was so painful that the ego tore itself away from it, but as the painful idea was inseparably connected with reality, the ego also excluded itself wholly from reality. Such cases give us an insight into the psychoses. Thanks to the genius of Freud and the Zurich School,[7] we no longer fear to face the hitherto considered perplexities of the insane mind. We know that every insane utterance, every morbid perception, has a definite meaning and a definite *raison d'être* when analyzed. Truly there is method in madness.

In tracing the psychic traumas which are supposed to be at the basis of hysterical symptoms or compulsion neuroses, one invariably comes to sexual experiences of childhood. This is so conspicuous that it led Freud to lay great stress on the sexual,

and to formulate the following sentence: "In a normal *vita sexualis* no neurosis is possible."[8] This, I know, will sound rather strange to some of you, but I would like to call your attention to the fact that the sexual impulse is one of our strongest impulses. It is the one impulse that is subjected to the greatest amount of repression, and for that reason it has always been the weakest point in our cultural development. You must also bear in mind that Freud's conception of the sexual is very broad. It is just as broad as our English word "love," or the Greek word "eros," and does not at all limit itself to the coarse sexual. Moreover, you must remember that sexuality is more complicated than one thinks. Hypocrisy and prudishness have from time immemorial taboed all things sexual; the word itself carries with it the ideas of lewdness and loathing. As a result of this, the ignorance displayed in matters sexual is appalling. Thus we are led to believe that there is no sexuality before a certain age, the age of puberty, yet when we look back to our own youth we find that long before that age we were subjected to certain feelings which were unmistakably of a sexual nature. Freud maintains that the sexual is born with us, and begins to manifest itself in infancy. I regret that the brief time at my disposal does not allow me to discuss the sexual theories expounded by Freud, but those of you who are interested in the subject should study his interesting and profound book, "The Three Contributions of the Sexual Theory."* I will merely add that after carefully studying the sexual development as no sexologist ever did, Freud came to the conclusion that hysteria is the result of a conflict between the libido and the sexual repression, and that the hysterical symptoms have the value of a compromise between both psychic streams.[9] We must bear in mind that it is the mental conflict which is the essential causative factor and not the sexual moment as such. The resultant compromise of such conflict generally causes the sexual wishes to be consciously rejected and unconsciously accepted. The wish is then repressed, but the sum of excitement finds its way into bodily innervation and forms the hysterical symptom.

Let me cite an example. A married lady of 49, who suffered from hysteria for over twenty-two years, showed as one of her symptoms a very painful contracted and paralyzed right arm which had been so for over three years. The muscles of the arm and shoulder region were completely anesthetic, deep needle pricks were not perceived, but the slightest attempt to straighten out the arm was most painful. Indeed, the pain was the chief symptom. It would be impossible for me to give you here the full analysis of this symptom; I will merely mention some of the psychic constellations.

Due to a number of sexual traumas sustained in childhood, all sexual feelings were repressed, and as a result she was totally frigid when she married. Indeed, coitus was both painful and disgusting to her. This produced marked marital unhappiness, her husband failed to understand her condition, and what made matters worse was the fact that he found her masturbating in her sleep. When he first noticed it he was very indignant and tried to call her to account for it, but she continued to sleep; he tried to arouse her, but she did not respond. He thought at first that she was shamming, but finally concluded that "she had a fit," and reported the matter to the family physician. This somnambulistic state during which she masturbated was repeated on an average of five to six times a week. There was complete amnesia for this action. She at first refused to believe it, but she was finally convinced of it by her own sister, who saw her do it on the occasion of sleeping with her. She then sought the aid of a physician who gave her large doses of bromide, and advised her to wear a sock over her hand and firmly tie her arm in complete flexion. While she was being treated for her masturbation it was reported to her that her husband carried on some illicit relations with one of the girls whom she employed. She absolutely refused to believe this, and no amount of urging on the part of her husband's own relatives could induce her to dismiss this girl. This girl was the daughter of a very poor woman, and it was out of compassion that she took her into her millinery establishment and taught her the profession. This state of affairs continued for months. She was extremely jealous, yet her pride would not allow her to take any action in the matter. It was after a quarrel about some other matters, during which her husband grasped her by the right arm, that it became painful, and developed into the condition noted above. As she was the moving spirit in the millinery establishment the business had to be given up, as she was totally incapacitated by her malady.

Here, as we see, the conflict was between the libido and the repression. The repressed sexual feelings made her consciously frigid but unconsciously passionate. When her masturbation was brought to her consciousness she took all the precautions to prevent it, but as usual she was unsuccessful. Her husband's faithlessness gave rise to another conflict. Her pride gained the upper hand, and she absolutely refused to believe what every one else saw and what she herself could not fail to see. When her husband grasped her by this arm, which was the cause of so much mental pain—it was the one with which she masturbated—the conversion took place. The symptom, as Freud puts it, was the result of a compromise between two opposing affects, one of which strove to bring to a realization a partial impulse or a component of the sexual constitution, while the other strove to suppress the same.[10] This symptom, as we see, served a double purpose, it stopped the masturbation and incapacitated her to such an extent that the business had to be given up, and the girl who caused her so many pangs had to go. The pain was also the punishment for the underlying sexual desire. She never masturbated with her left hand, nor has she ever been seen masturbating since she was cured by psychanalysis.

In analyzing neurotic symptoms Freud found that the dream played a great part in the individual's life. This gave origin to the epoch-making book, "Die Traumdeutung."[11] The dream is not at all absurd and senseless, but has a definite meaning when analyzed, and in the experienced hand it is the most valuable instrument for penetrating the mind. In the neurotic patient the subject of the dream generally refers to the origin of the neurosis, *i. e.* to the repressed material, but due to the many distortions and transformations only few and hidden associations show allusions to the repressed experience. Psychanalyis explains the different components of the dream, and thus reveals the repressed ideas which are at the basis of the neurosis. The dream is divided into the manifest and latent thoughts. The former are remembered by the dreamer on awakening, while the latter represent the thoughts

*An English translation in preparation.

of the dream before they were subjected to the distortion. When the translation is complete we find that the latent thoughts of the dream invariably contain the fulfilment of a repressed wish. The same holds true in the psychoneurotic symptoms. In the words of Freud, "The hysterical symptom, like all other psychic formations, is the expression of a wish fulfilment."[12]

In the same way the repression continues to evince itself in normal conscious life; in other words, the wish fulfilment normally manifests itself during the waking state just as it does in the dream and in the neurotic symptom. This can be readily seen if we analyze the abnormal or the so-called accidental actions of every day life. In his very interesting and instructive book, "The Psychopathology of Every Day Life,"[13] Freud shows that mere lapses of memory, speech, and writing, as well as the common mistakes are not at all accidental, but when analyzed have a reason. Thus the forgetting of a name which we have once known implies that either directly or indirectly there is something painful or disagreeable connected with it. A mistake in talking is usually what the speaker really means. In other words, the repression influences our waking state just as it does the dream and the psychoneurotic symptoms. Just as the latent thought of the dream, the psychoneurotic symptom represents a fulfilled wish, and both the dream and the neurosis seem incomprehensible until explained by psychanalysis.

I will now cite a brief analysis of an obsession. One of my patients, a young man 26 years old, suffered from a typical compulsion neurosis, the main symptom being an obsessive action which consisted in a rapid upward movement of his arms, as though holding back or pushing up something. This action became very annoying to him and his family. He was often compelled to do it in public, and it interfered with his work as a diamond cutter. Before proceeding with the analysis I will mention something concerning the technique.

On analyzing psychoneurotic symptoms the patient is required to lie on his back on a lounge, and the physician sits beind the patient's head at the head of the lounge. The object of this position is to avoid all muscular exertion and distraction, thus allowing a thorough concentration of attention on the patient's own psychic activities. We then ask the patient to tell all he knows of the symptom, and we usually find a number of memory gaps. These he is urged to fill in by concentration of attention on the subject and by repeating all thoughts originating in this connection. Before proceeding we must have the patient's promise that he will frankly repeat to us all the thoughts occurring to him in the order of their sequence, even thoughts that are painful or embarrassing. This is Freud's method of free association. We are also alive to the fact that the psychoneurotic symptom is merely a symbolic expression of the original repressed thoughts, and we therefore resort to Freud's method of interpretation, that is, we look out for symbolic expressions, psychopathological actions, and make use of the analysis of dreams. For unless one has mastered the triad of Freud's psychology, "The Three Contributions to the Sexual Theory," the "Psychopathology of Everyday Life," and the "Divination of the Dream," he is unable to use or judge Freud's psychanalytic method. With this digression we will now return to our patient.

On being questioned concerning his obsessive action it was found that it concealed the obsessive thought, "God may get into me." This thought obsessed him for months, and realizing the absurdity of it, he was ashamed to tell it to anybody. This was then followed by the obsessive action described above which was a protective mechanism against the thought, and signified, "I will pull Him out again." As the word "God" seemed to be the most important word in the obsession, I asked him to concentrate his mind on this word and tell me all the associations it recalled to him. He gave the following: God—father—I am always bothered by the foolish thought that God will get into me. He suddenly stopped, and on being urged to continue he said that something just occurred to him which had nothing to do with the thought of God, and which he would not like to tell unless it was absolutely necessary. On being told to continue, he stated that it recalled to him that about six months ago while being at work, a fellow working man once asked him to look out of the window, and when he did so he saw two dogs in the act of copulation. This was very embarrassing to him, he turned his eyes away from the scene, but he could not banish a number of fancies which then came to his mind. One thought was, "How would it be to get into the dog?" He soon repressed these thoughts, and kept on repeating to himself, "I will not get into the dog, the dog may get into me." Now, if you read the word dog backward you will find that it spells the word God, and gives the key to the whole obsession. For years this patient was in the habit of turning words about. He showed me a diary which was filled with mirror writing, which he used because he did not wish any one in the house to know his affairs. We note that he at first consciously changed the painful idea "to get into the dog" into "the dog may get into me," and as the idea was disagreeable it was repressed, and the word dog was then unconsciously changed into God. This completed the obsession.

The same mechanisms are found in the dream, in the neologisms of the insane, and in the normal. I am sure that the majority of you are aware of the fact that the Sesrun Club is the nurses' club, and perhaps few of you know that the Yvel Jewelry Company is the Levy Jewelry Company. The basis for each cryptogram is a painful idea. Nurses' Club neither looks nor sounds as dignified as Sesrun Club, which may pass as a millionaire's club, and the Yvel Jewelry Company looks better and is perhaps more profitable than would be the Levy Jewelry Company.

This is a very simple example of the psychanalysis of an obsession, perhaps too simple to impress some of you with the gravity of the work, but we cannot change the workings of the mind. Those who analyze psychoneurotic symptoms and the utterances of the insane[14] can always find such mechanisms. Do not, however, think that the analyses of this obsession and the afore-described hysterical paralysis were as simple as I presented them. I merely gave you the result obtained after weeks of painstaking work. It would have been impossible to read here the full analysis of any of the symptoms. It would have required many hours. Indeed, psychanalysis takes time; the treatment of a chronic case usually takes from six months to a few years, but the most refractory chronic cases have been cured by this treatment. Both cases mentioned were cured by psychanalysis after everything else was tried in vain.

I will now conclude with the remarks that Freud used in concluding his lecture on psychotherapy before the Vienna Medizinische Doktorenkollegium:

"Let us hope that with an interest for psychotherapy, purified of all hostile prejudice, you will help us to do some good in the treatment of severe cases of psychoneuroses."

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97 Central Park West.

STENOSIS OF THE LARYNX CURED BY INTUBATION.*

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These cases of laryngeal stenosis, three in number, were all due to different causes: the first was due to a gunshot wound, comminuting the thyroid cartilage, the second a post thyroid perichondritis, and the third a recurrent granuloma of the larynx. The cases are of special interest, firstly, because of their very unusual nature, and, secondly, because of the exceedingly satisfactory results following intubation. As no similar cases have been previously treated in this manner, the writer deems them of sufficient interest to place them on record.

Case I.—The first case is previously recorded (*Journal of the American Medical Association*, October 27, 1900), and, in brief, is that of a soldier who was shot in the battle of El Caney on July 2, 1898, the bullet striking the right frontal bone directly over the right edge of the orbit. The bullet had a most remarkable course (the man was lying down when struck), entering the right frontal bone, crushing through the superior maxilla, cutting through the soft palate, comminuting the thyroid cartilage, entering the esophagus where, being spent, it dropped into the stomach; some weeks later it passed per rectum. One month after the injury his dyspnea became so intense that a tracheotomy was performed on December 5, 1898. Four months thereafter he was placed in my care.

Until this time various diagnoses had been made, but none of them connected his gunshot wound with his laryngeal stenosis. The large hole in his soft palate made me suspicious of the nature of his illness and a careful investigation into the whole history cleared the matter up. The interior of the laryngeal infundibulum did not even admit the small probe. The inner walls of the larynx bulged at the center and the lowest portion was on a line with the false vocal cords; there were absolutely no voice sounds whatever.

At first the Schrötter tubes were introduced of increasing sizes and later on he was intubated, coughing up the tube after a few hours. The introduction of the intubation tubes through the firm mass was always a slow process during which the patient's air was so cut off as to give him great distress and make him cyanotic. To relieve this I devised a hollow handle made for me by Geo. Ermold, New York, to be attached to the intubation tubes. This worked very satisfactorily, I could now take all the time I desired to intubate, the patient breathing through the tube and handle while the tube was slowly introduced.

Owing to the malformations in his larynx the tubes would be coughed out within a very short time, the longest period that these tubes remained was four days. I then had recourse to the device of John Rogers, Jr., of New York City, which consists of an O'Dwyer tube with a screw piece attachment, the latter being introduced through the tracheotomy wound; this tube remained *in situ* for six weeks, during all of which time he was unable to swallow food, requiring esophageal tubes. With the removal of the tube his respirations were free, the voice clear, and the tracheotomy opening closed.

Ten days later, following an attempt to remove some tissue within his larynx, dyspnea set in which became so great that I was compelled to reopen the tracheotomy wound in my office and insert the tracheotomy tube. The patient would not allow further intubation, none of my persuasions being of any avail, though I am confident that he would have done perfectly well and remained so had he permitted it.

It is quite likely that the pension laws of our country were responsible for this determination as the presence of a tracheotomy tube constitutes permanent disability with large payments monthly, while a cured individual would only receive a small amount.

Case II.—The second case was that of a post-typhoid perichondritis of the larynx (Medical Record, July 25, 1903, and Transactions of the American Laryngological Association, 1904, page 147), and occurred in a female aged 28 years, first seen by me on January 19, 1903, with a history of having had typhoid fever three months previously. For the increasing dyspnea tracheotomy was immediately required. Gradual dilatation with Schrötter's tubes for about a month, followed by intubation under chloroform, the tube being worn for six weeks. Reintubation eight days later for increasing dyspnea. The tube being retained for three months continuously, during all this time she swallowed food well, and had taken a sea voyage absenting herself for two months from the city. She was

*Read before the Sixteenth International Medical Congress, at Budapest, September, 1909.

then extubated, but twelve hours later dyspnea ensued requiring reintubation later with a small metal tube; three weeks later the tube was removed and never again introduced. She was first intubated in April and wore an intubation tube most of the time for five months.

It is now five years since the tube was last removed, and while some thickening exists over the left inner surface of the thyroid, she has no discomfort whatever in breathing, though her voice is pitched much lower than formerly, and there is some hoarseness. The case then is recorded as being entirely cured by intubation, and the author believes it to be the first case of this affection so recorded.

Case III.—The third case is here presented for the first time. John M., native of Hungary, age 28, was admitted to the first surgical division of Mount Sinai Hospital with the diagrams of papilloma of the larynx. The previous history was good. While working in the tunnel under the East River he began to cough and had deafness in the left ear, cough ceased but hoarseness remained, which increased gradually and for six months patient has been unable to speak above a whisper, no dyspnea; the laryngeal examination showed a papillary growth involving both vocal cords with fairly marked stenosis.

He was operated upon December 3, 1907, under gas and ether anesthesia. The cricoid and thyroid cartilages were slit open and the interior of the larynx was exposed, showing the vocal cords symmetrically covered with a papillary growth. The mucous membrane was widely excised to be sure of being clear of the growth, then the mucous and muscular linings of the larynx were separated with an elevator-knife and scissors and finally removed, thus leaving most of the thyroid cartilage bare and a bare oozing space at the upper margin of the larynx just below the arytenoid folds. All raw surfaces were freely cauterized with crystals of trichloracetic acid (cocaine 10 per cent. and adrenalin sol. 1-1000 being used freely during the operation), the upper rings of the trachea were divided, and a tracheotomy tube was inserted into the lower angle of the wound; the thyroid was sutured. Pathological examination of removed growth reports it to be a papilloma.

There was some post-operative hemorrhage from the laryngeal branch of the superior thyroid which was promptly checked. The laryngoscopic examination was made by myself when I first saw him on December 20, 1907, seventeen days after the operation. Both arytenoids were found infiltrated, the right especially, much mucus was in the larynx, and there was a granulation area at the site of the right vocal cord and false cord. On the third of January there were granulations diminishing the lumen of the larynx to one-third of its normal size and Schrötter's tubes were introduced every second day. The tracheotomy tube had been removed a week previous, but dyspnea becoming severe, incision through the cicatrix and reintroduction of the tracheotomy tube became necessary.

On January 24 a large-sized, hard-rubber intubation tube was introduced and the tracheotomy tube removed; this was coughed out the next day and replaced. The next day he coughed out the tube again and having some dyspnea the tracheotomy tube was reinserted. He was then intubated from time to time, coughing up the tube and having the tracheotomy tube reinserted, the tube never remaining more than a few hours. On March 16, 1908, a metal intubation tube with the Rogers attachment was introduced. The tube was kept in position for four weeks and on April 13 it was removed, the patient being able to take food fairly well during the whole time of wearing the tube.

Some small pieces of granulation tissue were removed endolaryngeally, and on April 29 the examination showed except for some slight protuberance at the site of the right vocal cord no thickening within the larynx. The patient was discharged from the hospital wards as cured with a hoarse, but fairly loud, voice.

One and a half years have now elapsed since his discharge from the hospital wards, but as he has been an employee of the hospital since then there has been abundant opportunity for observing him and there has been no return of any dyspnea. Some granulations have appeared from time to time which have been removed endolaryngeally, so that he is entirely cured after the constant pressure of a metal intubation tube for four weeks only, to control the wild exuberance of granulation tissue.

A résumé of these three cases, showing remarkably unusual causes of laryngeal stenosis, is a striking illustration of the very great advantages of intubation and of the toleration of the intubation tube when patiently and persistently introduced.

The use of the hollow intubator in cases in which slow intubation is necessary, and the great advantage of the Rogers modification in appropriate cases is also established. Without the O'Dwyer tube these patients must all have been condemned to wear a tracheotomy tube or depend upon a tracheal opening for the remainder of their lives.

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A STUDY OF THE EUSTACHIAN TUBE IN RELATION TO THE RADICAL MASTOID OPERATION.

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In chronic suppuration of the tympanic cavity, one constantly finds that without apparent lesions of any significance in the mastoid process and with more or less limited pathological changes in the middle ear itself, nonsurgical treatment, even for long periods of time, is of but little benefit, and, while the suppuration may almost disappear, yet the secretion again returns and the conditions are the same as if treatment had not been carried out. In such cases as these, careful study of the individual will show that the aural discharge is largely mixed with mucus and that each increase in the discharge is generally associated with an active catarrhal process in the nasopharynx, so that it at once becomes evident that the eustachian tube is the source through which the recurring and often continuous reinfection of the tympanic cavity is maintained. Not only in these cases, but in practically all instances of chronic suppurative otitis media, the tube in this capacity plays a more or less prominent rôle in adding to the changes occurring in the tympanic cavity, and for these reasons it becomes self-evident that in performing the radical operation for the cure of a chronic purulent otitis, it is essential that especial care be given to the tube in order to eliminate it as a factor in reinfecting the eviscerated cavity and

rendering the operation a failure by having a continuance of the suppuration from this source.

The object of the radical operation is to remove all diseased tissue and to render the auditory apparatus in this relation as free from infection as possible in order to have a successful result, and to obtain this the anterior wall of the tympanic cavity must receive its due share of attention while performing the operation, and to remove all sources of infection that may remain or subsequently develop in this locality. Just as much as the various parts of the mastoid process, therefore, should the Eustachian tube be considered an integral portion of the auditory tract from the operative standpoint in such cases where evisceration is demanded, and it is not only wise but essential that all portions of this tract be made surgically clean, and as such is not possible at the pharyngeal terminus of the tube, measures must be directed to obliterate the tympanic end in order to prevent continuous reinfection of the aural cavity made by the operation and thus prevent the neutralization of the favorable results to be expected as a result of the operative procedures.

The relation of the tube to the radical operation not only depends on what has been stated, but in carrying out measures for its occlusion much is gained towards prompt healing of the parts, and, at the same time, further steps are taken towards the process of epidermization of the osseous cavity, so necessary to the complete cure of the suppuration. As regards structural continuity, the nasopharynx is closely associated with the tympanic cavity by means of the eustachian tube, as the mucous membrane is continuous, and, therefore, as far as this structure is concerned, it is subject in all its parts to the same pathologic changes, so that morbid conditions of the nasopharynx, especially when associated with alterations of secretion, markedly influence any preexisting aural affection, and especially so in chronic aural suppuration of such persistance or severity, as to necessitate the performance of the radical operation. In this way, therefore, the Eustachian tube must be seriously considered as partaking of these morbid changes and transmitting them by direct continuity to the middle ear cavity. The mucous membrane also plays a prominent rôle in this respect, as in some parts it acts as a periosteum which in itself decidedly magnifies the importance of pathogenic lesions, especially of the osseous portion of the tube and at its tympanic opening.

It is essential in this respect to consider the anatomical relations of the tube to the auditory tract as bearing on the subject of its pathological changes in the light of operative procedures, as a knowledge of these relations will make clear the various reasons why special care of the tubal opening into the tympanum is so essential to obtain aseptic results and prevent the dangers of secondary infection after operation. Extending from the anterior wall of the tympanum downwards and forwards, the tube varies in length from thirty-three to forty millimeters, and of this, the part which concerns us here in relation to osseous lesions is that of the bony portion, which is from ten to fifteen millemters in length. The shape of this portion of the tube is important in a surgical sense, as a knowledge of it, as will be seen later, aids in selecting the instruments best applicable to remove diseased tissue at its tympanic mouth. Roughly, it presents a three-sided lumen, with its semiangles not abrupt but rounded off, while in general, it presents the shape of a blunt cone, the summit being directed towards the apex of the petrous portion of the temporal bone and its base opening on the anterior wall of the cavum tympani, so that considered as a whole, it will be seen that its largest diameter is at the tympanic end corresponding to the base and the apex is at the point where the osseous and cartilaginous portions join constituting the so-called isthmus.

The tympanic orifice measures from three to five millimeters in its vertical diameter, where it has fully broadened out from its narrow isthmus and it merges not by sharply defined limitations into the tympanum, but rather imperceptibly at the level of the upper third of this cavity. While the figures of the size of the opening are the usual average, it varies considerably, so that the opening here is inconstant and irregularly defined, although this is not of much import in considering its surgical relations from this aspect. The boundary between the tube and the tympanum is rendered still more irregular by the position of the walls of the latter in relation to the opening of the tube, as at the point of emergence the superior and lateral walls of the drum cavity merge into the former and without apparent osseous interruption in many specimens, form an irregular area here most difficult to describe.

Practically (and especially must this be borne in mind in operating here) the osseous portion of the tube lies entirely in the petrous portion of the bone, while as regards the relation of the tube in a surgical sense, its anterior wall is made up of a portion of the pars tympanica. The inner wall is composed of a delicate osseous layer not infrequently dehiscent in part, separating it from the carotid canal, while the upper wall is formed internally by the septum of the tube and the floor of the canal containing the tensor tympani muscle and outwardly its wall unites with the osseous tissue in the petrotympanic fissure. Of all these relations, that in direct connection with the carotid artery is the most important, as there is but a delicate lamella of bone between the osseous wall of the tube and the internal carotid artery, and for a short distance the wall of the tube forms the wall of the artery, so that it is essential in curetting here, either to obliterate the mouth of the tube by removing the mucous lining, or to remove minute areas of necrosed bone, that great care be exercised in gently handling the curette, as under such circumstances one is working directly on the artery and serious if not fatal hemorrhage may ensue if these relations are not properly appreciated.

When the mucosa of the tube is thickened, the glands are functionally more active, both relatively and absolutely, and a catarrhal condition of the nasopharynx exists at the same time, as is so often the case in chronic aural suppuration. It will be found then that the tube in this relation to the tympanum plays a not inconsiderable part in maintaining the purulent discharge, by constantly reinfecting the ear with the mucus derived both from its lining and carried through it from other portions of the respiratory tract. Not only, therefore, is treatment of these parts necessary in endeavoring to cure the suppuration by the usual routine measures, but it is also essential when operation is indicated, and while we cannot always remove by operation the catarrhal changes in the tube, yet such sources of infection can be eliminated by obliteration of its tympanic orifice, so that following the first coryza, which the

patient has after the radical operation, the parts will remain in good condition and not give evidence of a return of the suppuration from this source.

The bony canal of the tube may act as the route by which pus is conveyed from the tympanum to the retropharyngeal tissues, with the development of a pus collection at this point possibly obscuring the ear as the original cause of the trouble and especially may this be the case when carious areas develop around the tympanic orifice of the tube on the anterior wall of the tympanum. Such a case is recorded by Knapp, of otitic retrophyaryngeal abscess formed by the pus flowing from the tympanum posteriorly to the pharynx, along the semicanal for the tensor tympani muscle and the tissues about the Eustachian tube.

From these facts, therefore, the condition of the tube should be ascertained as far as possible, previous to operation, and especially so if the chronic discharge from the tympanic cavity has been found to contain mucus in any amount, thus suggesting this tubal factor as being prominent in the continuance of the aural discharge. Should it be found, previous to operation, that the tube seemingly plays no part in the continuance of the suppuration, and that there is a permanent occlusion from stenosis of its caliber in the osseous portion, it will hardly be necessary to consider its obliteration later, as this has already been accomplished by the pathological process. It is best, however, not to depend entirely on this preliminary investigation, but to examine carefully its tympanic orifice during the operation, especially for the presence of caries, and then, from the results obtained by this final examination, determine as to the proper procedures to be pursued.

Rarely, however, will the anterior wall of the tympanum in the region of the eustachian tube, or the osseous walls of the tube itself, be found to be the seat of a carious, or necrotic process, although the mucous membrane and periosteum covering these parts are quite frequently involved by morbid changes. This undoubtedly results from the fact that the brunt of the pathological process producing the continued suppuration is located posterior to this area in the region of the attic, antrum, and mastoid structures, and, further, that from the location of the tubal opening to the tympanum and its accessory cavities, drainage is not interfered with, as a rule, in this particular site. But of still further import in ascertaining the infrequency of caries here, is the structure of the osseous tissue composing this wall of the tympanum and the walls of the tube, as it will be found that the bone is hard and dense in structure, although, of course, the comparative and even actual thinness of some portions renders it rather fragile. As this follows the well known rule that cellular or spongy bone is more liable to carious processes than dense or compact bone, it accounts for the comparative infrequency of caries at this point and the frequency with which such changes are found in the mastoid process, and especially in those portions of it which partake of a pneumatic structure.

When for various reasons the tube remains patulous following operation, whether efforts have been made to close it or not, should a purulent or mucous discharge occur in the cavity of the tympanum, it may be diminished or completely stopped by washing out the parts with a eustachian catheter from the pharyngeal orifice, but as far as possible such a condition as this is not to be desired, for while the operation has removed the danger of serious sequelæ, yet it is also performed in order to cause a complete cessation of the discharge, and unless this is accomplished, one does not feel that a complete success has been obtained. While it is perfectly possible to obtain a perfect cure with a patulous Eustachian tube, yet such is of necessity not to be advised for fear of future infection, and in cases associated with cholesteatomata formation the tube should also be rendered impermeable, although Redmer thinks that surgical closure is not necessary for the permanent cure of cholesteatoma, as he has had a cure for ten years with a patulous tube.

During the course of the radical operation, when is it advisable to obliterate the tube? This may be done at any time after the mastoid has been eviscerated and the posterior wall of the external canal removed so that free access can be obtained to this region. When the bone has been removed in great part and the anterior tympanic wall is freely exposed to view the mouth of the eustachian tube should be curetted thoroughly but carefully with the sharp curette until all granulations are removed, so that healthy granulation tissue will form and aid in epidermization and occlusion of the tube at this site. In this way, if the usual asepsis be maintained, healthy granulations develop at this point and a firm cicatrix forms, so that as healing progresses the tube becomes firmly occluded.

Again, the tube may be ignored at the time of the primary operation except to remove carefully any necrosed or carious bone present in this locality. During the course of the after treatment of the osseous cavity in the temporal bone, the mouth of the tube may from time to time be cauterized to prevent the subsequent passage of septic matter, and, by these repeated cauterizations, to endeavor to form a cicatricial occlusion. Such treatment, however, is not to be recommended, as it exposes the ear to infection, and, furthermore, it is unnecessary as this step of the procedure should always be completed as part of the primary operation.

When curetting the tube during operation, it should be obliterated as thoroughly as possible by removing the diseased bone and all the mucosa for a distance from its opening. For this purpose, small oval, or round curettes are necessary, so that they can pass well into the mouth of the tube. All depressions or rough areas of bone in the neighborhood of the tubal orifice should be carefully removed with the curette, but great care must be exercised in doing this in the vicinity of the carotid canal, as dehiscences may be present and the artery may be injured with serious results. If skin grafting of the mastoid cavity is to be performed at the time of the radical operation special care must be taken in placing the epidermis in the mouth of the tube, and in order to utilize this as an additional obliterating aid, it should be forced well into the tube, so that the parts of their mucous membrane denuded by the curetting, will be thoroughly covered.

While failure of this part of the operation may result from not removing the carious bone in this vicinity, yet a patulous tube from this cause is rather infrequent, as the carious process rarely extends any distance into the lumen of the tube and the diseased osseous tissue can, as a rule, be readily removed as in other parts of the operative field. Even after careful curettment, however, occlusion may not always be obtained, and then frequent relapses with the persistence of suppuration are observed and examination shows the growth of ex-

uberant granulation tissue around the tympanic mouth of the tube. Should such be the case, a secondary operation may be performed and the parts again curetted and treated as before, or favorable results may be obtained after treatment extending over a more or less lengthy period of time by cauterizing this part with the galvanocautery. In some cases, one or two applications of the cautery lightly applied to the granulation tissue here are sufficient to produce a permanent occlusion by a firm cicatrix, if dead bone be not present.

When dressing the cavity in the bone immediately after operation the mouth of the Eustachian tube should be firmly tamponed, and during the course of the after treatment, the same method of tamponage should be carried out, that is, to tampon this part firmly at each dressing until obliteration has been assured.

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STUDIES WITH THE WASSERMANN REACTION.*

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The part played by syphilis in the production of diseased conditions of the nervous system has been under discussion for many years. If the complement-fixation tests prove unquestionable, these problems will be much simplified. Already the Wassermann reaction for the diagnosis of syphilis has given rise to an enormous amount of work which, despite individual variations and modifications of technique, have been uniformly confirmatory of its value as a means of clinical diagnosis.

In the following report an attempt has been made, while studying those nervous diseases due directly or indirectly to syphilis, to compare the Wassermann reaction, the Noguchi modification (using, however, the fluid reagents), and the globulin tests. The precipitation tests were included at first, but discarded, our results according entirely with other observers, the largest percentage of positive results occurring in parasyphilitics, and the next highest in nonsyphilitics.

The technique of the complement deviation tests, Noguchi and Wassermann, have been so often described that we will not repeat them. In every series of tests the quality and strength of all reagents, including a series of antigens, were carefully tested, and dosed by the same normal and syphilitic sera and same complement.

These antigens were alcoholic extract of syphilitic fetal liver, normal liver, guinea-pig heart, guinea-pig liver, lecithin, sodium, taurocholate, sodium glycocholate, and three different mixtures of bile salts and lipoids. These mixtures so far have not given satisfactory results, and are not included in this report. The glycocholate and taurocholate also were unsatisfactory and are omitted. Every test was fully controlled with normal serum, syphilitic serum, and, when possible, by serum of some nonsyphilitic disease.

There was a marked uniformity of result with all four tests. The Noguchi modification was in most cases more sensitive than the Wassermann, this increased delicacy making it give positive results in nonluetic conditions (tuberculous meningitis, one case). The most positive results with the fixation tests occurred in active secondaries, and the faintest in the treated tertiaries. The intensity of the complement fixation tests showed a direct relation to the acuteness of the manifestations and absence or incompleteness of treatment, or length of time since thorough treatment, but showed no relation to severity of the lesion. The Noguchi butyric acid and the Gay and Fitzgerald euglobulin test varied little in end results. The globulin tests were more often positive in parasyphilitic cases where the deviation tests were less constant. It is of great value, as corroborative evidence in distinguishing between brain tumor and cerebrospinal lues, where the fixation tests were often partial or absent.

The Noguchi butyric acid test, when applied to cerebrospinal fluid, gave a positive result in every luetic case with meningeal involvement, but failed in one case in which there was no involvement of the nervous system but a gumma of the liver, the blood serum of which was faintly positive. The test was positive also in every meningeal disease examined without reference to cause. The euglobulin was negative in nonluetic meningeal conditions, but present in some acute infections, tonsillitis, and pneumonia. Both of these tests fail if serum is bloody or tinged with hemoglobin.

In the Wassermann tests, in which three or four antigens were used, we found that luetic fetal liver, normal liver, guinea-pig heart, and lecithin ran roughly parallel, the titers for the different antigens varied even when the dose had been determined for all antigens with the same normal and syphilitic sera. In five of the primary cases, the reaction was studied with at least four, and whenever possible more antigens, and in these, during a period of twenty weeks, we observed the same general curve. Lecithin and guinea-pig heart being closest in titers to the fetal liver. In these cases the reaction was positive, first with the Noguchi modification, later with the Wassermann, using the luetic liver and lecithin antigens.

In the parasyphilitic disease the titers were less in early than in later stages. In tabes we more often had a positive reaction when there were active manifestations. One case reexamined during a seemingly latent period gave no change in the reaction, while another whose first test was very faintly positive to Noguchi modification, and negative to Wassermann, gave a definite positive to both tests in a second examination following the development of a hemiplegia. The stronger reaction where both serum and cerebrospinal fluid were used was found in the serum to both the Noguchi and the Wassermann techniques, but in cases where the serum alone was tested, the Noguchi technique seemed more delicate, while in cases where the cerebrospinal fluid was examined the best results were with the Wassermann technique.

Concerning the diseases studied little need be said. In the hemiplegic cases, amyotrophic lateral sclerosis, pseudobulbar palsy, epilepsy, and one brain tumor case, a definite history of syphilitic

*The material in this report was taken principally in the Neurological Wards of the Philadelphia Hospital, in the service of Dr. James Hendrie Lloyd, and the cases were collected under his diagnostic guidance. The work was done in the Laboratory of Neuropathology of the University of Pennsylvania with Dr. Spiller.

infection was obtained in all but one of the positive reactions. This patient, a hemiplegic, thirty-two years old, markedly improved under specific medication with which he had been treated for a month before the reaction.

A Wassermann reaction means syphilis active somewhere in the body, and the present trouble may be due to an entirely different cause. A positive pneumonia case seen at autopsy had a gumma of the liver. A positive reaction in this case could easily be recorded as a positive pneumonia. It is not improbable that many times a low grade syphilis may be present, thus making a soil suitable for another infection. Winfield, examining twenty-nine children with tuberculous joint disease, found physical signs of hereditary lues in ten cases, Pirquet reaction in twenty-eight of the cases, Noguchi modification in ten cases, a report strongly suggestive of the presence of both infections.

Seven suspicious pregnant women examined by us gave negative results. Five of these were again examined with the children after labor, with consistent results, except that one baby gave a partial response, but so far it has developed no signs of syphilis. Bar and Duanay think there may be some other factor present in the blood of the newborn which modifies the reaction. They found this weak reaction usually present in sera with bile pigment, or in a lactescent serum. With these two other doubtful mothers and their infants were examined, and were both positive.

Bar and Duanay[1] found the reaction frequently negative in infants whose mothers had been thoroughly treated, and at times in infants whose mothers had florid syphilis, but the highest positive results appeared in those cases in which the disease of the mother was latent. A positive test in the mother justifies treatment of mother and child, but the best prospect of success in treatment lies in energetic mercurialization before and during pregnancy. In the case of a child of a Wassermann-positive mother, which itself gives at birth a negative result, the reaction may later become positive, suggesting the possibility of infection during delivery.

Baisch[2] found in mothers of typical syphilitic children only about 75 per cent. which reacted with the Wassermann test, although he thinks all the mothers were infected. On the other hand, positively luetic mothers may give birth to infants which give negative reactions and remain free from signs of disease. In our cases, we examined the milk in six of these cases, and obtained a positive reaction in the two luetic cases. The reaction was faint in both, and so faint in one by the Wassermann that, except in the light of other findings, it would have been counted negative. In both these cases specific medication was carried out in child and mother, and, except for an eczematous rash on the genitalia of one child, all have been perfectly well during six months of observation.

In five cases of primary, nine of secondary, seven of tertiary, four of cerebrospinal lues, and four hereditary cases, we were able to make frequent examinations of the serum while under treatment for a period of six months.

In the primary cases the reaction was negative until the third week. One gave a sluggish negative to the Noguchi modification in the second week, but was distinctly positive at the third week to the Wassermann and Noguchi modification. These early cases and those latent cases giving negative results may be due to a state of equilibrium existing between spirochete and tissue of host. The variations in the number of positive results in primary cases of different observers are probably due to differences in the duration of the disease when blood was taken. The length of this negative period must depend on individual reaction to toxin, and to the malignancy of the infecting organism. Blumenthal and Roscher[3] found the reaction negative until the sixth to the eighth week. Levaditi, Laroche, and Yamanuchi[4] found it as early as the fifteenth day, and Lesser[5] reports one case where the reaction appeared before the initial lesion.

After the appearance of positive inhibition in our cases, the reaction gradually increased in intensity until modified by treatment. This modification is not always distinct, but follows a definite curve, which does not correspond with, or run parallel to the clinical signs, and varies markedly in different individuals. The Noguchi modification followed the same general curve. The change in intensity of reaction was in every case gradual, and in one case a sudden increase occurred in reaction with no increase in clinical manifestation, and in another (L. M.) there was increase in symptoms with no increase in reaction. In these cases the treatment was in every case inunctions of mercury, and when, despite treatment, the reaction continued to increase in intensity, injections twice weekly of calomel 0.1 gm. were added, with an immediate change in the reaction. In every case when the reaction first became negative, it was repeated, using (1) the nonheated serum, (2) serum to which 1/3200 of N (HCl) was added. In one instance each the reaction became positive again with this manipulation. This never occurred with a normal serum.

In some cases of disease the reaction becomes negative quickly, in others even intense treatment fails to secure a total negative reaction. In one case the lesions yielded very promptly, but at the last examination (4 months) the reaction was still rather strongly positive. In some cases the reaction will become negative without further treatment, as it did in one case of ours. In two of our cases, treatment was stopped by patients at healing of the lesion, and recurrance has already taken place in one, and the reaction is present in both. Blascho[6] thinks that treatment should continue until hemolysis occurs promptly but continued as long as it is sluggish.

Pürckhauer[7] found 35 per cent. of primary and secondary cases became negative under treatment, and thinks that a positive reaction should always be considered indication for further treatment, continuation of the reaction indicating a stubborn case, and a negative reaction should mean response to treatment; and when, after repeated tests at intervals, the reaction remains negative, the patient is cured, or is not at present suffering from a manifestation of the disease. In the primary cases all but one became entirely negative—this man was alcoholic. Two developed profuse general rashes. Of the secondaries six became negative, and the others faint. Of the tertiaries three are practically negative (sluggish), two faint, and two have moderate reactions. Of the cerebrospinal lues all are fainter than at the beginning, but are positive. The same is true of hereditary cases. All the negative tertiary cases we report had had long series of treatment. Two negative secondaries after suspension of treatment became positive again. In

three cases in which iodides alone had been given, there was in two no change in the reaction, and in one a slight increase. Blascho succeeded in changing the reaction with iodides. In one case of overmercurialization atoxyl was substituted. The patient had at that time a weak specific reaction, and, after three weeks, the reaction remained practically the same. There was a very slight increase in titers. Alcohol, Blascho[8] thinks, interferes with the change in reaction, and in one of our primary cases this was true. He found that the reaction faded gradually until it became negative, then gradually increased until it was positive again, and treatment was again instituted with a like result. The length of time the reaction persists after subsidence of active symptoms varies greatly. Fleischman found it in some six to nine months, in others, usually severe cases, three to four years. In one case of cerebrospinal lues, there had been no manifestation of disease for three years, and partial reaction was present. In another case it was negative seven months after trouble, at nine months was still gone, and at one year was again present. At this time the man had a severe attack of gastroenteritis. In this case it looked as if a new infection had aroused this entirely quiescent syphilis to activity. This return of reaction may occur without clinical signs, and did in this case. The man was, however, put on injections and inunctions immediately upon discovery, and reaction is again negative. Hoehme found that the least change in reaction occurred under treatment by mouth. Thirty-three per cent. changed with inunctions, and the most definite changes occurred with the intramuscular injections. In our experience the most pronounced change in reaction was in the use of two avenues of entrance, preferably inunctions and injections. In early cases the change was more marked than in the later phases of disease. In the later stages, to secure a negative reaction, the treatment must be more vigorous than at present used. In hereditary cases Lesser, Blascho, and others have found no change in the reaction with any forms of treatment used.

The Wassermann reaction does give strong positive evidence as to the presence or absence of active syphilis. As a rule the diagnosis of lues is not attended with much difficulty, but even in the more open cutaneous manifestations doubtful cases occur where it is of great importance. It is necessary to remember that the reaction gives evidence of syphilis in the body, but not the location of the lesion. A man may have glioma, etc., and also syphilis. In using the test to diagnose obscure conditions, the corroboration of the other tests is of very distinct value, especially where the reaction is partial. In cases with no definite history or distinctive clinical signs a positive diagnosis should be given only when there is little or no hemolysis, and there is a marked sedimentation on standing. If the effort, however, is to exclude syphilis or note the effect of treatment, condition of latency, or cure, a faint reaction should be reported as positive, and should be followed by treatment.

As a clinical test, its greatest importance seems to be as an index to treatment, the serum of luetics being examined in periods of health and in neurasthenic states, and during the acute infections for reappearance of antibodies, and the patient being treated before later serious manifestations appear. The small series in which we blocked out the curve of the reaction under treatment seems to point to need of earlier mercurial treatment, and of more intensive treatment from the first. In obstetrics its value is of immense importance to the child. Pregnant women, if examined and giving a positive reaction, may, if treated carefully, give birth to healthy children, or at least children better equipped for the struggle with life. In the diagnosis of paresis and tabes the complement test seems only to verify the finding of clinical history and cytodiagnosis of cerebrospinal fluid. About 90 per cent. of paretics give reaction, and about 70 per cent. of tabetics.

In the study of the etiological part played in diseases of the nervous system, the reaction was of great importance, especially in multiple sclerosis brain tumor, hemiplegias, epilepsies, and purely luetic troubles. The Wassermann reaction will probably clear up some old problems, and will undoubtedly open up new fields for research.

Excluding leprosy, frambesia, and yaws, we think that a great deal of value is to be placed upon a positive reaction. A negative result is suggestive evidence of the absence of syphilis, but sometimes occurs when active syphilis is present. This might be explained by the fact that the ability of the body to react and form antibodies is exhausted, for it was usually in the old cases of known syphilis that the reaction failed with us.

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THE FREQUENCY OF HEPATIC SCLEROSIS IN NONALCOHOLICS.*

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The prevalent impression that hepatic sclerosis is quite directly and, at least in a large majority of cases, dependent upon alcoholism, has led to the presentation of the following statistics of individuals carefully observed in private practice and in whose cases the history as to the use of alcohol could be relied upon. The diagnosis rests mainly upon clinical data, especially the alteration in size of the liver, usually in the direction of contraction and the development of small, dendritic dilatations of superficial veins at the diaphragmatic level. Hemorrhoids have not been found characteristic of hepatic sclerosis in either the positive or negative sense and the caput medusæ and ascites are found only in marked cases rarely encountered in private practice among the better class. Gastric catarrh and various digestive disturbances, including back-pressure hemorrhages from the stomach and esophagus, have also been considered in the diagnosis, and have occurred both in alcoholics and total abstainers. The diagnosis has been corroborated by postmortem examination in only about half a dozen of the present series, but, in general, such corroboration has been found so uniformly in other cases as to lead to a considerable degree of confidence in the reliability of physical and symptomatic

*Presented by title to the American Gastroenterological Association, at Atlantic City, June, 1909.

diagnosis. Again, to reduce the personal equation to a minimum, the endeavor has been made to include only well marked cases. These reasons explain the comparatively small number in the series.

The term total abstainer is used in the literal sense except that the bona fide and very occasional medical use of a small dose of an alcoholic beverage has not been counted. The term nearly total abstainer refers to the use of alcohol as a beverage in moderate amount at intervals of weeks or months with years of total abstinence. Total abstinence for years after the ordinary social use of alcohol, not to mention excess, has not been included in either of these categories. The terms, moderate and excessive, so far as possible, have been used as they should be, discounting on the one hand fanaticism and the tendency to minimize a vice.

	Total Abstainers	Nearly Total Abstainers	Moderate	Excessive	Drunkards	Total
Males.....	20	14	105	23	5	167
Females.....	4	9*	4	2	0	19
Both sexes...	24	23	109	25	5	186

Combining the first two and the last two columns, as seems warrantable in a practical etiological study, we have the following:

	Use of Alcohol, None or Negligible		Use of Alcohol, Moderate		Use of Alcohol, Excessive	
	Cases	Per Ct.	Cases	Per Ct.	Cases	Per Ct.
Males.....	34	20	105	63	28	17
Females.....	13	68	4	21	2	10
Both sexes...	47	25	109	58	30	16

In reviewing case notes to secure this series, numerous instances were found of moderate and of heavy drinkers who had failed to develop hepatic sclerosis, even including a few cases examined postmortem. It is obvious that, with the preconceived notion that this disease depends upon alcoholism, confirmation by case histories is easily obtained, since the great majority of persons use alcohol more or less. Just what percentage of all persons this majority constitutes, it is impossible to state, but the most optimistic temperance worker would scarcely place it at less than 80 per cent. The series cited is too small in number of females to warrant conclusions, but it is sufficient for males, and the fact that 20 per cent. of the male cases of hepatic sclerosis occurred in total abstainers or practically such, indicates that such persons are fully as liable to develop this disease as are users of alcohol.

Bearing in mind the fact that hepatic sclerosis may develop without the alcoholic factor, the significance of the history of moderate use of this substance becomes extremely doubtful, especially as many users of alcohol escape. That excessive users of alcohol are especially prone to hepatic sclerosis cannot be denied, but, in such cases, the factors of improper nutrition, syphilis, exposure, and secondary disturbances, may be of much greater importance than the alcohol itself.

Heredity was noted in two sets of father and son, but the alcoholic excess was also noted in both. Syphilis was present in 4 cases, lead poisoning in 1, while several others presented various diseases affecting metabolism, such as heart and kidney disease, splenic anemia, diabetes, etc. No conclusions could be drawn as to the possible effect of tea, coffee, tobacco, excessive use of meat, sugar, or other food. In practically all cases, alcoholic or not, there was a history of protracted, often intermittent, digestive failure of some kind, usually with pretty definite indication of alimentary fermentation or putrefaction, and in many, indican, which has been shown experimentally to produce hepatic sclerosis, was present in the urine. I am therefore inclined to regard the essential cause of hepatic sclerosis as the chemical substances, especially indol and other derivatives from proteins, produced by alimentary fermentation and more particularly by putrefaction in the limited sense.

That alcohol, as such, may cooperate, is by no means denied, but, even in alcoholics, I am rather inclined to regard alcohol as more important as a cause of indigestion, excessive or deficient ingestion and of failure of digestion, and hence of products of fermentation and putrefaction, than as the direct factor. In acute alcoholic attacks, vomiting and diarrheal discharge of enormous quantities of onions, sauerkraut, tainted sausage, and meat stews, are often conspicuous. Even in less acute forms of alcoholism, gastroenteric fermentation and putrefaction are common. On the other hand, total abstainers or temperate users of alcohol, who have hepatic sclerosis, usually give a distinct history of recurrent attacks of dyspepsia, sometimes due to gross violations of the hygiene of eating, sometimes to mental or physical strain, especially occurring at irregular intervals so that the system can not accommodate itself, and sometimes traced back to faulty nursing when an infant.

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*Owing to carelessness in keeping records and the fact that it was more often impossible to draw the line between medicinal and non-medicinal use of alcohol in women, on account of its frequent employment as whisky or brandy at menstrual periods and as beer during lactation, it is probable that several of the nine should be included in the first column.

Subconjunctival Ecchymoses in the New Born.—A. Bonnet-Labordiere refers to the importance of observing the subconjunctival ecchymoses to be seen in the newborn, which are similar in their causation to the hemorrhages found in those who have been strangled. They occur after obstetrical operations, in face presentations, and in normal labors. They are due to pressure on the veins of the neck, and consequent effusion of blood from the vessels, just as these effusions occur in strangling from the pressure of the blood in the veins of the neck and head. They are not due to the length of the labor, but to pressure during delivery after the head has passed out of the vagina, either by the contracting soft parts, or by the hand making traction of the head, and instead of grasping the chin and occiput, pressing on the sides of the neck.—*Journal des Sciences Médicales de Lille.*

Inoculation Against Plague.—The value of inoculation as a plague preventive is demonstrated in the report of a Bombay Bacteriological Laboratory. In Bangalore between October, 1907, and the end of February, 1909, out of 46,986 persons so treated, 34 were attacked by plague and 13 died; among 42,613 persons not inoculated there were 1,798 cases of plague with 1,518 deaths. Major Standage reports that no ill-effects were observed as the result of inoculation. An extensive inoculation campaign was carried out in 28 villages of Kollegal Taluk, in Coimbatore district, 20,108 persons being inoculated as against 31,305 not inoculated. Among the inoculated there were 405 cases and 150 deaths. Among the uninoculated there were 1,180 cases and 921 deaths. The results are even better than the figures indicate, because many of those not inoculated were never exposed to infection. The statistics of one village, Khalispur, are remarkable. Out of a total population of 206, 182 were inoculated in November, 1908. Plague appeared in the following January, and of the 182 persons inoculated one was attacked and died, while among the 24 not inoculated there were 14 cases of plague, and 11 proved fatal.—*The Hospital.*

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THE ANNUAL REPORT OF THE SURGEON-GENERAL OF THE NAVY.

THE report of Surgeon-General Rixey to the Secretary of the Navy, on the work of the medical corps for the year ending June 30, 1909, has just been published. It makes an excellent showing for the health of the navy, the total number of deaths from all causes in the navy and marine corps, with an average strength of 52,913, being only 305, or 5.76 per thousand. The records of mortality and morbidity for the past few years have shown such a steadily progressive trend toward improvement that it is fair to exclude the possibility of chance and to attribute the bettering conditions to the advance of preventive and curative medicine, and the practical application of the new knowledge by the members of the medical corps. The credit due the medical department for this favorable showing is even greater than it appears, for the service is terribly handicapped by smallness of numbers, only about 208 surgeons being available for the care of 52,913 officers and men in the navy and marine corps, or one medical officer to 254 of naval strength. The conditions in this respect are getting worse rather than better, the ratio reported last year being one medical officer to 210 men.

There are now 51 vacancies in the medical corps and the prospect of filling them and bringing the corps up to its full strength is, under the existing conditions, very poor. No effort has been spared to bring the career offered by the naval medical service to the attention of recent graduates throughout the country by lectures, personal interviews, and the distribution of literature, but in spite of that the number of applicants for admission to the navy medical corps at the end of the fiscal year 1909 was only 29, while the list of applicants for admission to the army medical corps numbered 235. One explanation of this contrast between the two services is to be found in the inadequate compensation that the navy is able to offer candidates for the regular corps during their probationary service in the grade of acting assistant surgeon. Under existing law, the army offers candidates a commission with pay at the rate of $2,100 per year and all the allowances of the lowest commissioned grade, while the navy can offer only $1,400 a year and no allowance whatever. "It is clear," says Dr. Rixey, "that something must be done to correct this great disparity in the relative attractiveness of the army and navy from a financial point of view if existing vacancies are ever to be filled by the sort of men the navy needs." The financial inducement, instead of being less, should be greater than that offered candidates for the army medical corps. To the average man a career in the navy is distinctly less attractive than one in the army. A man with family ties does not contemplate with satisfaction the long periods of separation which sea-service entails, and even the single man who loves his profession and wants to follow the advances in his science is often deterred by the knowledge that much of his life must be passed on shipboard with few and inadequate facilities for practical laboratory work and without the stimulus which association with his fellow workers in civil life gives. The army man, wherever he may be, can have his laboratory and is supplied regularly with medical journals and the newest books, and, in all but the most remote posts, which are now few in this well-settled country, has the opportunity of visiting hospitals and attending medical meetings where he sees and hears all that is going on in his profession. He can also safely contract family ties in the security that he will seldom be separated from wife and children for any lengthy period. To offset these disadvantages of the naval service, the financial rewards should be greater, especially in the lower grades, and the chance of promotion should also be greater. Dr. Rixey insists upon this in his report, and Congress must remedy the defects in the service if the navy is to be kept up to its highest point of efficiency. A powerful and efficient navy without an adequate medical service is inconceivable.

The Naval Medical School continues to bear witness to the wisdom of its establishment. It was founded in 1902 in order to acquaint the young medical officer with the character of his duties and the customs of the service and to train him in the most advanced methods of professional procedure as applied under service conditions before he enters upon his active career, so that he may be prepared to perform the duties of his office efficiently from the beginning. During the past winter the subjects embraced were as follows: Military and naval surgery (including medico-naval and military organization), naval and military hygiene, tropical medicine (didactic and laboratory), bacteriology and pathology, ophthalmology, medical zoology, psychiatry, national quarantine and disinfection, clinical and sanitary chemistry, medical aspect of recruiting, dental emergencies, duties of medical officers, regulations for the government of the navy and military law as applied to the naval service, physical drills, including hospital corps manual, military discipline and signals, etc. The school facilities are designed also to be of benefit to the older officers, who from time to time are in need of opportunity for study under the guidance of experts in various branches of medical science, with particular reference to the latest advances, and to become practically familiar with the newest methods of laboratory technique. These officers attend the regular spring session of the school, which extends over a period

of about two months, the course differing essentially from that pursued during the winter session and planned to give the officers the greatest possible benefit within the time allotted.

The Surgeon-General of the navy is not in accord with the Surgeon-General of the army regarding the Roosevelt physical test, for he seems to look upon it as valuable in showing that the officer who survives the ordeal without permanent injury to heart or other organs has kept himself in good physical condition during the year previous. He admits that opportunities for physical exercise on shipboard are few, for the restricted and encumbered spaces on the upper decks of our modern men-of-war do not conduce to exercise in the open air; hence much time is spent below and a sedentary habit is readily formed. This habit is persisted in by many, if not most of the officers, when on shore duty. Such being the case, it would appear to be a cruelty to subject men so completely out of training to the severe physical strain of the test established by the strenuous and athletic Roosevelt, and not a cruelty only but a direct menace to health and life. If it is necessary to force the officers to keep themselves in physical fitness—and that they should keep themselves fit is self-evident—a better way would be to prescribe a three to five-mile tramp, or a brisk deck walk of an hour and a half every day. If an officer could not or would not obey this rule he could be retired, just as he is now when his heart gives out under the unwonted strain of the annual test. Most sanitary authorities condemn the test as oftentimes dangerous in the extreme, and as in any case inconclusive, since the laziest man may, under pain of retirement, brace himself up to the task and go through it in the blissful assurance that he won't have to walk another step for a year.

A number of other subjects as interesting as those we have touched upon are discussed at length in this report: such are the hospital corps, the nurse corps, recruiting and the physical condition of recruits, the relief work at Messina and that in Adana after the Armenian massacres, diseases affecting especially the men of the navy and marine corps, hospital ships, and the deterioration of health and vigor of the personnel after long service in the tropics.

BORDERLAND CASES OF INSANITY.

Of course it is so obvious as to require but little emphasis to state that insanity is treated now with far greater intelligence than was formerly the case. As a matter of fact, mental disorders were treated not only with an absolute lack of intelligence but with a considerable amount of brutality. A new era in the treatment of the insane was inaugurated by Pinel in France, Elizabeth Fry in England, and Rush and Miss Dorothy Dix in this country. To Miss Dix is chiefly due the honor of first organizing institutions for the insane and of releasing many patients from madhouses and from the strong rooms of poorhouses and from private homes. Dr. Carlos F. MacDonald is mainly responsible for the State Care Act of 1889, and was a pioneer in the most modern methods of treating insanity. There is little doubt that progress has been made in recent years in regarding insanity from a more rational standpoint, although it must still be confessed that even the most advanced psychiatrists of the present day are to a great extent groping in the dark. That is to say that there are many obscure points which require illuminating. Light is breaking in slowly but surely, and it would seem as if the day is coming when our conceptions of insanity will be established upon a thoroughly sound and comprehensible basis. Of the present time it might not be misstating the case, perhaps, if it were said that it is a transition period. Ideas exist in abundance, but as yet they have not been really grasped. The German school is in the front rank from the psychological point of view and Kraepelin is its chief prophet. As Adolph Meyer points out in the New York State Hospital's Bulletin, published in September, Kraepelin has shaken the very foundations of the old structures, and, in the opinion of Meyer, the director of the psychiatric clinic of Munich is to be thanked for the fundamental shaking up of tradition, and for the declaration of independence and of the right of seeing things according to their medical importance. American alienists are following in his wake so far as grouping insanity under headings which commend themselves to their good sense and best judgment is concerned, rather than by classing cases under a set form.

Throughout the civilized world there is a tendency on the part of the medical profession to pay far more attention than has up to the present time been the case, to what are known as borderland cases of insanity. In many large hospitals, wards are set aside in which to place patients who have exhibited mental idiosyncrasies which seem to indicate that they are fit subjects for trained observation. While, however, all are agreed that wise foresight is being shown in watching borderland cases, the question at once arises, What is a borderland case? Meyer answers, "Any case that can be benefited by hospital treatment." This answer is scarcely sufficiently definite, and A. W. Ferris, writing also in the State Hospital's Bulletin, amplifies it as follows: "Any case in which symptoms of commencing mental trouble have been noticed, and which should have a psychiatrist's care. Within the area of the borderland we must include psychasthenia, with its impulsions, obsessions, doubts, phobias, anguish, agitation, delirium of touch; and for practical purposes, we must include all psychoses in their incipiency; we must include psychopathic exaltation and psychopathic depression; constitutional inferiority; disorders in the train of thought, disorders of volition, of the emotions, of memory, of attention, and of personality, whenever such disorders are more than transient." This description is fairly comprehensive, and Ferris advises parents and teachers who detect in a child under their care any such symptoms, or an adult who suffers from the like, to consult a psychiatrist without loss of time.

In 1908 New York State amended the Insanity Law and threw open her thirteen civil State hospitals for the reception, without commitment and

on their own application, of patients whose minds are not so impaired as to render them incapable of forming a rational judgment. It is stated that since the change in the statute, comparatively few voluntary patients have taken advantage of the opportunity to enter the State hospitals, Ferris being of the opinion that the small number is due apparently to want of information or apathy of the general practitioner; to the idea persistent among the laity that real insanity is always marked by violence, and to the feeling that possibly recoverable cases of mental disorder should be kept at home, the hospital being regarded by some citizens as merely a receptacle for the desperate or hopeless cases. There is yet another reason which carries some weight with a large number of people, namely, the slur that is cast upon as individual and even upon his family and relations by the mere suspicion of insanity. This feeling may be due to ignorance or to a faulty comprehension of the matter, but it undoubtedly exists and must be reckoned with.

That certain cases of insanity, especially cases of manic-depressive insanity, would be greatly benefited by early treatment is a proposition that admits of little argument. In fact, perhaps, it would not be going too far to state that all cases of insanity would be better for early treatment. As Ferris points out this is very patent, regarded from an economic aspect. "The average life of the committed patient in the hospital is nine years. It is well known that every early treatment would shorten vastly the duration of the curable psychoses, and would rescue some patients from a nine years' residence. The State is saved from the average expenditure of from $1,288 to $1,472 for every possible nine-year patient who is discharged at the end of one or two years' treatment. All considerations would appear to demonstrate conclusively that the early treatment of borderland cases of insanity is indicated; the difficulties in the way of obtaining such treatment seem to be the unwillingness of parents and guardians of children with mental defects to submit them to inspection of medical men, and the unwillingness of adults similarly troubled to submit themselves to inspection. Further than this, too, it must be allowed that it is extremely hard to diagnose with any degree of certainty a borderland case of insanity. A move in the right direction as regards the treatment of nervous cases is being made in the opening of the Neurological Institute in this city, and particularly so with respect to the announcement that physicians are invited to send patients suffering from nervous, mental, and allied diseases to the dispensary for diagnosis and for treatment, or for admission to the wards. It stands to reason that the general practitioner cannot, as a rule, diagnose mental cases with any degree of accuracy, and therefore the proposal by the trained alienists of the Neurological Institute that he should send his doubtful cases to the Institute for purpose of diagnosis is an excellent one. Unless the physician in general practice will cooperate with the hospitals with regard to possible borderland cases of insanity, little progress can be made, but with such cooperation and with the growing education of the general public as to the importance of treating cases of insanity in their early stages, much good may be done and much knowledge gained. It must be understood that knowledge of nervous diseases in all their manifestations is really what is chiefly needed. After all scientific psychiatry can stand, can possibly walk, but cannot yet run.

THE NATURE OF PSORIASIS.

Two interesting papers concerning the nature and the etiology of this common skin affection were presented before the recent annual meeting of the American Dermatological Society and now appear in *The Journal of Cutaneous Diseases*, Vol. XXVII, No. 326, 1909. The first paper is by S. Pollitzer of New York, who formulates the possible causes of the disease under four headings: (1) It may be due to constitutional changes associated with gout or rheumatism; (2) it depends upon a disturbance of the nervous system; (3) it is a disease depending upon an hereditary predisposition; and (4) it is due to purely local external causes. "Rheumatism" and "gout" have been up to recent times very indefinite and vague terms applied to a number of conditions marked by pains in the joints and muscles, faulty digestion, various disturbances of the renal functions, etc. That these symptoms often occur in the presence of psoriasis is not, of course, to be wondered at; psoriasis is a common affection, and the indefinite symptoms named above and supposedly due to a rheumatic or gouty diathesis are likewise common. There is, however, nothing to show that acute articular rheumatism or typical gout has anything to do with the skin affection in question. That constitutional metabolism has little or nothing to do with the disease is shown, too, by the results of treatment. In America diet, hygiene, and general constitutional régime of the patient is carefully considered in treating the disease, while in Germany little more than local remedies are ever used. Yet, according to Pollitzer, the results of treatment are about the same in both countries: the lesions disappear under the local remedies, while diet and other constitutional treatment appear to have no effect whatever.

Numerous instances are quoted by Pollitzer in which close association seems to have existed between various nervous disturbances, whether of mental or physical nature, and the appearance of psoriasis. Very properly, however, he points out that similar instances could be found with regard to almost any other chronic disease as obstinate and common as psoriasis. The number of such instances, too, is but infinitesimal in comparison with the frequency of psoriasis, and the safest theory in this respect is to assume that the relation of nervous disease and the skin lesions is purely accidental. Heredity is hardly a factor in the disease, for the mere fact that psoriasis frequently appears in several members of the family means very little. Any disposition to accentuate the matter should be tempered by the memory of the many similar occurrences in tuberculosis, and leprosy which, before the specific excitants of these disease were discovered, were pointed out as surely proving the hereditary nature of the affections in question.

The last theory, namely, that psoriasis is an infectious disease of local and external origin appears to be the most acceptable, and this phase of the question is discussed in an able paper by J. Schamberg of Philadelphia. That psoriasis is a constitutional infective disease is hardly reconcilable with its clinical features. It is not attended with any marked disturbance of general health, not accompanied by fever, even in acute eruptive outbreaks, and, indeed, has been very frequently observed in otherwise perfectly healthy individuals. The theory of local origin, on the other hand, is supported by exclusion of other causes and by direct evidence as well. The lesions of the disease enlarge by peripheral extension and often show central healing. A number of instances of contagion have been reported. Schamberg has personally succeeded in producing lesions of the disease by autoinoculation in several patients already suffering with the affection situated elsewhere, these cases being interesting, not so much because of the positive results, but because they seem to suggest that an unknown local predisposition to the affection must have existed in the individuals in question. Failure of other attempts may have been due to the absence of such predisposition in the parts of the skin selected for the experiments.

In general, both authors counsel patience and further experimentation before final conclusions as to the origin of the disease are made. It may be that the most recent experimental methods, such as the use of the higher apes for the purposes of inoculation and the employment of ultramicroscopic examination of the scales and secretions obtained from the lesions may lead to the discovery of the specific parasite; its existence at present can only be assumed because such assumption seems to explain best the clinical phenomena attending the disease.

Suprarenal Extract and Strychnine.

Few drugs introduced during recent years have received such universal acceptance and have come into such widespread use as the extract of the suprarenal gland. Besides its extensive application as a local and general hemostatic, its exceptional power as a vasoconstrictor and cardiac excitant has caused its general adoption as a heart stimulant. One of the most frequent modes of administering the drug for its action on the heart has been in association with strychnine, possibly due to the common practice, when using a new drug, of administering some other medicament of which the action is known and proven, at the same time, in order to insure the desired results. In the *Berliner klinische Wochenschrift* for October 25, 1909, Falta and Jvcovic report a piece of animal experimental work, which in some ways suggests that possibly the combination of suprarenal extract and strychnine is not so happy as at first sight it would appear. Instead of these two drugs being synergic they may be antagonistic. At least in the matter of poisoning, suprarenal extract would appear to be an antidote to strychnine. In the series of investigations reported, frogs and guinea pigs were used. In the frog experiments the strychnine solution was applied directly to the outside of the heart, and when, after twenty to thirty seconds, the organ became tetanic, slowed, and stopped in diastole, suprarenal extract was dropped upon the organ. The result of this was an immediate renewal of contractions. In the guinea pig experiments the drugs were injected under the skin of the abdomen. In each test two animals of equal size were used. To one was given a fatal dose of strychnine, and to the other an equal amount of strychnine and also a dose of suprarenal extract. In each case the suprarenal extract excited a marked protective action against the strychnine, in many instances no symptoms of poisoning appearing after the extract· whereas the control animals died in convulsions within a few minutes. It must not be inferred offhand from the fact that suprarenal extract prevents strychnine poisoning that it of necessity follows that it interferes with the normal physiological action. The inference that it would do so is natural, but the proof is not absolute. A fact of some significance, however, which suggests that this antidotal action is a chemical union of the two drugs, or at least a destruction of the strychnine, is that when they are mixed in certain proportions the mixture, while giving the ferric chloride reaction for suprarenal extract, does not give the sulphuric acid bichromate reaction for strychnine. The entire experiment is of unusual interest and supplies food for thought and for further investigation into the pharmacology of these two cardiac stimulants.

News of the Week.

Bust of Pasteur for the Rockefeller Institute.—The Pasteur Institute of Paris has presented to the Rockefeller Institute for Medical Research of

New York a replica of the bronze bust of Louis Pasteur by Paul Dubois, in recognition of assistance rendered during the recent epidemic of cerebrospinal meningitis which prevailed in France.

The picture here shown, from a photograph of the replica, portrays well the masterful features of this great man of science.

The Third International Congress of Physiotherapy will be held in Paris, March 29 to April 2, 1910, under the presidency of Professor Landouzy, dean of the faculty of medicine of Paris, and the secretaryship of M. Vaquez. An exposition of everything appertaining to physiotherapy will be held in conjunction with the Congress. Correspondence should be addressed to M. Vaquez, Secrétaire Général, 27, Rue du Général-Foy, Paris.

Public Health and Marine-Hospital Service Examinations.—A board of commissioned medical officers will be convened to meet at the Bureau of Public Health and Marine-Hospital Service, 3 B street S.E., Washington, D. C., Monday, January 24, 1910, at 10 o'clock A.M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service. Candidates must be between 22 and 30 years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character. The following is the usual order of the examinations: 1, physical; 2, oral; 3, written; 4, clinical. In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. The examinations are chiefly in writing and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination in the various branches of medicine, surgery, and hygiene. The oral examination includes subjects of preliminary education, history, literature, and natural sciences. The clinical examination is conducted at a hospital, and, when practicable, candidates are required to perform surgical operations on a cadaver. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur. After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Promotion to the grade of surgeon is made according to seniority and after due examination as vacancies occur in that grade. Assistant surgeons receive $1,600, passed assistant surgeons $2,000, and surgeons $2,500 a year. Officers are entitled to furnished quarters for themselves and their families, or, at stations where quarters can not be provided they receive commutation at the rate of thirty, forty, and fifty dollars a month, according to grade. All grades above that of assistant surgeon receive longevity pay, 10 per cent in addition to the regular salary for every five years' service up to 40 per cent. after twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners, address "Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C."

Medical Council for Canada.—A bill has been prepared in Canada for the establishing of a general medical council whose business will be the establishment of a qualification in medicine, such that the holders thereof shall be acceptable and empowered to practise in all the provinces of the Dominion; the establishment of a register for Canada of medical practitioners, and the establishment and maintenance of a board of examiners for examination and granting of a qualification.

Public Medical Lectures at Harvard.—The annual series of popular lectures on subjects of medicine and hygiene delivered under the auspices of Harvard University will be given on Saturday evenings and Sunday afternoons throughout January, February, March, and April. Dr. Harold C. Ernst, chairman of the committee, announces that further information regarding the course may be obtained by addressing him at the school, 240 Longwood Ave., Boston.

Hospital at Guam Destroyed.—Despatches from Guam state that on December 10 a severe earthquake shock was felt and that the Women's and Children's Hospital was wrecked.

Occupational Diseases.—In an address made before Cornell students on December 14, Mr. F. S. Hoffman, statistician for the Prudential Life Insurance Company stated that statistics showed that occupational diseases were increasing in America.

The Public Drinking Cup.—A new periodical, *The Cup Campaigner* has made its début with the December number. The journal introduces itself as "A militant little paper published at intervals by persons striving to banish that most prolific medium for spreading disease—the public drinking cup; containing authentic reports of the rulings of health officials, the growth of public sentiment through the press, and other developments of the crusade." The editorial offices are at 115 Broadway, and the editor is Mr. Hugh Moore.

Lake Michigan Water.—A sanitary survey of the waters of Lake Michigan along the North Shore, from Evanston to Waukegan is now in progress under the direction of the North Shore Sanitary Association. The laboratories of the Chicago Health Department are making the analyses. Lines of buoys have been set out in the lake, two to five miles from shore, opposite the various pumping stations and sewer outfalls along the shore. Daily samples will be taken during the next three or four weeks for the purpose of ascertaining the extent of pollution of Lake Michigan at these points and to determine the distance from shore to which water supply intakes must be extended to insure a pure water supply.

American "Physician" Wins Case in Berlin.—Dispatches from Berlin tell of the trial of an American "physician" for illegal practice of medicine. The defendant, to whom both a name and an "alias" are given was charged with breaking the German law against unfair competition by posing as an American physician although he was not entitled to do so, and also with breaking another law against using a title without the written consent of the German authorities. He produced a diploma signed by the entire faculty of the "Independent Medical College of Chicago." It was alleged in court that this college was founded some years ago by two men who obtained a State charter, which was afterward annulled by the Illinois courts on the discovery that the purpose of the institution was not instruction in medicine but the sale of degrees. The German judges decided that he was entitled to call himself a doctor and was not guilty of unfair competition.

Pellagra at Peoria, Ill.—The medical officers of the army who were sent to the Illinois State

Hospital at Peoria to investigate the occurrence of pellagra among the inmates of the institution have reported that the disease has probably existed in the hospital for a number of years, although it has not been recognized as pellagra. During the last year the officers found there had been probably 175 cases of the disease in this institution, and from May 1 to August 10, 26 deaths are credited to it.

Red Cross Stamps.—The order excluding letters carrying the Red Cross and other private stamps from the British mails has been withdrawn temporarily, and all American mail bearing such stamps will be delivered promptly. The dead letter office in Washington is reputed to be literally swamped by the number of letters which have been returned there for insufficient postage, due to the senders believing that the Red Cross stamps alone would carry letters, and that the government postage might be omitted.

Dr. Leo Loeb has resigned his position as assistant professor of pathology in the medical department of the University of Pennsylvania to become, in September, 1910, director of a special laboratory for the study of diseases of the skin and of carcinoma in St. Louis.

Obituary Notes.—Dr. Henry Orne Stone of Framingham, Mass., died December 13, 1909, aged 91 years. Dr. Stone as a graduate of Harvard College in 1838 and of the Harvard Medical School in 1841, was the oldest living alumnus of the latter institution and the second oldest of the former. During his earlier years Dr. Stone practised in Boston and Concord, but had resided in Framingham since 1850.

Dr. Charles M. Fisher of Hanover, Kan., died on December 6, 1909, of pneumonia following typhoid fever, aged 35 years. He was a graduate of the Kansas City Medical College in 1903.

Dr. H. R. Elderkin of Cœur D'Alene, Idaho, died recently in his office of heart disease. He was a graduate of the University of Louisville Medical Department in 1854.

Dr. William B. Pusey of Louisville, Ky., died at his home on December 6, 1909, of acute Bright's disease, aged 43 years. He was a graduate of Vanderbilt University and of the University of Louisville in 1887. Dr. Pusey was a member of the Jefferson County Medical Society, the Kentucky State Medical Association, and the American Medical Association.

Dr. James T. Kerrigan of Boston died at Hudson, Mass., on December 9, 1909, from cerebral abscess, aged 35 years. He was a graduate of the University of Vermont.

Dr. John B. Hill of Boston died December 9, 1909, aged 72 years. He was a graduate of the Harvard Medical School in 1853.

Dr. Lafayette Garrett of Galveston, Texas, died December 3, 1909, aged 84 years. Dr. Garrett had practised medicine in Galveston since 1867.

Dr. Chauncey Z. Williams of Covington, La., died December 9, 1909, at the New Orleans Sanatorium following an operation, aged 45 years. He was a graduate of the Medical Department of Tulane University in 1890 and was a member of the St. Tammany Parish and Louisiana State Medical Societies.

Dr. Frank W. Reilly of Chicago died on December 16, 1909, aged 73 years. Dr. Reilly was a graduate of the Northwestern University Medical School in 1861, and was a member of the Chicago Medical Society, the Illinois State Medical Association, and the American Medical Association. He was for years Assistant Health Commissioner of Chicago.

Dr. Henry B. Day of Tacoma, Wash., died suddenly at his home December 6, 1909, aged 25 years. He was a graduate of the University of Oregon in 1905.

Dr. Thomas M. Carroll of Springfield, Ohio, died at his home December 7, 1909, aged 72 years. He was a graduate of the Cincinnati College of Medicine and Surgery in 1874.

Dr. Charles Green of Greenville, Del., died at the Hospital of the University of Pennsylvania on December 13 at the age of 51 years as a result of injuries received in an automobile accident six months ago. He was graduated from Columbia University, College of Physicians and Surgeons, in the class of 1880.

Dr. Frank P. Dundor died at West Leesport, Pa., on December 15 at the age of 61 years. He was graduated from Jefferson Medical College in the class of 1870.

Dr. Irvin Negus Frasse of Monterey, Cal., died December 16, 1909, aged 44 years. Dr. Frasse was a graduate of the University of Pennsylvania in 1890. He practised for several years in Brooklyn before going to California.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

SPINAL ANALGESIA—SLEEPING SICKNESS—SURGERY IN TRIGEMINAL NEURALGIA—GENERAL MEDICAL COUNCIL—A DENTAL JUBILEE—OBITUARY.

London, December 3, 1909.

We have had the gratification of a visit from Prof. Thomas Jonnesco of Bucharest and of seeing him demonstrate his method of spinal analgesia, as well as of hearing him address us on the subject. His method is, as you know, to combine strychnine with stovaine, which eliminates the danger of respiratory failure. By his method operations can be undertaken at higher levels than had been supposed—in fact, the strychnine so completely protects the respiratory centers that the analgesia produced by the stovaine may be pushed above their level without arresting or impeding respiration.

The demonstration was given at the Seamen's Hospital, Greenwich, on the 18th ult., when three cases were subjected to operation under Jonnesco's method. One was completely successful, one partially, and one must be called a failure. The first was removal of a mass of tuberculous submaxillary glands. The injection (between the second and third dorsal spines) was followed in about a minute by analgesia up to the level of the forehead and extended as low as the umbilicus and lasted for about an hour. The man walked from the operating theater to the ward and had obviously suffered nothing. In the second case (gastric cancer) the incision was unfelt, but when the stomach was drawn upon there was a groan and he said he felt some dragging inside, not pain. The tumor was found irremovable and the abdomen closed. The analgesia extended from the zygoma above to the thighs below and lasted over an hour. In the other case (mastoid antrum) analgesia was produced from the eyes to the costal margin. On incising the periosteum pain was complained of and the operation completed under a general anesthetic. In all the cases the respiration continued quite naturally.

The address of Prof. Jonnesco was given (in French) the next day at the Surgical Section (R. S. M.) and was illustrated by a number of lantern slides, to show the great extent to which analgesia might by this plan be induced. Most parts could be rendered insensitive by injecting either between the first and second dorsal or between the twelfth dorsal and first lumbar spines.

The work of the Royal Society's commission on sleeping sickness in Uganda was brought before the society on the 26th inst. It was pointed out that for two years

the Administration had been clearing the shores and islands of Lake Victoria. No native had been allowed to live or work within two miles of the shore, except at some cleared landing places, and in the last few months all the islands had been emptied. It was believed until lately that the tsetse retained its infectivity for only forty-eight hours. But experiments now proved that it remained infective for as long as eighty days, and there seems a probability that a fly once infected would harbor trypanosomes for the rest of its life. To ascertain how long flies on the shore continued after the natives had left, some were collected in Baka Bay, where a market was frequented by people from Buruma Island, on which tsetse were present and the natives suffered from sleeping sickness. The landing place was therefore cleared of all undergrowth and very soon the flies disappeared. Other experiments were made with freshly caught flies on the shore after the inhabitants had left for nearly a year, to make sure that the tsetse were no longer infective, as at that time it was expected they would not be. The result showed that the *Glossina palpalis* on the uninhabited shore of Lake Nyanza continued infective for two years after the people had left. Further experiments must be made to determine whether this period may be longer still. The commission refers to two theories which have been offered to account for the facts, viz., (a) long life of the fly; (b) that mammals and birds along the shore had been infected and served as a sort of reservoir of infection. As to (a) the ordinary lifetime of the flies is not known. As to (b) the injection into susceptible animals, from the shore birds and mammals, has hitherto given only negative results.

Mr. Jonathon Hutchinson read a paper at the Medical Society of London on the 22d ult. on the "Operative Treatment of Epileptiform Trigeminal Neuralgia," in which he summarized his experience of thirty operations on the Gasserian ganglion, none of which had proved fatal. Moreover, the deformity usually anticipated had not followed, as he only turned down a small flap from the scalp, removed as little bone as was quite necessary, and did not divide the zygoma. He thought that anesthesia of the skin and mucous membrane following was of little importance, but cranial anesthesia was serious, as the patient was left liable to ulceration from the access of septic dust. Danger to the eye was avoided in his operation, as he left the ophthalmic trunk intact. This plan was carried out in twenty-six out of the thirty cases. In the other four in which the eye and forehead had been left anesthetic some ocular complication happened, but in only one was it serious. It had been said that the cure was not permanent, but in nearly all cases no return was likely. His first case was twelve years ago, and even longer periods had been reported. The great difficulty of the operation was hemorrhage, and the recurrence of this in one case had demanded further operation, and the pressure of the blood clot had led to some oculomotor paralysis on that side.

Dr. Wilfred J. Harris then read a paper on "Trigeminal Neuralgia," in which, after referring to the course, symptoms, diagnosis, etc., he gave his experience as to treatment. During the last twelve months he had seen twenty-nine cases of tic douloureux, and of these he had treated twenty-four by injections of alcohol (80 per cent.). Of these, twenty were so far successful as regards disappearance of pain; two were partial failures. He said that if the needle were pushed in as far as 2¼ inches when searching for the foramen ovale it would be likely to pierce the pharynx, and if any alcohol were injected the patient would recognize it by the smell and the burning at the back of the tongue. It was of no consequence, but must be distinguished from the sensation of trickling along the lower jaw and tongue when the foramen ovale was successfully injected due to the action of the spirit on the lingual and inferior dental portions of the nerve. Sometimes pruritis was complained of in the area of distribution of the nerve after the injection.

Sir V. Horsley said his death rate was 7 per cent. in patients over fifty, but under that age he had not lost one. He held that the mortality as well as so-called disadvantages had been greatly exaggerated; they were more a matter of imagination than clinical fact.

Mr. Ballance said the dangers of operation were diminishing. When possible it was right to try alcohol injection before operating.

Dr. Guthrie said operation should not be resorted to on young subjects.

Dr. Grainger Stewart said alcohol injection had been very successful in the cases in which he had tried it.

Last evening the president, vice-presidents, and Council of the Royal College of Surgeons entertained at dinner representatives of the dentists in celebration of the jubilee of the granting of the charter empowering the college to grant diplomas in dental surgery—the L.D.S. The president, Mr. Butlin, proposing the dental profession, contrasted its condition to-day with that of the early fifties. In this, I think, he hardly did justice to the bygone time, for, in spite of the limited scope of dentistry then, there were a few men in the forefront whose names are familiar to-day and most of them were members or fellows of the college. The president seemed to hope for a time when dental surgery shall not be, as it is, a totally distinct special art—a position he regarded as a danger to medicine. He would have odontology and every other ology connected with medicine to be on the same level and within the same limits of the great art of healing.

After dinner the guests visited the odontological collection lately handed over to the college by the Royal Society of Medicine.

Resuming my notes on the proceedings of the General Medical Council, which continued through the week, I have to report that the number of penal cases was rather high and included several dentists, most of those being charged with disgraceful advertising. Some were excluded from the Register and other cases were postponed until the May session, when they will have to appear again and bring evidence as to their conduct during the interval. This postponement is the only way in which the council can punish a person, except by at once erasing the name from the Register. Where the evidence does not seem to necessitate this penalty, which amounts to professional ruin, the council postpones its decision, and so affords the accused a place for repentance. The cases of medical practitioners accused of "infamous conduct in a professional respect," as expressed in the act, are tried in the same manner, and there were several this session—some being removed from the Register and others postponed until May. All have been previously carefully studied by the penal committee, assisted by the legal advisor, and so none come before the full council unless there appears a prima facie case against the accused. Some of the cases had already been before the law courts, and where a conviction had been the result they offered little difficulty. It might, however, be suggested that the council is scarcely a court of appeal and another question might be raised, viz., if the law has already exacted the punishment of a culprit, how far is it just to impose an additional heavy penalty? for of course the judge in the law court does not take into consideration the "infamous conduct in a professional respect."

The reports of several committees and returns as to examinations were received and considered. With regard to the curriculum the report of the education committee was resumed from the point mentioned in my last, and it soon became obvious that the council did not generally seem disposed to lengthen it. After proposing two and a half years for the final subjects, it was eventually decided that the study of the final group of subjects should extend, after passing in anatomy and physiology, over not less than two years of twenty-four months.

Sir H. Morris carried a proposal that it be referred to the education committee to consider further the place of the preliminary sciences and to frame a pattern scheme of medical education whereby the minimum of the several subjects included in the curriculum can be adequately studied and the requisite examinations passed by the average student within the prescribed period.

The application of the Dublin Hall for recognition of its preliminary examination was refused.

At the concluding meeting on Saturday the report of the anesthetics committee was considered and its conclusions adopted. They were to the intent that the council possessed statutory powers with regard to education to secure that candidates for medical or dental qualifications had received adequate instruction in the administration of anesthetics; that in the public interest the production of unconsciousness should be restricted by law to duly qualified practitioners, provision being made for the instruction of students and for cases of emergency. It was also held desirable that qualified dentists should be authorized to admin-

ister nitrous oxide or other specified substance; that the person giving it should not be the one to operate; that it was inexpedient to create a new penal offense as proposed by the bill now before Parliament as to persons "dying under" an anesthetic, but it was desirable to record such cases by a system of notification similar to that applicable to child birth and to infectious diseases.

Mr. Marcus Gunn, senior surgeon to the Royal Ophthalmic Hospital and consulting or honorary ophthalmic surgeon to a number of other hospitals and charities, died on the 29th of November, aged 59. He studied at Edinburgh and St. Andrew's Universities, as well as in London and for a time at Vienna. He contributed freely to the journals and societies and wrote the article on "Diseases of the Eye" in the operative surgery textbook, edited by Treves.

Dr. Robert Blair, J.P., a leading practitioner in Yorkshire, has died at the age of 62. He was an Edinburgh student and took his M.D. there in 1874. He had been surgeon-captain in the Volunteers and held many offices in the West Riding of the county, for which he was made a magistrate.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

PROGNOSIS OF ALBUMINURIA—MUSCLE TRANSPLANTATION FOR SHOULDER PARALYSIS—PRESSURE AND RELAXATION PAIN IN APPENDICITIS.

BERLIN, November 1, 1909.

THE season of the midsummer rest in the medical life of both the capital and the empire is past. During the past few weeks the scientific societies have commenced their sessions.

Fürbringer delivered a lecture of wide interest before the Society for Internal Medicine. He spoke on the prognosis of albuminuria with especial reference to insurance medicine. In the first place he said that the trifling albuminuria which could be shown only by the most delicate tests were of no influence on prognosis. Here one was dealing with quantities of albumen which might be excreted by entirely healthy men. Furthermore, the physiological albuminurias, which were observed after cold baths, athletic excesses, and strong mental shocks, should not permit the examining physician to consider the patient in the class of poor risks. In the same class belonged the cases of cyclic albuminuria. These cases were differentiated from true nephritis by the absence of high blood-pressure, the absence of albumin on lying down, and from the appearance of euglobulin. Casts and blood might be present in cyclic albuminuria, but fatty granular, waxy, and epithelial casts always indicated a true nephritis. As most of the orthrostatic albuminurias healed perfectly, they should be admitted for insurance. Whether they were taken into the class of high risk must be decided in each case on its merits. Especial attention was demanded by that class of kidney disease in which for years there was an intermittent albuminuria without increased pulse tension or edema. Such cases were also insurable, for the author had seen complete cures in three cases, but they must be put in a substandard class, and the restriction must be put in the contract that if these cases developed a true nephritis the contract did not hold. In true chronic nephritis the applicant was to be rejected. Cases of subacute nephritis must be kept under observation until it became evident which course the disease would follow. A very long period of observation was recommended in such cases, as they might recover after a very long time. When it became necessary to give an opinion on the advisability of the patient with a contracted kidney continuing at work it was a good rule that only those cases were incapacitated for work in whom there was some complication. A year's observation was required before one was able to say that a case of acute nephritis would be quite unable to earn his living.

The first session of the Medical Society on October 27 was favored with a most interesting address and demonstration by Katzenstein on the recovery from paralysis of the shoulder by means of combined muscle transplantation. The case was that of a young laborer who had had an operation for glands of the neck, and as a result his right shoulder was so seriously paralyzed that he could not carry on his work. Examination showed paralysis of the right trapezius muscle. The action of this muscle was very complex, as it had three groups of fibers. The problem was therefore to replace the trapezius by muscles which acted in three directions. In order to accomplish this the following procedure was carried out. The latissimus dorsi of the same side was dissected away in its upper portion, transplanted upward and implanted into the tendon of the trapezius in its lower portion. In order to replace the middle portion of the trapezius a part of the trapezius of the opposite side was loosened and carried around, whereas the upper portion was also supplied by a part of the opposite trapezius. Great care was taken that the attached nerves were preserved and were not injured. The result could be considered to have been ideal. Whereas before the operation the muscle had completely lost all excitability to both currents, afterward the muscle was thoroughly irritable. The shoulder joint was movable in all directions and the patient could perform the hardest labor.

At the same session Blumberg spoke on the pressure and relaxation pain phenomenon in appendicitis. Besides the temperature, pulse, signs of muscle defense, and leucocytosis, Blumberg had found the following signs of great service: If one pressed upon the abdomen and then suddenly relaxed the pressure, the inflamed peritoneum reacted with a sharp pain. It must be observed carefully whether the first or the second pain—the pain on pressure or relaxation—were the greater. The question usually answered itself, for the patient himself informed one of the greater pain. This symptom was frequently to be observed earlier than any other. In acute peritonitis the relaxation pain was more severe than that of the pressure itself, in more advanced disease both pains were equally severe, and finally during subsidence of the inflammation the pressure pain disappeared, whereas the relaxation pain still remained. The sign could therefore be considered as the most delicate of all.

OUR CANADIAN LETTER.

(From Our Regular Correspondent.)

OUTBREAK OF SMALLPOX IN ONTARIO—OUR SANITARY CONDITIONS IN TORONTO—SEWAGE DISPOSAL BILL—EXPERIMENTAL STATION—AMERICAN FOOTBALL—DOMINION REGISTRATION—ISOLATION OF CONSUMPTIVES IN NEW PRISON TO BE BUILT IN ONTARIO—MILK SUPPLY OF TORONTO AND ONTARIO—RESIGNATION OF LADY SUPERINTENDENT OF THE GENERAL HOSPITAL, TORONTO—PROPOSED REORGANIZATION OF THE UNIVERSITY OF MANITOBA—MEDICAL COUNCIL FOR CANADA.

TORONTO, December 10, 1909.

REPORTS received recently by the Provincial Board of Health announce that after a respite of some months smallpox has again broken out in rural districts of Ontario. In the district of West Zorra there are said to be several cases of the disease, which has been spreading for a few weeks, because it is of so mild a form that until quite recently it had not been diagnosed correctly. A Provincial Board Inspector has been dispatched to the scene of the outbreak to assist and advise the local authorities in coping with the situation. A few cases of smallpox have also been reported from the township of Algooma in Renfrew County.

It seems that even comparatively new countries, as are the United States and Canada, have occasionally the problem of insanitation with them in an aggravated form. New York has its tenement problem and Toronto has its undoubted slums. During the past three or four months the conditions prevailing in certain parts of Toronto have been exposed frequently in the lay press. A large deputation from the Canadian Household Economic Association, at the end of October, waited upon the Toronto Board of Control and made the following requests: A boundary for outside toilets; a civic sanitary household vigilant committee; a woman sanitary inspector for Toronto; a by-law holding landlords responsible for unsanitary conditions surrounding their property, and medical inspection of schools. The president of the deputation declared that the sanitary laws of Toronto are being openly violated and that the association had learned of the most startling unsanitary conditions. Your correspondent can confirm, to some extent, the truth of these statements. He has made a cursory inspection of some of the most notoriously bad districts of Toronto and can assert that in some instances the state of affairs is disgraceful. He is able, too, to speak with some degree of authority, as he is well acquainted with the lowest parts of London and of other

British large cities, as well as with the tenement district of New York. The condition of things in Toronto is wholly due to immigration. Dr. Sheard, the Medical Officer of Health of Toronto, suggests the matter be dealt with at the ports into which the immigrants come, and is of the opinion that the Dominion Government is largely responsible for the present situation.

A sewage disposal bill is now before the Canadian Legislature, which if it becomes law will closely affect Toronto. A clause of the proposed bill reads as follows: "No person shall throw or deposit, or cause or permit to be thrown or deposited, any sewage, offal, or refuse animal or vegetable matter of any kind whatsoever, into any river, stream, or other water, any part of which is navigable or flows into any navigable water." This would seem to mean that either no sewage at all should be deposited into any navigable water or that, if so, such sewage must be very thoroughly treated. The passage of the bill in its existing form would revolutionize the sewage disposal system throughout Canada. The sewage disposal system in Montreal and Quebec is, to put the matter mildly, susceptible of vast improvement. As mentioned in your correspondent's last letter, Toronto has taken steps at last to so dispose of the city's sewage as not to be, as heretofore, a direct menace to the public health. It has been suggested that the Canadian bill is the result of an understanding between the Government of Canada and that of the United States, brought about largely by the efforts of the Hon. James Bryce, the British Ambassador at Washington.

Canadians generally have been intensely interested in the accounts of the deadly nature of the football this season in the United States. The articles which have appeared in the MEDICAL RECORD dealing with the subject have met with general commendation from physicians in Canada, and it is felt that the question should be once more carefully investigated, with the view of modifying the present severity of the game.

Dr. Charles A. Hodgetts, secretary of the Provincial Board of Health of Ontario, has been chiefly instrumental in establishing an experimental station on the outskirts of Toronto. The station was instituted for the purpose of making experiments with water and sewage; that is, to test methods of water filtration and purification and to test some of the modes of sewage sterilization and especially the chemical means of so doing. The building used for these objects contains offices and laboratory and one long room, in which, on either side, are placed large tanks, on one side to be used for experimenting with water and on the other side with sewage. It may be said that establishments of this nature should be found in all large cities, needless to say, supported by the State or by the municipality.

Dr. I. G. Roddick called a meeting of the committee of the Canadian Medical Association on Dominion Registration in Montreal on November 16. British Columbia, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, and Prince Edward Island were represented and the following medical councils or provincial examining boards sent delegates to confer with this committee: Nova Scotia, New Brunswick, Quebec, and Ontario. The meeting was convened to consider the resolution passed at the annual meeting of the Canadian Medical Association held in Winnipeg in August, which provided that the Roddick Act be put into force whenever five or more provinces agreed to the provisions of the act. It is understood that the meeting was satisfactory and that steps will be taken to have amendments made to the Canada Medical Act of 1902 at the present session of the Canadian Parliament.

A new departure is to be taken in the designing and construction of the Central Prison to be erected shortly by the Provincial Government of Ontario. The innovation will be the isolation of prisoners suffering from pulmonary tuberculosis. It is obvious that prison life is favorable to the contraction and spread of consumption. An individual suffering from tuberculosis in its early stage or even predisposed to the disease will be extremely prone from his manner of life in prison to develop the malady, and also to spread it. It is, therefore, eminently fitting that consumptive prisoners should be carefully isolated, and the movement in this direction by the Government of Ontario is one worthy to be followed.

The milk supply of every large city, and for the matter of that, of every small town and village, is a subject for discussion in these days. Toronto is no exception to this rule; in fact, the milk question is in a somewhat acute stage in Toronto at the present time. It is stated by many who should know whereof they speak that the milk supply of Toronto, and, indeed, of most parts of Ontario, is not at all satisfactory. Efficient inspection is lacking. The Ontario Government appointed a commission some little time ago to inspect conditions, so far as milk was concerned, in the province, and to report thereon. The commission has ended its tour of inspection and the report will be published in a few weeks, when a certain amount of light will be thrown on the question. There is no doubt, however, that many of the dairy farms are not kept in a proper sanitary condition, and that the milk is not transported in an hygienic manner. The legislation and reception committee of the City of Toronto Council recently decided to apply to the Legislature for legislation providing for a standard for milk and to give the Medical Officer of Health of the city power to inspect dairies outside the municipality. This is assuredly a move in the right direction. It is announced that conditional upon the reorganization of the university making it State controlled and absolutely free from denominational influence, the Manitoba College of Physicians and Surgeons has offered to hand over to the university, without reservation, its fine new medical college, site, and equipment. It has not been decided whether this offer will be accepted. Some of the members of the commission which has been investigating the matter are Catholics and do not seem inclined to agree to a State controlled university.

Miss Snively, lady superintendent of the Toronto General Hospital and head of the training school for nurses in connection with the hospital, which post she has held for twenty-five years, has just resigned.

A special meeting of the Ontario Council of the College of Physicians and Surgeons was held on December 7. There was a full attendance. It has been proposed to create a medical council in Canada, and this proposal was submitted to the Ontario Council by Dr. I. G. Roddick of Montreal, the author of the present Dominion Medical Act. The proposed Federal Council is to have the cooperation and support of the provincial bodies and under its qualification holders thereof shall be empowered to practise in all provinces. A register, boards of examiners, and a status of the profession insuring recognition in Great Britain are provided for, and the powers of the council are defined. It is to be composed of three members from all the provinces appointed by the president in council; a number of members representing each province in proportion to the number of practitioners; one member from each university or incorporated medical college, and one member from each distinct school of medicine. The council will elect officers from its members and appoint a registrar and other officers deemed necessary.

Progress of Medical Science.

Boston Medical and Surgical Journal, December 9, 1909.

A New Treatment for Abdominal Surgical Shock.—J. H. Hopkins gives the following directions which are, he says, especially suitable for shock during the few days or hours following abdominal operations, when the patient is not under an anesthetic. Two skin sutures near the navel are removed and through the opening is inserted a glass tube with rubber to a vessel containing saline at 112°. The tube should be inserted (the wound being held open so that the omentum can be seen) and passed upward beneath the omentum to the posterior peritoneum up behind the transverse mesocolon, getting as near as possible to the solar plexus. About one pint of the hot saline is allowed to flow, and the irritation thus conveyed to the splanchnic nerves and sympathetic ganglia causes a marked rise in vascular pressure by vascular contraction. The tube is removed and the wound covered with gauze and adhesive plaster, with a light abdominal binder to sustain the pressure. In addition, 10 ounces of hot saline are injected into the rectum every two hours. Except the disturbance caused by these measures, the patient is kept absolutely quiet. The author claims that this is the proper way to give saline solution. Really a shock is produced by the sudden pressure of this hot solution on this great and important part of the vasomotor nerve mechanism, but this form of shock is a sudden reversal of the phenomena of surgical shock. When for any reason more than the normal heat or temperature occurs in the body,

it is a function of the vasomotor nerve mechanism to correct it. The elevation of temperature causes irritation of the splanchnic nerves, sympathetic ganglia, and vasomotor centers, and the heart beats faster while the peripheral vessels dilate. The author does not believe that the ordinary methods of using hot saline for shock is aimed at the real cause of the shock. It is of little value as compared with heat and pressure stimulation of the splanchnic nerves.

The Relation of Posture to Human Efficiency and the Influence of Poise Upon the Support and Function of the Viscera.—J. E. Goldthwait presents an elaborately illustrated article on this subject. He says that we should all realize that there is a certain definite amount of energy available for expenditure with each individual; that this energy can be expended in many different ways, but that if it is expended for one thing it is no longer available for others except after periods of recuperation. The form of expenditure, whether mental or physical, is immaterial, and the waste of this energy is not only undesirable, but usually harmful. It is our duty as physicians to show the laity how to get as much out of their available resources as possible. If rightly used, the physical functions will be more perfectly performed, the mental powers will be greater, and the spirit of the individual much finer if expressed through a body properly formed and used. It has caused no surprise to find Washington and Lincoln so poised that there could be no waste from the improper use of the physical frames with which they were endowed. It is our duty to recognize, however, that the types which have been depicted as departures from the best have in them the potential of the finest, and that we can have no higher function than that of making it possible for some of these poor creatures to so live that they or their children may approach more nearly to the standard that it should be the aim of every human being to reach, which when reached must mean a high degree of efficiency of all the elements of the body: the physical, the mental, and the spiritual. The work of the physician must be judged upon the bases of ultimate cure or general efficiency rather than simply the immediate relief of some local lesion. This often represents but the beginning of our work. The paper is illustrated by an interesting series of photographs which bring out the various ideas advanced in the text.

New York Medical Journal, December 11, 1909.

Infantile Scurvy Involving the Hip Joint.—N. Jacobson thinks that this condition is very frequently overlooked and reports two personal cases. Ordinarily, the lower and not the upper end of the femur is the site of this manifestation of scurvy. The epiphyseal areas in children are particularly vulnerable. Following slight traumatisms serious infections are apt to occur, such as acute osteomyelitis or epiphysitis. A study of the clinical history of infantile scurvy teaches that it does not occur suddenly, nor that its course is rapid. Even when in scurvy a traumatism may have provoked a marked aggravation of the manifestations or awakened disturbance at a fixed point, it will be found that the child has for a long period shown evidence of faulty nutrition; that hemorrhage in some form has occurred, either from the gums or bowels, or, still more frequently hematuria, has been evident. In some cases this latter form of bleeding persists for a long time before the characteristic signs of scurvy appear in the extremities. Moreover, with infantile scurvy the symptoms of an infectious condition are absent. The temperature is normal or slightly elevated; when swelling appears it is of limited extent, and never so acute or widespread, nor does the clinical history cover but a few days, as is the case in an infectious process involving a bone or an epiphysis. The changes in the blood are slight in infantile scurvy. There is usually a reduction in the percentage of hemoglobin, and when leucocytosis is present there is an increase in the mononuclear cells. In an infectious disturbance the leucocytosis is produced, and instead of an increase in the mononuclear cells there is marked increase in the percentage of the polymorphonuclear ones. The disease has been mistaken for sarcoma. The scurvy in these cases is more apt to occur between the sixth and twelfth month of life. Practically no cases of scurvy occur in breast-fed children. Treatment is dietetic, and presents no special difficulties. There seems to be in some children a predisposition to scurvy, inasmuch as it has occurred that of twins fed alike one has developed the lesion while the other has escaped. But few cases have followed the use of good cow's milk when used unboiled or but slightly warmed. Long continued boiling seems to be harmful, so far as tending to scurvy is concerned. Grape juice is particularly beneficial, and can be given pure, and the child can take expressed beef juice as part of his diet.

Disguised Starvation and the Reasoning Faculties.—N. Rosewater comments on what he styles an heretofore unrecognized fundamental principle in the physiology of human feeding as distinguished from that of the lower animals and its therapeutic application. The fundamental principle in the physiology of human feeding as distinguished from that of other animals consists in man's inability to appeal from instinct to reason, whose judgments are final, determining why more or less of this and that should be eaten, exercising control over his nutrition, regardless of demand or lack of demand, through mere instinct. Man's judgment, based on reason, weighs the merits and demerits of everything involved in his problem of nutrition; controls his momentary desires and his final acts through giving to appetite fullness and satiety due, but not undue, credence in forming that final judgment. It is not true that appetite is a true and sufficient guide to the taking of nourishment. It is a fundamental principle in the whole social problem of feeding that it is necessary to coordinate the proper relations in the human being of appetite, fullness, and satiety to the faculties of reason, judgment, and will. A sudden or slow cessation of appetite with food reduction soon presents the varied picture of subnutrition, unmasked as it should be, as disguised starvation. Meals should be governed according to the actual needs of the body, and not according to the whims of appetite. Many well-to-do people are apt to be found in this class. Several typical cases are related. On a proper diet of milk and eggs these patients can be brought to appreciate their bodily needs. To save all classes from the results of disguised starvation, the public should be educated to know by tables of normal weight and height, those too far to either side of the normal range, should be taught to use good reason, judgment, and will, so as to get within the normal range by controlling the quantity, quality, and time of their meals. Under the supremacy and influence of man's reasoning faculties, his strong desire for drink and drugs, and his other habits are restrained and controlled, his despondency and other vicious mental and nervous states that inhibit or depress his normal functions are overcome by hope assured, cheerfulness, and other human virtues, substituted as tonics for his vices.

Tuberculosis and Pregnancy.—M. Fischberg reviews this question, and finds that a large experience with consumptives has shown that pregnancy is a very important factor in the origin of tuberculosis in women, especially among the poorer classes, possibly because the latter are more often pregnant than their more prosperous sisters, as well as the overcrowding and poverty in which they live. Indeed, he has been impressed with the fact that a large proportion of male consumptives give a history of comparative health, but that since they "caught cold" or had an attack of influenza some time ago their health has been failing, the cough persisted, and they have been losing weight ever since. With women such histories are less frequently obtained. In a large proportion of married women we elicit a history of a different kind. They have felt comparatively well up till their last pregnancy, when they began to cough, and during the last couple of months of gestation they even expectorated some blood; labor was normal or slightly tedious, and the condition of the newborn infant was not different from the average. During the puerperium, however, their cough was aggravated, they had some fever, nightsweats, and were rather slow in getting out of bed. In fact, they never recovered from the last confinement. Physical examination reveals pulmonary phthisis of any stage. Women coming from sanatoria as arrested cases are not so apt to relapse as men as long as they do not become pregnant. The author has found that in 280 married women who were affected with tuberculosis 107, or 37.4 per cent., stated that they had never had any symptom pointing to tuberculosis till they began to cough and lose flesh after childbirth. Sixty-nine, or 24.1 per cent., had either frequent colds, bronchitis, or even hemoptysis for longer or shorter periods, but got along fairly well until they conceived or were delivered of a child. Ever since, their cough became more troublesome, fever, anorexia, and emaciation came on, and sooner or later they were outspoken cases of the disease. It appears that many cases of phthisis that run a chronic and benign course, including such cases in which the patients cough occasionally for a few weeks or months during the year, expectorate sometimes some blood-tinged sputum in which tubercle bacilli may or may not be detected, and present physical signs of pulmonary tuberculosis, are often awakened from their dormant state by pregnancy. Ordinarily this condition lasts for years without giving the patients much discomfort. Their strength and vitality is, on the whole, not failing to any great extent; their appetite is good, and they keep their

average weight, and during some periods even show a gain. In such patients the recuperative and protective forces are just as great, or even greater, than the destructive. The prognosis is fairly favorable as long as there ensue no intercurrent acute disease which may wake up the latent or encapsulated pulmonary lesion. Generally this occurs after an attack of acute disease, such as pneumonia, typhoid, pleurisy, and especially influenza. In women, in addition to these exciting causes, pregnancy, childbirth, and the puerperium often awaken latent tuberculosis into activity. Artificial abortion is only indicated in cases of laryngeal tuberculosis, and in some cases of tuberculosis which show a tendency to run an acute course, or are complicated with tuberculosis of organs other than the lungs. In the average case the best we can do is to warn our patients of the dangers of pregnancy, and when they do conceive in spite of our warning to pursue an expectant course. In advanced cases there is nothing to gain by abortion, and as the child is usually quite healthy its interests are of primary importance.

Surgical Treatment of Atrophic Rhinitis.—J. G. Wilson finds that many cases of atrophic rhinitis are unrelieved because the underlying condition is not properly searched for. In some an obstructed sinus is a fault, in others there is some overlooked systemic condition. There may be in cases with an atrophy of the nasal mucosa and of the lower turbinates and hypertrophy of the middle turbinate. The opening up of the middle turbinal region and curettage of the ethmoid cells will often bring cure. A series of cases is given which illustrate the author's point. In the author's experience, that the majority of cases of atrophic rhinitis arise from sinus causes. The odor is probably due to secretions which do not have a free outlet, and when the process is of such long standing that the atrophy has involved the middle turbinates and thereby uncorked the sinuses, allowing the free exit of pus, we are apt to find a decided amelioration in the symptoms. Thus, after long years, Nature affects a more or less permanent cure; but this can be greatly hastened by the aid of the surgeon. When surgical treatment fails to relieve it is because the suppurative foci have not all been reached; but it must not be forgotten that the most competent nasal surgeon may at times fail to establish free drainage on account of anomalous positions and unusual formations of the cells, which are not always safely accessible by the intranasal route.

Journal of the American Medical Association, December 11, 1909.

Examination of Stomach Contents.—C. G. Stockton enumerates the indications afforded by examination of stomach contents by means of the stomach tube. The article does not lend itself to condensation very readily, being full of detail. He cautions against attributing too much importance to disturbances of secretion, but says that the greatest importance should be attributed to evidences of disturbances in motion. The diagnosis should not depend solely on the examination, but on the results of this in connection with the symptoms and other facts of the case. Too frequent examinations or those conducted without rule may lead to wrong conclusions. The stomach tube is of the greatest importance in diagnosis, and should be employed more frequently than it is, but it is often useless and sometimes harmful in treatment. At times it is of great value, as in poisoning, gastrectasis, intractable vomiting, and in general for relief of an irritable gastric mucosa.

Trypsin Determination.—G. B. Farr has repeated the experiments of Boldireff on dogs of introducing oil into the stomach to cause regurgitation of duodenal contents and also has made clinical observations on human subjects, using Mette, Volhard, and Gross methods for testing for trypsin. His conclusions are substantially as follows: (1) The duodenal contents may frequently be obtained after the oil test meal, though sometimes there is doubt as to the character of the fluid aspirated. (2) On this account it may be possible to exclude atrophy of the pancreas, but we can demonstrate its presence only under very unusual conditions. Suggestive findings have been obtained in a number of diseases. (3) The observation of Boldireff is of more interest from the point of view of pathological physiology than that of diagnosis, *e.g.* in gastric ulcer and achylia. (4) Volhard's casein method is a delicate qualitative test for trypsin, but needs simplification. (5) The regurgitation of the intestinal alkaline juice induced by oil may explain the therapeutic value of the latter in some cases of hyperacidity.

Pneumectomy.—Willy Meyer has experimented in lung surgery, and reports his success with the aid of differential pressure by a new apparatus devised by himself and brother. In his experimental work on dogs, he adopted the mode of excision and isolation of the organ resembling that now used in appendectomy, namely, isolation of the bronchus; clamping and crushing; ligation and amputation; burying the stump; top sutures. The processes are described in detail. After freeing the bronchus and ligating the severed vessels, a bayonet clamp is placed on the bronchus (the blades being covered with rubber tubing) as near to its base as possible. Above it the bronchus is crushed, usually with Doyen's large intestinal crusher. The remaining fiber sheath is ligated with silk, a clamp placed distally and the bronchus cut off. Before removing the bayonet clamp, or after, according to the case, the bronchus is secured on either side with a pointed forceps, care being taken not to injure any branches of the vagus. The two clamps are pulled on and the crushed part is pushed back into the lumen of the bronchus with anatomic forceps or tucker. Two or three top sutures of silk draw the uncrushed portion of the stump over the buried crushed portion. The sutures should not penetrate to the lumen of the bronchus. When tied, air-tight occlusion results. In case the bronchus divides early it may be impracticable to follow this method, and an emergency method must be used, which he describes and illustrates. The safer and more surgical method, however, is the sewing of the uncrushed portion of the stump over the crushed portion so as to form an air-tight cover. In closing the thorax it must be premised that he avoids, when possible, resection of the ribs and possible injury of intercostal vessels by making a long intercostal incision and separating the ribs with a suitable instrument and working through the opening thus made. Then in closing the wound two or three retention sutures with silk or chromicized catgut surround the two ribs next the incision. Below, the needle enters close to the upper border of the rib which is to be surrounded, and above is made to hug the upper border of the rib adjacent to the incision. The thoracic parieties are closed with continuous layer sutures of catgut. A few retention sutures of silk or catgut approximate the skin wound, which is closed with great care. With the thorax thus closed the pleural cavity is, of course, first filllled with air, which gradually becomes absorbed, the heart, with the opposite lung, is gradually pulled to the opposite side, the diaphragm rises and the thorax flattens out somewhat. Pathological examination of dogs in which the lung was removed in this way showed that no serous effusion took the place of the removed lung. The dogs stood the operation well, and the trial on human beings seems justified. Of the 21 dogs operated on, 17 recovered. In 5 cases of partial removal of the lung there were 4 recoveries, about the same percentage as above. He describes his apparatus for the differential pressure operation at length. It differs from the Sauerbruch or Brauer chambers, though based on their ideas, and both negative and positive pressures can be employed in the same operation. Meyer believes that it will enable us to study pathological conditions in man as well as in animals, and prove the pressures suited for and adapted to the different conditions in many kinds of varying disease of human beings.

Trifacial Neuralgia.—Hugh T. Patrick gives his experience with deep injections of alcohol for the relief of trifacial neuralgia. While not ideal, he claims it is simple, effective in relieving pain, and practically free from serious danger. He uses, as before stated, a straight needle about 10 cm. long fitted with a stylet. The sharp point is used to puncture the skin, after which the stylet is pushed forward, thus penetrating the tissues with a blunt instrument. The needle is introduced at the lower border of the zygoma, the object being to reach the inferior maxillary division of the nerve at its emergence from the foramen ovale (about 4 cm. deep), and the superior maxillary as it leaves the foramen rotundum (about 5 cm. deep). He has abandoned deep injections of the supraorbital branch as being too hazardous. When injection of this branch is needed he uses a "peripheral" injection at the supraorbital notch and in a few cases he has also used a "peripheral" injection at the infraorbital foramen. The solution used is about 85 per cent., alcohol with four grains of cocain to the ounce, and of this about 2 c.c. are used each time. He has abandoned the use of morphine and chloroform in the solution, as also the use of 75 per cent. alcohol for the first injection. The 23 cases reported elsewhere are included in those of which brief detail is given in this paper. In all, more or less relief was secured, though in some the pain recurred. The danger is, he thinks, as nearly *nil* as possible. There have been no fatalities and in only three cases troublesome complications (hematoma, ocular paralysis, keratitis, and corneal ulcer). In a very large proportion there was no return of the pain. Most of his cases have been office cases, and an anesthetic was

rarely needed. There is no shock. He does not claim radical cure, though he thinks that occasionally occurs. A good injection, as shown by marked analgesia, may be expected to give relief for from two to three years, possibly more. He considers that in the majority of cases it is the simplest, least hazardous and best treatment.

American Gout.—R. N. Wilson, Jr., reports four cases of chronic food poisoning in four successive generations of the same family, ranging from the great-grandmother in her eighty-eighth year to a child four years old. That these cases do not stand alone he shows by the record of another case of a girl twelve years old suffering from chronic gouty cold or catarrh. While the case has not been studied to the end, he says there is little doubt in his mind that this child was suffering from the effects of an hereditary appetite and the need of a lessened food supply. Wilson recognizes the danger of too superficial study of such cases tempting the practitioner to term every cold gout, every influenza food poisoning, every ache and pain lithemia, every joint swelling excess of food. On the other hand, carelessness of the significance of signs and symptoms leads to disaster. He says, not without practical interest is the association in at least two of these cases of at least two distinct influences, the toxic and the nervous in the production of symptoms. It shows that not every chronic cough and expectoration can safely be called tuberculosis, that a moderate supply of food may be an under supply or an excess for a given individual, and that many a laryngitis and aphonia may be rationally attributed to the diet and cured by hygienic measures.

The Lancet, December 6, 1909.

Local Sepsis as a Factor in Rheumatism and Gout.—C. W. Wirgman and H. W. Turner pay special attention to the subject of pyorrhœa alveolaris. They have not found a single case of either rheumatism or gout in which local sepsis was not in evidence. Sometimes adenoids and tonsils may be a manifestation of this fact, but pyorrhea is always present. They describe the following types of this lesion: (1) The superficial inflammation around the teeth in ill-kept mouths, which when once restored to a healthy condition can be kept in order by the patient's own efforts. (2) Pockets between the gum and tooth and osteitis of the bony sockets found on examination in apparently well-kept mouths. In nearly all these cases a characteristic odor can be detected. The patients frequently complain of some alteration in or loss of taste and of tenderness and aching of varying intensity, due to exposure of dentine. (3) The genuine pyorrhea, acute or chronic, when pus can be squeezed from around the necks of infected teeth. (4) Dry osteitis, with absorption and recession of gums, which very frequently merges into the third form, and (5) any combination of the foregoing. If in a case with gouty or rheumatic tendencies we can discover these septic conditions early enough, before the general symptoms have developed, we may be able to do them an immense service. If we believe that a diseased joint is due to an organism settling there, there are two future possibilities: (1) That after setting up inflammation the germ dies and there is no further trouble unless a fresh invasion occurs, and (2) that the primary inflammation quiets down because of the attenuation of the virus or from other causes, but the microbe, having effected a lodgment, bides its time and multiplies locally, causing a chronic inflammation. In mixed infections the vaccine treatment does not appear to be of much service. Long-continued treatment is necessary in the cases presenting gum lesions. A cure often results by dropping out of the teeth.

The Influenza Bacillus the Cause of an Epidemic of Bronchopneumonia.—T. S. Wilson and J. Miller had under their care five children in one family, and there were two other children who were in an adjoining house, who suffered from pneumonia at the same time. Ages in the family ranged from one to nine years. Two of the children died. The cases all began with an ordinary influenza invasion, and were followed by pneumonia. Examination of the lungs in the fatal cases showed the usual appearance of a capillary bronchitis and the usual form of bronchopneumonia. Stained sections showed bacilli similar to those cultivated from the cases, in the alveoli. Pathologically, the chief points of interest in the cases were the epidemic nature of the disease and the occurrence of the influenza bacillus as the only organism present in the lung in one of the cases. From the occurrence of the cases at one and the same time, and the fact that cultures of ordinary media failed to show any growth in the other fatal cases, one may conclude that the causal germ in all the other cases was the influenza bacillus. The occurrence of this germ in bronchopneumonia has long been recognized, and the fact that not infrequently it is the only organism present in the lungs has been emphasized by Fraenkel. The main point of interest in the present instance is therefore the occurrence of the influenza bacillus as the cause of a number of cases of bronchopneumonia arising so obviously in connection with one another as to warrant the term epidemic. There was nothing particularly noticeable in the clinical course of the cases. The dullness and tubular breathing were not so marked as in pneumococcic pneumonia. The children were all attacked suddenly, and the course of the pneumonia in each was severe.

Surgical Treatment of Puerperal Pyemia.—Two case histories are detailed by E. Michels, one dying and one recovering. The object of the paper is to describe and comment on the plan of ligaturing the deep pelvic veins with reference to checking the spread of infection when one has laid hold of the patient. Many questions concerning this plan of treatment are still undecided. As a working program the author advises the following: (1) In cases of puerperal pyemia an attempt should be made to localize the septic process by ligature of the great pelvic veins, ovarian and internal iliac, and possibly median iliac. (2) The very acute cases of puerperal pyema are not suitable for this operation, but the more chronic ones, which are due to an infection by an attenuated virus promise a good success, provided the operation be not deferred too long. (3) The veins should be exposed by the transperitoneal route in preference to the retroperitoneal or vaginal. (4) All the four great venous trunks should be exposed and examined, but isolation and ligation seem necessary only for those veins which are found diseased. (5) Further experience is required to decide whether the results can be improved by excision of the venous trunks and plexus in preference to simple ligature.

Berliner klinische Wochenschrift, November 22, 1909.

Relation Between Pregnancy and Diabetes.—Neumann discusses the serious results following the association of pregnancy and diabetes, and concludes his paper with the following statements: Though diabetes mellitus and pregnancy do not often occur together, considering the unfavorable course taken by diabetes in women of childbearing age, it is necessary to treat all possible cases prophylactically. Diabetic maidens must not be allowed to marry. Married diabetic women must be prevented from conception. Diabetic women who have become pregnant, and pregnant women who have become diabetic, or are excreting a fermentable sugar, must, as early and as long as possible, be under careful medical supervision and regulation of diet. We should resort to operative procedures only in the presence of obstetric indications for them, without regard to the diabetes mellitus.

Influence of Athletics on Lung Capacity.—Du Bois Raymond has studied the pulmonary vital capacity in a series of athletes and non-athletic university students, and finds that the lung capacity of the athlete averages about 330 c.c. greater than that of the unathletic students. The greatest difference is among singers and the smallest among swimmers. The average improvement in breathing of 330 c.c. in an average capacity of 4000 c.c. means a respiratory improvement of about 8.2 per cent.

Deutsche medizinische Wochenschrift, November 25, 1909.

Serumtherapy for Asiatic Cholera.—Kolle reports on the use of the cholera serum made in Berne in the recent epidemic of cholera in Russia. Of 149 cases in the severe algid stage of the disease, 56 died, or a mortality of 37.5 per cent. Of 25 cases of medium severity all recovered. Of 13 mild, though definite, cholera cases all recovered. All agree that the administration of even very large quantities of serum in cholera can do no harm. He concludes by saying that the outlook for cholera cases even in the algid stage, when treated with cholera serum, especially in combination with large amounts of saline infusion, is not especially bad. However, we cannot speak of the serum as a sure cure in the algid stage of the disease. The series of observations is too small to make it possible to draw any comparison between the results of cholera serum treatment with those of diphtheria antitoxin.

Albumin Tests in Practice.—Engels has made a comparative study of the various clinical tests for albumin in the urine, especially with reference to adding acid before or after boiling in the common test. He concludes that in practical work the best results are obtained by adding diluted acetic acid after boiling, and especially so when only the upper half of the urine is boiled. It is strongly recommended to compare this test with the acetic acid, potassium ferrocyanide test, as this is easily done, and errors can be corrected. On the contrary, all tests in which acid is added first should be abandoned.

Book Reviews.

PEDIATRICS. Edited by ISAAC A. ABT, M.D., Assistant Professor of Medicine (Pediatrics Department), Rush Medical College. With the collaboration of MAY MICHAEL, M.D. ORTHOPEDIC SURGERY. Edited by JOHN RIDLON, A.M., M.D., Professor of Orthopedic Surgery, Northwestern University Medical School, with the collaboration of A. STEINDLER, M.D. Vol. VII. of the Practical Medicine Series. Chicago: The Year Book Publishers, 1909.

IN this small volume of 233 pages over three-quarters of the space is given to the subject of pediatrics. Important facts in connection with hygiene, dietetics, and the diseases of the gastrointestinal tract, and some interesting points in regard to the etiology of scarlet fever, whooping cough, and rickets have been mentioned.

In the part devoted to orthopedics the principal subjects considered are the diseases of the hip-joint, spine, knee-joint, and ankle and foot. Space has also been given to the discussion of the results of tendon transplantation in the after treatment of infantile paralysis.

MANUAL OF THE DISEASES OF THE EYE. For Students and General Practitioners. By CHARLES H. MAY, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, 1890-1903; Attending Ophthalmic Surgeon to the Mt. Sinai Hospital, New York; Consulting Ophthalmologist to the French Hospital, to the Gouverneur Hospital, to the Red Cross Hospital, and to the Italian Hospital, New York. Sixth Edition, Revised. With 362 Original Illustrations, Including 22 Plates, with 62 Colored Figures. New York: William Wood & Co., 1909.

THE fundamental facts and all the essentials of ophthalmology are presented in this book in a concise manner. The common diseases which the practitioner is frequently called upon to treat are discussed with some degree of fullness. The rarer conditions and uncommon affections, which are of interest chiefly to the specialist, have been discussed with a few lines. The general arrangement of the book is the same as in previous editions. The first three chapters are devoted to the technique of the examination of the eye, and the last chapter to the discussion of ocular therapeutics. The intervening space is given up to the consideration of the diseases of the eye, arranged according to the part affected. Some alterations have been made and paragraphs have been added on such subjects as transillumination, the conjunctival tuberculin test, and cerebral decompression. The volume has been kept up to date, but has not been increased in size. The necessity of six editions in nine years speaks well for the popularity of this book.

PHYSICAL DIAGNOSIS. By RICHARD C. CABOT, M.D., Assistant Professor of Medicine in Harvard University. Fourth Edition. Revised and Enlarged. With five plates and 240 figures in the text. New York: William Wood & Co., 1909.

THIS volume in its earlier editions is already so well known that it is superfluous to describe its contents, as it is certainly the most popular work on this subject with the American student. Its clearness, brevity, and completeness have already won for it a place among the leading text-books of the day. The present edition has been changed in but a few minor details from the last one, which appeared in 1905. A few words have been changed and a few paragraphs rewritten. The main difference noticeable is a distinct improvement in the pictures, which are far ahead of those in the last edition. This is especially noticeable in the cuts of blood cells, which in the present edition are as good as could be desired in black and white pictures. The former editions of this book have won for themselves well deserved popularity, and the present one can do nothing less than maintain for it its present enviable position.

IMMUNITY AND SPECIFIC THERAPY. By W. D'ESTE EMERY, M.D., B.Sc., London Clinical Pathologist to King's College Hospital and Pathologist to the Children's Hospital, Paddington Green; Formerly Assistant Bacteriologist to the Royal Colleges of Physicians and Surgeons, and Sometime Lecturer on Pathology and Bacteriology in the University of Birmingham. With Illustrations. New York: Paul B. Hoeber, 1909.

THERE already exist several excellent works in German dealing exhaustively with the subjects to which the present volume is devoted, but this is by far the most comprehensive presentation of these matters available in English. In fact, it is astonishingly complete, and even very recent publications have been incorporated in its pages. In general nothing but praise can be expressed regarding it, the only possible alteration that sugggests itself being that for the average reader it might facilitate rapid orientation in the ways of thought and general conceptions involved if the full explanation and discussion of Ehrlich's theories and their ramifications were introduced somewhat earlier in the volume. The method of attacking the problem of logically presenting the mass of theoretical material concerned in the building up of the present views on immunity and allied phenomena is so largely a matter of individual opinion, however, that the above is not to be regarded as a criticism. The author has wisely abstained for the most part from partisanship, and where conflicting views exist has contented himself with stating the opinions of the different observers fairly and impartially. He follows the theorists into all the remote provinces of physical chemistry that modern serological research has invaded and explains very clearly the rather abtruse principles oftentimes involved, such, for example, as Guldberg and Waage's law of mass action, Arrhenius and Madsen's theory of the toxin antitoxin reaction; the laws of surface tension as applied to agglutination, etc. In the latter connection some interesting suggestions are made in regard to the agglutination of the red blood corpuscles, and especially the rouleaux formation taking place in shed blood. Some previously unpublished researches of Wiltshire are described which appear to indicate that this phenomenon which obviously has some resemblance to agglutination may be due to the development of a substance in the serum at the moment the blood is shed, or to a physical change in the corpuscles themselves. The colloidal theory of antibodies is the subject of an especially suggestive chapter, and the author inclines to accept this hypothesis as having most evidence in its favor. In speaking of the ophthalmoreaction with tuberculin, like many other observers, he expresses the opinion that even when the eyes are healthy the risk involved in applying the test is ordinarily not worth running. The book may confidently be recommended as the most modern and complete of its kind in the English language, and it will doubtless find a wide circle of readers.

A TREATISE ON THE PRINCIPLES AND PRACTICE OF MEDICINE. By ARTHUR R. EDWARDS, M.D., Professor of the Principles and Practice of Medicine and Clinical Medicine in the Northwestern University Medical School, Chicago. New (Second) Edition, Thoroughly Revised. Octavo, 1,246 pages, with 100 engravings and 21 full-page plates in colors and monochrome. Philadelphia and New York: Lea & Febiger, 1909.

DR. EDWARDS' book contains over twelve hundred pages, and forms a complete treatise on the subject of the practice and principles of medicine, nervous diseases being included within its scope. In arrangement of the subject matter it follows the most recent standards, specific infections being considered in the first part of the book, anatomical divisions being followed for the classification of other affections. The articles are very practical, the immediate demands of the clinic and laboratory being given precedence over theoretical discussions of the diseases considered. This is especially true of the sections devoted to therapeutics. Thus, the treatment of typhoid fever is given in complete detail, with illustrations of practical arrangements for applying hydrotherapy at the home of the patient, with numerous prescriptions and hints as to diet, nursing, management of convalescence, etc. Throughout the book the logical in therapeutics is laid stress on in distinction to purely empirical methods.

The sections on diagnosis are made very valuable by well-constructed tables of comparative signs and symptoms that should prove useful in differentiating similar affections. Illustrations are used not so much to fill the book with pictures, but to elucidate the contents; thus, blood diseases are illustrated by well-executed colored plates that take the place of lengthy descriptions of the various cellular types met with. Retinal findings in more important diseases are given; numerous engravings picture bacteriological and clinical findings, such as temperature charts, facies, the appearance of tubercle bacilli in sputum, of diphtheria bacilli in pure culture, etc.

Advantage has been taken of the reissue of the book to include the results of the most recent advances in medicine. Cardiac neuroses and arrhythmias are treated at length, Flexner and Jobling's results in the use of antimeningitis serum are noted, "bacilli carriers" are commented upon, and the recent discoveries in the etiology of syphilis and in the diagnosis of tuberculosis are given due attention. In general, the work forms a well-balanced treatise on the subject of medicine, fulfilling all the demands of the student and practitioner.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held November 21, 1909.

THE PRESIDENT, DR. H. SEYMOUR HOUGHTON, IN THE CHAIR.

Election of Officers.—The following officers were elected to serve during the ensuing year: *President,* John E. Weeks; *First Vice-President,* James F. McKernon; *Second Vice-President,* William L. Stowell; Secretary, John Van Doren Young; *Assistant Secretary,* J. Milton Mabbott; *Treasurer,* Charles H. Richardson; *Censors,* Linnæus E. LaFétra, Brooks H. Wells, and H. Seymour Houghton.

Report of the Committee on Legislation.—Dr. E. ELIOT HARRIS reported that about 225 so-called medical bills were introduced into the legislature of 1909, and the following had been enacted into laws:

1. An act to authorize and provide for the erection and maintenance of an additional public hospital between Twentieth and Seventieth streets in the city of New York.

2. An act to amend the Greater New York charter, authorizing the department of health to assume exclusive charge and control of hospitals for the treatment of contagious, pestilential, or infectious diseases.

3. An act to amend the Greater New York charter in relation to ambulance service. The law creates a Board of Ambulance Service, the Commissioner of Police to be the president, the Commissioner of Public Charities to be the secretary, and the other member to be the president of Bellevue and allied hospitals.

4. An act to confer certain rights on the municipalities of Nassau County in regard to the water in such county forming part of the water supply of the city of New York.

5. An act to amend the public health law in relation to the quarantine commissioners and the health officer of the port of New York, and repealing certain sections relating to the quarantine commissioners. This act abolishes the quarantine commissioners and confers their duties upon the health officer of the port.

6. An act making an appropriation for the New York State Hospital for the Treatment of Incipient Pulmonary Tuberculosis.

7. An act to provide for a tuberculosis hospital at the New York Soldiers' and Sailors' Home at Bath, and making an appropriation therefor.

8. An act to amend the public health law in relation to the establishment of hospitals or camps for the treatment of pulmonary tuberculosis.

9. An act to amend the county law in relation to the establishment and maintenance of county hospitals for the care of persons suffering from the disease known as tuberculosis.

10. An act in relation to the insane, constituting chapter twenty-seven of the consolidated laws.

11. An act to authorize the State commission in lunacy to proceed with certain improvements at the State hospitals for the insane.

12. An act making appropriations for construction, additions, and improvements at the State hospitals for the insane.

13. An act making appropriations for repairs, renewals, and betterments for the several State prisons, the Matteawan State Hospital for Insane Criminals, and the Dannemora State Hospital for Insane Criminals.

14. An act authorizing the sale or exchange of the rifle range at Creedmore for lands to be used as a site for the Long Island State Hospital, and reappropriating moneys heretofore appropriated for the Long Island State Hospital.

15. An act making appropriations for the Eastern New York State Custodial Asylum. This bill appropriated $494,000, of which the Governor vetoed over $50,000.

16. An act to provide for the management of the Eastern New York State Custodial Asylum, to be known hereafter as the "Letchworth Village," and for the admission and control of inmates therein.

17. An act to enable the Medical Society of the State of New York to alter the time and place of holding its annual meeting by a two-thirds vote of all the members of the house delegates present at any annual meeting, provided notice of such change be given at the previous annual meeting.

Reports of the chairmen of the various committees were received and action on the amendments to the constitution and by-laws was taken.

The Micromotoscope.—Dr. ROBERT LINCOLN WATKINS said that there had been many reports emanating from Paris that M. Commandon had demonstrated before the Academy of Science microscopic moving life for the first time. Photographing microscopic moving life was conceived by Dr. Watkins fifteen years ago, and demonstrated with an apparatus of his own construction in 1897, and his work was published in the *Scientific American,* the issue of July 31, 1897. Dr. Watkins presented a portable machine for taking the pictures for use either in the laboratory or the house of the patient. He showed his micromotoscope and moving blood-cells, a rotifer in water, and germs in putrefactive urine.

A Case of Fibroma Molluscum.—Dr. WILLIAM S. GOTTHEIL presented a man, sixty-eight years old, whose affection dated from his earliest childhood. At first the tumors were few and small, but they had increased in number very rapidly, especially during the past few years. The entire surface of his body was studded with an immense number of tumors of varying sizes and shapes; a conservative estimate of their number was over one thousand. They were of two distinct types, with combinations of the two. There were flesh-colored or faintly pink circumscribed tumors in the deeper layers of the skin, extending into the subcutis. As these enlarged they became prominent, and finally pedunculated so that, on the back, for instance, they were as large as a small egg, and with a long, flexible pedicle. There were also multitudes of tumors not palpable on superficial touch. They showed a circumscribed bluish discoloration of the skin, and deep palpation revealed the presence of an oval or circular distinctly margined hiatus in the dermal connective tissue. As these latter lesions grew in size the soft underlying tissues were protruded into a visible and palpable soft bluish tumor. Many of the large tumors were compound, with secondary tumors in the skin overlying. The mucosæ were free, as well as the genitals. There were no subjective symptoms referable to the disease. The case was one of a mixed type; in addition to the ordinary soft fibromata there were multitudes of phantom tumors of the Von Recklingshausen type, in which atrophy of the connective tissue elements of the cutis permitted the mechanical pressure obtrusion of the softer underlying structures.

A Case of Agyria.—Dr. WILLIAM S. GOTTHEIL presented a man, thirty-seven years old, who acquired syphilis fifteen years ago. He showed the scars of old ulcerative lesions on the face, neck, trunk, and limbs. His eyelids and nares were deformed; columella and cartilaginous septum nasi were gone; the soft palate and pharnyx were deformed and cicatricial; the tongue was thickened and indurated with epithelium irregularly hypertrophic (lingua geographica). He had trachoma, diffuse opacity of the right cornea, and the right iris was smaller than the left, but movable. He had a chronic laryngitis; his general health and nutrition, however, were good. The entire

skin, with the exception of the palms, soles, and genitals, and all the visible mucosæ were stained a more or less deep steel gray color. This was most marked on the face and neck, where the color was distinctly steel black. The scar tissue marking the old ulceration sites was hardly stained at all, and the circular and oval cicatrices were prominently white. The skin of the trunk and limbs was ash-gray in color. The cicatricial areas were unpigmented. The backs of the hands were dark gray, but the palms, though showing old cicatrices, were approximately normal in color. The scleræ were distinctly blue-gray. The entire palatal vault and the fauces were steel-gray in color, and the swollen tongue was grayish-pink wherever the hypertrophic epithelium permitted the tissue to be seen. The history explained the dermal condition. Some ten years ago, during the earlier stages of his luetic infection, he suffered from persistent ulcerative throat trouble, of which the cicatricial changes in the tongue, palate, and fauces were evidences. For seven years or more he was in the habit of applying a 10 or 15 per cent. solution of silver nitrate freely to his throat, often using it several times a day for weeks at a time. Undoubtedly, large amounts of the drug were gradually swallowed. Two years ago he noticed the gradual darkening of the skin of his face. He believed that this had been gradually getting lighter during the last year, but nothing of the kind was apparent to those who had had him under more or less continuous observation during the past six months.

A Case of Lepra Maculosa.—Dr. GOTTHEIL also presented a man, twenty-nine years old, an inhabitant of this country for eight years, who was admitted to the City Hospital in the fall of 1909. Three years ago he noticed a nervous tingling in the fingers of his right hand; about one year ago the fingers of that hand began to get "clawed," and the hand began to get thin. Some eight months ago he noticed certain spots on his body. When admitted to the hospital there were several large round, slightly brown circular areas of skin on his trunk and buttocks. Some of these were six inches and more in diameter; their color was faint, and around them was a band one-half an inch in size, of apparently normal skin, and then another faint brown band. These, though still visible, had markedly faded away during the time he was under observation. The skin of the right forearm was markedly atrophic and wrinkled; there was great atrophy of the intermetacarpal muscles of the right hand, with contracture and incomplete anesthesia of the pigmented areas. There was a distinct thickening of the right median nerve. There was a slight tuberculation of the forehead. The specific bacilli were demonstrated by scrapings and biopsy. The internal organs were normal, and his general health was perfect. There had always been cases of leprosy in the skin wards of the City Hospital since 1883, and the routine treatment was chaulmoogra oil and its derivatives. He had never, however, been able to convince himself that it had had any effect upon the disease. The patient had been under the nastin treatment, which had been recommended of late years, for several months, getting the contents of one ampulla, two grams every fifth day. Some of the symptoms had improved a great deal. The forehead tubercles had retrogressed, so that they were hardly noticeable, and the color of the pigmentation had become markedly lighter. In another and more advanced case that had been under the same treatment, there were also evidences of improvement. Without expressing any opinion at all as to the efficacy of the treatment, he believed it was worthy of further trial. The perfect general health of this patient, the entire absence of any lesions which might possibly be a source of infection, and the possibility that the disease process might remain stationary for years, emphasized the correctness of the policy of the New York Board of Health in regard to it.

Bier's Hyperemic Treatment in Surgery.—Dr. EDWARD ADAMS read this paper, demonstrated the treatment on patients, and showed the instruments used. He said that, as a result of modern study and investigation, the former views regarding inflammation had undergone a remarkable change; they now looked upon it as nature's most powerful agent to protect the tissues from the ravages of bacteria and their toxins. Hyperemia was Nature's greatest therapeutic agent. Prof. A. Bier of Berlin had been using this treatment for the past eighteen years in his clinic with success. In active hyperemia the fluid and formal elements were kept in active motion in the blood stream, while in passive hyperemia they were allowed to escape more or less from the tissues. Hyperemia possessed a great many properties: (1) Power to diminish pain; (2) bacterial action; (3) absorptive properties; (4) solvent action; (5) nutritive power; (6) suppression of infection. Hyperemia might be produced in three ways—by means of an elastic bandage or band, by cupping glasses, and by hot air. The first two produced venous or passive hyperemia, the third arterial or active hyperemia. Obstructive hyperemia was produced by means of a thin soft rubber elastic bandage; when applied moderately tight around a limb the pressure was evenly distributed and should not cause any uncomfortable feeling, and there should be no pain. At all times one should be able to feel the pulse below the site of the bandage. The two cardinal rules to follow were, absolutely no pain with the application of the bandage, and the pulse at all times must be felt below the bandage. Where the conditions required a long continued hyperemic treatment the extremity should be raised on pillows or by a suspension splint. In acutely infected joints the sooner the bandage was applied the better. Hyperemic treatment had made the large incision unnecessary in the treatment of phlegmon, cellulitis, and like conditions. Drainage and gauze packing could also be dispensed with. In acute osteomyelitis the elastic bandage applied early enough might avoid necrosis of the bone. In cases of acute gonorrheal arthritis the sooner the bandage was applied the better.

It was in tuberculosis of the bones and joints that Bier first used venous hyperemia and, in common with all conservative methods for treating tuberculosis of the bones and joints, it required time and patience. The contraindications for Bier's hyperemic treatment were (1) Amyloid degeneration of the lung; (2) advanced tuberculosis of the lung; (3) faulty position of the parts; (4) large joint abscesses. Each case should be treated individually and the bandage applied according to the indications. In cases of extensive effusion into a joint, aspiration with the injection of iodoform glycerine could be used with benefit. In the ankle, elbow, and wrist joints about 75 per cent. of the cases gave a cure with a good functional result. For mechanical reasons the hip joint could not be treated. Obstructive hyperemia would not cure every case of tuberculosis of the bones and joints, but it was by far the best aid to conservative methods that they possessed at present; it reduced the amount of pain; it was simple, inexpensive, and could be used with the least possible discomfort to the patient when properly applied. In cases where obstructive hyperemia by the elastic neckband was required, the veins should be compressed so as to increase the quantity of blood to the head, but it should not interfere with the patient's ability to sleep, eat, or drink. In diseases of the testicle, rubber drainage tubing of medium size was wound around the scrotum on a layer of cotton batting. This method was used chiefly in cases of tuberculosis of the testes, sinuses, and epididymitis. Hyperemia was also produced by cupping the part to be treated. In using vacuum appliances a mechanical effect was produced in addition to artificial hyperemia. By placing a suction glass over a diseased area which pre-

sented a sinus, the pus with the bacteria was aspirated from the depth, and often necrotic tissue or small sequestra were brought to the surface. The following rules could be followed as a routine: (1) Strict asepsis should be employed. (2) The application should not cause pain. (3) The cups should be sterilized after each and every treatment. (4) Suction should be intermitted and the cup remain on for five minutes and off for three minutes. (5) The rim of the cup should be annointed with sterilized vaseline. (6) If an abscess was present it should be evacuated by a small incision. (7) One treatment should last forty-five minutes. In treating furuncles or carbuncles the cup must be of sufficient size to extend beyond the inflammation; if applied early it would usually prevent suppuration. Perhaps in no class of cases had suction hyperemia been used to better advantage than in acute mastitis. The treatment started as soon as the first symptoms appeared, and often saved cases from reaching the second stage. In abscesses on the face the treatment should be employed several times a day, and the earlier the case was treated the better would be the results. In treating mastitis it was absolutely necessary to have glasses of various sizes on hand, so as to select the exact cup needed. In tooth fistula, after dead bone, carotic teeth, or root of a tooth had been removed, the suction glass, if applied as described, might bring a sinus to a close without any disfigurement. Excellent cosmetic results had been obtained in four cases that had come under his care.

For the production of hyperemia by means of hot air, the heat was applied chiefly by means of hot-air boxes or chambers. The most useful hot-air boxes were wooden chambers of simple and inexpensive construction, which were provided with a lid showing one or two openings for the reception of the limb. The guides for the proper degree of temperature were: (1) No pain nor annoyance from the heat. (2) All openings must be airtight so as to prevent the hot air escaping and burning the skin outside. Fractures, both recent and old, were greatly benefited by arterial hyperemia. Active hyperemia had given very good results in chronic ulcers. Moderate baking for from one to two hours per day hastened cicatrization. Tuberculosis of the joints was a positive contraindication. Hyperemic treatment was not a panacea for all surgical conditions, but was merely a therapeutical agent to be used where it was indicated. The dangers attending its use were the injury that an overdose would do and the futility of homeopathic doses.

Dr. Willy Meyer said that it should be absolutely understood by the medical profession as a whole that the Bier hyperemic treatment was by no means a panacea. It was merely an additional therapeutic resource on a physical basis, and, if properly understood, he was sure it would be so considered. Dr. Meyer thought from what he had heard and seen in the course of the last few years, it was a mistake to call this "Bier's hyperemic treatment"; it would be better to call it the "more blood treatment." If called the more blood treatment, one could easily understand or comprehend what was really meant when this treatment was employed. By the use of this treatment it had been proven by Bier that his explanation of inflammation was the correct one; namely, that inflammation was the fight of nature against an invading foe; the complex of symptoms should therefore rather be favored than fought against. The more blood to a part the more would also the function of that part be preserved. Take, for instance, a deep phlegmon, involving the deep flexors of the forearm and hand. In former years one was perfectly satisfied with bringing the patient through such a dreadful disease with as useful a hand as possible, with usually a very stiff wrist, unless the phlegmon was treated surgically during the very first hours of the condition. To-day the Bier treatment had changed matters very materially. The results of the more blood treatment showed that doctors should work more with it; but he supposed they did not do so because it required much time, much care, and much experience to get satisfactory results. However, some men abroad had taken this treatment up in large measure. It had been shown that the application of the elastic bandage proximately to the seat of the disease produced the same results as the hot air, viz., artificial arterial hyperemia. Therefore, the hot air was used in preference to the elastic bandage.

Bier had advised against the use of hot air in cases of acute infections and of tuberculosis; yet there were men abroad bold enough to use it, and with success, for instance, in cases of suppuration about the deep flexors of the forehead and hand. After first evacuating the pus, the hot air was applied for several hours every day. One man had reported seventeen such cases, and in sixteen there resulted perfect function of the arm and hand. The hot air treatment was of value in cases of tuberculosis. The "more blood" treatment, if applied by means of hot air, would, of course, greatly facilitate matters. It was a great satisfaction that Dr. Tyrnaner of Austria had succeeded in producing the necessary degrees of temperature by means of electricity. His apparatus, he thought, was very ingenious, was effective, and would soon be on the market in this country. His exhibit at the Post-Graduate Hospital deserved careful study.

Dr. D. Tyrnaner of Karlsbad demonstrated some of the apparatus for hyperemic treatment that he was using in the Karlsbad Institute Formerly, the local application of hot air was used with great disadvantage; the apparatus in use was heated by alcohol or gas lamps, and there were many other disadvantages. To produce heat by alcohol or gas lamps there was a great variation of the temperature in different parts of the apparatus, according to the distance of the part treated from the lamp. The temperature varied from 70° to 100° F. Near the lamp the patient might feel a burning heat, but on the opposite side the temperature was hardly raised. Again, all the lamps heated the room when the treatment was given nearly as much as the interior of the apparatus, and filled it with the products of burning alcohol and gas; this was very disagreeable. Another disadvantage was that it had been impossible to keep up the temperature for a long period in the interior of the apparatus at the same degree. At Karlsbad they had been applying local hot air treatment for many years in the treatment of various conditions, mostly cases of chronic gout, rheumatism, sciatica, and neuritis, as well as many cases of ankylosed joints. The inconvenience and discomfort of the older apparatus caused him to try the electric current for heating purposes. Dr. Kellogg of Battle Creek first used the electric light for heating purposes, constructing the electric light and baths now used all over the world. He had used electric lamps, but these fixed along the walls of a heating box did not raise the temperature to the degree which was necessary for the local application of hot air; electric lamps used as heaters did not raise the temperature higher than 150° to 180°, while for the treatment of certain conditions a temperature of 300° was needed. This temperature could be produced by the apparatus he had constructed, and was well tolerated by most patients. Dr. Tyrnaner showed some of the apparatus he had been using for many years with good results, and demonstrated the manner they worked. The apparatus was constructed of oak, with iron bars; outside they were covered with American fiber and inside with very hard, compressed asbestos; it could be thoroughly cleaned and disinfected when necessary. The heaters were deposited over the whole bottom of the apparatus, and they equally heated the entire interior. Each apparatus had from three to six heaters, which could be used all at the same time or singly. In this

way they had perfect control of the temperature. The apparatus could readily be adapted to street currents and in any house. The heaters were perfectly isolated, so that the patient could never touch them. Within eight to ten minutes the temperature could be raised to 220° or 300°. It was then easy to keep it up to the same degree or to lower it by turning off the switch. In his institute at Carlsbad, treatment was given simultaneously to six or more patients in the same room without raising the temperature of the room. This made it very agreeable for the patient, as well as for the physician, who should always be near the patient in order to watch him during the treatment.

Books Received.

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UNSERE SCHLAFMITTEL. Von Dr. C. BACHEM. 8vo; paper; 99 pages; 2 marks. August Hirschwald, Berlin, Germany.

DISEASES OF THE NOSE, THROAT, AND EAR. By WILLIAM LINCOLN BALLENGER, M.D. 8vo; cloth; 932 pages; illustrated. Lea & Febiger, New York.

SURGICAL DIAGNOSIS, Vol. III. By ALEXANDER BRYAN JOHNSON, Ph.B., M.D. 8vo; cloth; 810 pages; illustrated. D. Appleton & Co., New York.

TRANSACTIONS OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA, 1909. 8vo; cloth; illustrated; 714 pages. Brown Printing Co., Montgomery, Ala.

AIR AND HEALTH. By RONALD C. MACFIE, M.C., M.B.C.M. 8vo; cloth; 345 pages; $2.25 net. E. P. Dutton & Co., New York.

A SYSTEM OF MEDICINE. By Many Writers. Edited by ALLBUTT and ROLLESTON. Vol. VI. 8vo; cloth; 861 pages; $6.50 net; illustrated. The Macmillan Co., New York.

INTRODUCTION TO PRACTICAL CHEMISTRY. A. M. KELLAS, B.Sc. (Lond.), Ph.D. (Heidelberg). 8vo; cloth; illustrated; 262 pages. Oxford Univ. Press, New York.

SANITÄTSSTATISCHE BETRACHTUNGEN ÜBER VOLK UND HEER. Von OTTO VON SCHJERNING. 8vo; cloth; 116 pages; illustrated; 3 marks. August Hirschwald, Berlin, Germany.

PRIMER OF SANITATION. By JOHN W. RITCHIE. 12mo; cloth; 200 pages; illustrated. World Book Co., Yonkers-on-Hudson, N. Y.

THERAPEUTICS — PREVENTIVE MEDICINE — CLIMATOLOGY. Edited by GUSTAVUS P. HEAD, M.D. 12mo; cloth; 348 pages. The Year Book Publishers, Chicago, Ill.

THE PHYSICIANS' VISITING LIST FOR 1910. (Lindsay & Blakinston's.) 16mo; leather; $1 net. P. Blakiston's Son & Co., Philadelphia, Pa.

FESTSCHRIFT ZUR VIERZIGJÄHRIGEN STIFTUNGSFEIER DES DEUTSCHEN HOSPITALS. 4to; paper; 598 pages; illustrated. Lemcke & Buechner, New York.

TRAITEMENT MÉDICAL DES MALADIES DES FEMMES. Par ROBIN ET DALCHÉ. 8vo; paper; 575 pages; 12 francs. Vigot Frères, Paris, France.

TRAITEMENT DE LA SYPHILIS. Par Le Prof. ALFRED FOURNIER. 8vo; paper; 462 pages; 10 francs. Vigot Frères, Paris, France.

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INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, U. S. A. 4to; cloth; 829 pages. Government Printing Office, Washington, D. C.

DIE METHODISCHE INTESTINALPALPATION, etc. Von Dr. THEODOR HAUSMANN. 4to; paper; 152 pages; illustrated; 4.50 marks. S. Karger, Berlin, Germany.

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE. 8vo; paper; illustrated; 7s. 6d. net. Longmans, Green & Co., London, England.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of December 18, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	513	164
Diphtheria	401	39
Measles	509	16
Scarlet Fever	365	20
Smallpox	—	—
Varicella	117	—
Typhoid Fever	57	9
Whooping Cough	101	—
Cerebrospinal Meningitis	2	6
Malarial Fever	—	—
Totals	2,065	254

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended December 17, 1909:

		CASES.	DEATHS
SMALLPOX—UNITED STATES.			
Alabama, Montgomery	Nov 20–27	23	..
California, San Francisco	Nov. 20–27	1	..
Colorado, Fruita	Nov. 20–27	8	..
Connecticut, Stamford	Nov. 1–30	1	..
Indiana, Marion	Nov. 27–Dec. 4	1	..
South Bend	Nov. 23–30	4	..
Kansas, Independence	Nov. 27–Dec. 4	2	..
Louisiana, New Orleans	Nov. 27–Dec. 4	1	..
Michigan, Bay City	Nov 28–Dec. 4	3	..
Minnesota, Duluth	Nov. 20–Dec. 4	4	..
Mississippi, Brookhaven	Oct 30–Nov. 6	1	..
Natchez	Nov. 20–27	5	..
Missouri, St. Louis	Nov. 27–Dec. 4	3	..
Montana, Stevensville	Nov. 20–27	1	..
North Carolina, Charlotte	Nov. 20–Dec. 4	8	..
Hickory	Oct. 30–Nov. 6	1	..
"	Nov 20–27	3	..
Ohio, Dayton	Nov. 20–Dec. 4	6	1
Tennessee, Memphis	Nov. 20–27	2	..
Nashville	Nov. 27–Dec. 4	1	..
Texas, Paris	Nov. 20–27	29	..
Vermont, Smithfield	Nov. 20–27	1	..
Wisconsin, La Crosse	Nov. 20–27	1	..
Superior	Nov. 20–27	1	..
SMALLPOX—INSULAR.			
Porto Rico	Nov. 1–30	..	10
SMALLPOX—FOREIGN.			
Brazil, Bahia	Oct. 22–Nov. 5	32	26
Rio de Janeiro	Oct. 24–Nov. 1	3	..
Chile, Valparaiso	Oct. 30–Nov. 6	..	Present
India, Bombay	Nov. 2–9	..	1
Madras	Oct. 23–29	..	1
Rangoon	Oct. 16–23	..	1
Indo-China, Saigon	Oct. 16–23	1	1
Italy, general	Nov. 14–21	16	..
Naples	Nov. 14–21	6	2
Turin	Oct. 21–28	1	..
Java, Batavia	Oct 16–23	5	1
Mexico, Aguascalientes	Nov. 14–21	..	3
Chihuahua	Nov. 14–21	1	..
Mexico City	Oct. 30–Nov. 6	..	1
Monterey	Nov. 21–28	..	1
Portugal, Lisbon	Nov. 13–20	11	..
Russia, Libau	Nov. 7–14	5	1
Moscow	Oct. 23–Nov. 6	4	1
Odessa	Oct. 23–Nov. 13	19	4
Riga	Oct. 23–30	7	..
St. Petersburg	Oct. 5–Nov. 13	94	36
Warsaw	Sept. 18–Oct. 9	..	10
Spain, Almeria	Oct. 1–31	..	3
Barcelona	Nov. 8–22	..	2
Valencia	Oct. 23–30	1	..
Straits Settlements, Singapore	Oct. 9–16	..	1
Tripoli, Tripoli	Oct. 31–Nov. 13	7	..
YELLOW FEVER.			
Brazil, Manaos	Nov. 6–13	..	1
Para	Nov. 6–20	6	3
Ecuador, Guayaquil	Oct. 31–Nov. 13	..	8
Mexico, Merida	Nov. 29	1	..
Peto	Nov. 26	1	..
CHOLERA.			
India, Bombay	Oct 27–Nov. 9	..	4
Calcutta	Oct. 9–16	..	7
"	Oct. 23–30	..	9
Rangoon	Oct 16–30	..	7
Japan, Osaka	Nov 17	1	..
Java, Batavia	Oct. 20	..	Present
Manchuria, Dalny	Oct 9–16	..	2
"	Oct 25–Nov 1	..	2
Russia in Asia, Vladivostok	Sept 22–Oct 21	115	83
Russia in Europe, general	Oct 31–Nov 6	172	78
St. Petersburg	Oct 31–Nov 6	81	30
St. P'ts'g. gov't	Oct 31–Nov. 6	22	11
PLAGUE.			
Brazil, Bahia	Oct 22–Nov 5	7	3
Rio de Janeiro	Oct 25–Nov 1	2	..
China, Hankow	Dec 7	..	Present
Ecuador, Guayaquil	Oct. 9–23	..	21
"	Oct 30–Nov. 13	..	34

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